SYLLABI

FOR

B.A. & B.Sc. (GENERAL) FIRST YEAR
(SEMESTER SYSTEM)
EXAMINATIONS, 2017-2018
(SEMESTER : FIRST AND SECOND)

i.e

First Semester : November/December, 2017
Second Semester : April/May, 2018

© The Registrar, Panjab University, Chandigarh.
All Rights Reserved.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Structural Outline</td>
<td>(i)</td>
</tr>
<tr>
<td>2.</td>
<td>English (Compulsory) (for B.A. candidates)</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Panjabi (Compulsory) (for B.A. and B.Sc. candidates)</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>History and Culture of Punjab (for B.A. Candidates Only)</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>History and Culture of Punjab (for B.Sc. Candidates Only)</td>
<td>9</td>
</tr>
<tr>
<td>6.</td>
<td>Environment, Road Safety Education and Violence against Women &amp; Children</td>
<td>13</td>
</tr>
<tr>
<td>7.</td>
<td>English (Elective)</td>
<td>20</td>
</tr>
<tr>
<td>8.</td>
<td>Hindi (Elective)</td>
<td>22</td>
</tr>
<tr>
<td>9.</td>
<td>Panjabi (Elective)</td>
<td>30</td>
</tr>
<tr>
<td>10.</td>
<td>Sanskrit (Elective)</td>
<td>32</td>
</tr>
<tr>
<td>11.</td>
<td>Urdu (Elective)</td>
<td>36</td>
</tr>
<tr>
<td>12.</td>
<td>Persian (Elective)</td>
<td>38</td>
</tr>
<tr>
<td>13.</td>
<td>French (Elective)</td>
<td>40</td>
</tr>
<tr>
<td>14.</td>
<td>German (Elective)</td>
<td>42</td>
</tr>
<tr>
<td>15.</td>
<td>Russian (Elective)</td>
<td>44</td>
</tr>
<tr>
<td>16.</td>
<td>Arabic (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>17.</td>
<td>Bengali (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>18.</td>
<td>Tamil (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>19.</td>
<td>Telugu (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>20.</td>
<td>Kannada (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>21.</td>
<td>Malayalam (Elective)</td>
<td>46</td>
</tr>
<tr>
<td>22.</td>
<td>Physical Education</td>
<td>47</td>
</tr>
<tr>
<td>23.</td>
<td>Education</td>
<td>55</td>
</tr>
<tr>
<td>24.</td>
<td>Adult Education</td>
<td>59</td>
</tr>
<tr>
<td>25.</td>
<td>Music (Vocal)</td>
<td>63</td>
</tr>
<tr>
<td>26.</td>
<td>Music (Instrumental)</td>
<td>69</td>
</tr>
<tr>
<td>27.</td>
<td>Tabla (Instrumental)</td>
<td>75</td>
</tr>
<tr>
<td>28.</td>
<td>Indian Classical Dance</td>
<td>79</td>
</tr>
<tr>
<td>29.</td>
<td>Fine Arts</td>
<td>84</td>
</tr>
<tr>
<td>30.</td>
<td>History of Art</td>
<td>90</td>
</tr>
<tr>
<td>31.</td>
<td>Ancient Indian History, Culture &amp; Archaeology</td>
<td>94</td>
</tr>
<tr>
<td>32.</td>
<td>Defence and Strategic Studies</td>
<td>98</td>
</tr>
<tr>
<td>33.</td>
<td>History</td>
<td>104</td>
</tr>
<tr>
<td>34.</td>
<td>Political Science</td>
<td>108</td>
</tr>
<tr>
<td>35.</td>
<td>Economics</td>
<td>112</td>
</tr>
<tr>
<td>36.</td>
<td>Sociology</td>
<td>116</td>
</tr>
<tr>
<td>37.</td>
<td>Public Administration</td>
<td>120</td>
</tr>
<tr>
<td>38.</td>
<td>Philosophy</td>
<td>124</td>
</tr>
<tr>
<td>39.</td>
<td>Psychology</td>
<td>128</td>
</tr>
<tr>
<td>40.</td>
<td>Geography</td>
<td>132</td>
</tr>
<tr>
<td>41.</td>
<td>Gandhian Studies</td>
<td>142</td>
</tr>
<tr>
<td>42.</td>
<td>Journalism &amp; Mass Communication.</td>
<td>146</td>
</tr>
<tr>
<td>43.</td>
<td>Police Administration</td>
<td>150</td>
</tr>
<tr>
<td>44.</td>
<td>Women’s Studies</td>
<td>154</td>
</tr>
<tr>
<td>45.</td>
<td>Human Rights and Duties</td>
<td>159</td>
</tr>
<tr>
<td>46.</td>
<td>Religious &amp; Sikh Studies</td>
<td>163</td>
</tr>
<tr>
<td>47.</td>
<td>Home Science</td>
<td>167</td>
</tr>
<tr>
<td>48.</td>
<td>Agriculture</td>
<td>173</td>
</tr>
<tr>
<td>49.</td>
<td>Environment Conservation</td>
<td>177</td>
</tr>
<tr>
<td>50.</td>
<td>Mathematics</td>
<td>181</td>
</tr>
<tr>
<td>51.</td>
<td>Computer Science</td>
<td>187</td>
</tr>
<tr>
<td>52.</td>
<td>Statistics</td>
<td>193</td>
</tr>
<tr>
<td>53.</td>
<td>Applied Statistics</td>
<td>198</td>
</tr>
<tr>
<td>54.</td>
<td>Physics</td>
<td>202</td>
</tr>
<tr>
<td>55.</td>
<td>Chemistry</td>
<td>213</td>
</tr>
<tr>
<td>56.</td>
<td>Botany</td>
<td>228</td>
</tr>
<tr>
<td>57.</td>
<td>Zoology</td>
<td>236</td>
</tr>
<tr>
<td>58.</td>
<td>Bio-Chemistry</td>
<td>247</td>
</tr>
<tr>
<td>59.</td>
<td>Introduction to Computer Science</td>
<td>253</td>
</tr>
<tr>
<td>60.</td>
<td>Microbiology</td>
<td>258</td>
</tr>
<tr>
<td>61.</td>
<td>Electronics</td>
<td>264</td>
</tr>
</tbody>
</table>

Kept in Abeyance
B.A. (General) 1st Year (Semester System) study programme consists of three compulsory subjects and three elective subjects:

**Compulsory subjects:**
(a) Punjabi
   OR
   History & Culture of Punjab
(b) English
(c) Environment, Road Safety Education and Violence against Women & Children ***

**Elective Subjects:** A student is required to take up 3 elective subjects in all, selecting *not more than one subject* from any of the following sets of combinations:

1. English, Hindi, Punjabi, ** Bengali, Urdu, Persian, ** Tamil, French, ** Arabic, Russian, German, ** Kannada, ** Malayalam, ** Telugu.
3. History, Mathematics.
7. Computer Science, Agriculture, Sociology.
8. Music (Instrumental), Women’s Studies, Music (Tabla), Environment Conservation, Religious and Sikh Studies
9. Music (Vocal), Police Administration, Journalism & Mass Communication.

**Note:** The students can opt. only two elective subjects from the following:
   Music (Instrumental), Music (Vocal), Music (Tabla) and Indian Classical Dance.

---

* Statistics can be opted only with Mathematics
** The Syllabus of Tamil, Telugu, Kannada, Malayalam, Arabic & Bengali Languages are kept in abeyance
*** This is a compulsory qualifying paper, which the students have to study in the B.A./B.Sc. 1st year (2nd Semester). If the student/s failed to qualify the paper during the 2nd Semester, he/she/they be allowed to appear/qualify the same in the 4th or 6th Semester/s.
<table>
<thead>
<tr>
<th></th>
<th><strong>Elective Vocational Subject (one of the following)</strong>: Pre-requisite subject at +2 level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mass Communication – Video Production</td>
</tr>
<tr>
<td>2</td>
<td>Functional English</td>
</tr>
<tr>
<td>3</td>
<td>Advertising, Sales Promotion &amp; Sales Management</td>
</tr>
<tr>
<td>4</td>
<td>Foreign Trade, Practices and Procedures</td>
</tr>
<tr>
<td>5</td>
<td>Office Management &amp; Secretarial Practice</td>
</tr>
<tr>
<td>6</td>
<td>Computer Applications</td>
</tr>
<tr>
<td>7</td>
<td>Functional Hindi</td>
</tr>
<tr>
<td>8</td>
<td>Tax Procedures &amp; Practices</td>
</tr>
<tr>
<td>9</td>
<td>Principles and Practice of Insurance</td>
</tr>
<tr>
<td>10</td>
<td>Information Technology</td>
</tr>
<tr>
<td>11</td>
<td>Fashion Designing</td>
</tr>
<tr>
<td>12</td>
<td>Early Childhood Care &amp; Education</td>
</tr>
</tbody>
</table>

**A student who opts for Computer Science as an Elective subject shall not take up Computer Applications/Information Technology as Elective Vocational subject and vice-versa.**

**Note :- Syllabus for the Subject at Sr. No. 1 is not framed.**
FOR B.SC. (GENERAL) CANDIDATES:
(Besides the compulsory subject, a student shall offer any three elective subjects)

<table>
<thead>
<tr>
<th></th>
<th>Elective Vocational Subject</th>
<th>Other Two Elective Subjects</th>
<th>Pre-requisite subjects at +2 level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Clinical Nutrition Dietetics</td>
<td>Chemistry, Physics &amp; Botany</td>
<td>PCB*</td>
</tr>
<tr>
<td>2.</td>
<td>Bio-Technology</td>
<td>Chemistry, Botany or Zoology</td>
<td>PCB</td>
</tr>
<tr>
<td>3.</td>
<td>Seed Technology</td>
<td>Botany, Chemistry</td>
<td>PCB</td>
</tr>
<tr>
<td>4.</td>
<td>Industrial Fish &amp; Fishery</td>
<td>Zoology, Chemistry</td>
<td>PCB</td>
</tr>
<tr>
<td>5.</td>
<td>Instrumentation</td>
<td>Physics, Mathematics</td>
<td>PCM</td>
</tr>
<tr>
<td>6.</td>
<td>Mass Communication Video Production</td>
<td>Any two Science Subjects</td>
<td>Any</td>
</tr>
<tr>
<td>7.</td>
<td>Electronic Equipment Maintenance (Kept In Abeyance)</td>
<td>Physics, Chemistry/Maths.</td>
<td>PCM</td>
</tr>
<tr>
<td>8.</td>
<td>Computer Applications</td>
<td>Any two Science Subjects</td>
<td>Preferably Computer</td>
</tr>
<tr>
<td>10.</td>
<td>Industrial Microbiology</td>
<td>Chemistry and Botany or Zoology</td>
<td>PCB</td>
</tr>
<tr>
<td>11.</td>
<td>Food Science &amp; Quality Control (Kept In Abeyance)</td>
<td>Chemistry and Botany/Zoology</td>
<td>PCB</td>
</tr>
<tr>
<td>12.</td>
<td>Information Technology</td>
<td>Any</td>
<td>Any</td>
</tr>
</tbody>
</table>

**B**

13. Bioinformatics, **Botany/Zoology*** and any one of the following: Mathematics/Physics/Chemistry/Computer Science : PCM/PCB

14. Biotechnology, **Botany/Zoology*** and any one of the following: Mathematics/Physics/Chemistry/Computer Science : PCM/PCB

15. Electronics: Physics + Electronics +Mathematics : PCM

**OR**
Chemistry + Electronics + Computer Science

16. 1. Agriculture, Botany & Zoology : PCB
2. Agriculture, Biotechnology, Botany/Zoology : PCB
3. Agriculture, Microbiology, Chemistry/Botany/Zoology : PCB
4. Agriculture, Chemistry, Physics/Botany/Zoology : PCB

* P stands for Physics, C stands for Chemistry, B for Biology and M for Mathematics.
** B for Botany.
*** Z for Zoology

Note: - Syllabus for the Subject at Sr. No. 1, 3, 4, 5 and 6 are not framed.
Guidelines for continuous internal assessment (10%) for regular students of Under-Graduate courses (semester system):

**Criteria for Internal Assessment:**

(i) Class test = 5%
(ii) Academic Activities = 3%
   (Seminar, Project, Assignment)
(iii) Attendance = 2%

For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will be proportionately be increased to maximum marks of the paper in lieu of internal assessment.
PANJAB UNIVERSITY, CHANDIGARH
OUTLINES OF TESTS, SYLLABI AND COURSES OF READING IN VARIOUS SUBJECTS FOR
B.A./B.Sc. (GENERAL) FIRST YEAR (SEMESTER SYSTEM) i.e. FIRST SEMESTER
NOVEMBER/DECEMBER 2017 AND SECOND SEMESTER APRIL/MAY 2018, EXAMINATIONS.

ENGLISH (Compulsory)

SEMESTER – I

Max. Marks : 50
Theory : 45 marks
Internal Assessment : 05 marks
Time : 03 Hours

Text Prescribed :


Poems = 1-4
Prose Chapters = 1-4

Section-A

Q.1. Reference to the Context from Poetry and Prose. **Two** out of **four** passages to be attempted. One each from Poetry and Prose. **05+05=10 marks**

Q. 2. Questions from poetry in not more than 50-60 words. **Two** out of **five** to be attempted. **05 marks**

Q.3 Essay type questions from Prose in not more than 100-120 words. **Two** out of **three** to be attempted. **06 marks**

Section B

Q.4. Paragraph Writing (Descriptive and Narrative) **One** out of **three** to be attempted **05 marks**

Q.5. Comprehension of passage from Prose text **05 marks**

Q.6 Grammar - Voice, Determiners, Modals, Antonyms **10 marks**

Q.7. Translation from Vernacular to English. **Four** out of **Six** sentences (only tense based) **04 marks**

OR

For foreign students Paragraph Writing on Proverbs in not more than 100 words.
ENGLISH (Compulsory)

SEMESTER – II

Max. Marks : 50
Theory : 45 marks
Internal Assessment : 05 marks
Time : 3 Hours

Text Prescribed:


Poems = 5-8
Prose Chapters = 5-8

Section A

Q.1. Reference to the Context from Poetry and Prose. Two out of four passages to be attempted. One each from Poetry and Prose. 05+05=10 marks

Q.2. Questions from poetry in not more than 50-60 words. Two out of five to be attempted. 05 marks

Q.3. Essay type question from Prose in not more than 100-120 words. Two out of three to be attempted. 06 marks

Section B

Q.4. Letter Writing (Personal only) 05 marks

Q.5. Grammar : Narration, Preposition, Conjunctions, Synonyms 10 marks

Q.6. Comprehension of Unseen Passage 05 marks

Q.7. Translation from Hindi to English. Four out of six sentences (only idiom based) 04 marks

OR

For foreign students Paragraph Writing on Proverbs in not more than 100 words.
B.A./B.Sc. (GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS

प्रथम (भागी)

वर्ष: 2017 डे लिखित अध्ययन

(वर्ष: 2017 डे लिखित अध्ययन)

प्रथम अध्ययन

1. आधुनिक पसंदीदा बिंदु वा अभिव्यक्ति 20 अंक
2. संस्कृत उपनाम 10 अंक
3. मैथिली उपनाम 5 अंक
4. विभागक रूप: निर्देश और निर्देश

वेतन

1. लघु-साहित्य (भागी) का वर्तमान सिद्धांत, अल्पविद्या कार्य, भूमिकाओं का अध्ययन, क्षेत्रीय अवधारणा,
(उत्तराधिकारी निपुण अथवा उत्तराधिकारी सिद्धांत वैज्ञानिक अवधारणा)

पुस्तक अध्ययन

1. (अ) वर्ग-साहित्य पुस्तक हिति पुस्तक महत्त्व विभाग दीर्घ (दे खिचे खिच) 5 अंक
   (भ) बिंदु तेजा है दे बिंदु तेजा (दे खिचे खिच) 5+5=10 अंक

2. लघु-साहित्य रिति मैथिली पुस्तक और पुस्तक (पुस्तक दिव्य मुद्रण के देख 5×1=5 अंक)
3. संस्कृत उपनाम (500 शब्द में खिच) घरेलू भाषाओं से पढ़े 10 अंक
4. मैथिली उपनाम 5 अंक
5. विभागक रूप: निर्देश और निर्देश 6 अंक

(i) विभागक रूप: विभागक दी पत्रिका, भव्यमेत दे खिच (लघु पुस्तक, दुध पुस्तक, पुस्तक दे दिल दुध पुस्तक (मैथिली रक्षा पहंच)
   (दे खिचे खिच पुस्तक देख दर्ज दें)

(ii) दिव्य धन्यवाद

   खेत: पुस्तक देख दें पसंदीदा दिव्य विभागक दे उदाहरण राख दी मैथिली पुस्तक दें दिल दुध पुस्तक दें (दे खिचे खिच पुस्तक देख दर्ज दें) 2+2=4 अंक

खेत: 1. उदाहरण सही दें दे दे पौराणिक।
2. दीर्घाट सती 25-30 दिग्विजयियों का वाणिज्य अथवा उदाहरण दे दिल उद दीर्घाट।
3. उदाहरण दे 6+3 = 9 पौराणिक।

-----------------------------
प्रमाण (सामान)
बी.ए. अथवा बी.एं.एस.एन. मृत्यु पद्धति अनुसार 2018 के अभिव्यक्ति सही (बी.ए. अथवा बी.एं.एस.एन. मृत्यु पद्धति अनुसार सही)
मोड़ता 2018

उपयोगी: 50
संयोजन: 45
देयनिक: साविकमेट: 5
अवधि: 3 वर्षे

पहलू
1. शास्त्रीय वर्गीकरण से अभिलेख
2. शुभ्यता दिन ऐसीन
3. सारण
4. विषयवस्तु: मिसायंड दे हिताद

बेकर
1. वर्ग वर्गीकरण, (सेंडिस) पर दिनक स्वयं, प्रधानमंत्रिय विजेते, पं.पां. पुनर्नवीनिति, चं.वादु

पुष्टि अथवा शीर्ष
1. (ह) 'वर्ग वर्गीकरण' भूमत विचि' लिए हित वर्गीकरण से हित देव दे मत विभाग
(हिंद रूपमे हित)
(अ) वर्गीकरण-विधि हिंद मन्त्रित वर्गीकरण हिंद' भूमत विभाग वर्ग' (हिंद हिते' हित)
2. वर्गीकरण हिंद' विधि मिसायंड धुंदरार हुमाए (हुमाद दिन मात्र दे पं. देव दे देवी)
(शीघ्र हितें पाने पुष्टि वर्गीकरण)
3. मुफ्त दिन दिन दिन विभाग (मुन्डित, मिसायंड दे पं. पं. पं. मंगोपाद) 10 अवं
4. मूलवस्तु: गहवर दे वह घटणे (मूल हिते पं. हिंद पुष्टि होते) 5 अवं
(मूलवस्तु वादन शास्त्रीय विषयवस्तु हिंदे' जी युक्ती शट)
5. विषयवस्तु: मिसायंड दे हिताद
(i) पत्री दे पत्री गुण: पत्री दी परिवर्तन, चं.विक्रम आयुक्ती पुत्री (संधि सत्ता पहुँच दे)
देवगणी सत्ता पुनर्जीवित हिंद मन्त्रित पुनर्जीवित (पुनर्जीवन मिसायंड दे हिताद धुंदरार)
(ii) हिंद दिन पुष्टि देव (तेंट) : देव मेंदे हरे हिंदी विश्वास दे यहां रहनी हुमाए मिसायंड धुंदरार हुमाए हिताद 
(पाने हिते' पाने पुष्टि वर्गीकरण)

समापन पृष्ठ
1. शास्त्रीय पर्याय विश्वास, पं.पां. पुरुषविश्वास टेबल में वेम शेड, चं.वादु।
2. आयुक्तीतिहारी, हेप्ट, परिवर्तन अर्थ भिन्न, चीन धर्मविधिन, नस्लव, 1981.
3. मध्यवर्तन संधि मंडल औरों दे, शास्त्रीय अर्थ भिन्न, बृहद-पुरुषविश्वास, दुर्गा दे जीव, शास्त्रीय अर्थ अवलोकनी, नस्लव , 1997.
4. उद्धवत्त मिसायंड (अ.), राजन शास्त्रीय विभागत । पं.पां. पुरुषविश्वास टेबल में वेम शेड, चं.वादु, 1999
5. भानिकुट, पूर्ण पुरुषविश्वास मिसायंड (अ.), मिसायंड अर्थ भिन्न, भानिकुट पिनाकातम, पुरुषविश्वास, 2002.
6. चं.वादु, पूर्ण विश्वास (अ.), शास्त्रीय विभागत, मिसायंड औरों दे, वेम पुरुषविश्वास, चं.वादु.
7. संघ संघमातृ, 'शास्त्रीय विभागत दे यह वेम' , चं.वादु पुरुषविश्वास, राजा धर्मविधि, अवलोकन, 2012.
8. भानिकुट जीव, पूर्ण अर्थ : देवदेव दे घटना, संघमातृ पुरुषविश्वास, चं.वादु।

टेक्स्ट:
1. टेक्स्ट उतीर्जक दे हे भीतीभगा।
2. हेप्टमीटर दृष्टी 25-30 हिंदिहस्तविधिनों दे वार्ता अर्थ उत्तर दे हिंद उत्तर भीतीभग।
3. उत्तर दे 6+3= 9 हिंदिहस्त।

------------------------
HISTORY AND CULTURE OF PUNJAB
(For B.A. Candidates Only)
B.A. (General) 1st SEMESTER EXAMINATION

Paper: HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO PRE-MAURYAN PERIOD

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES: (For Paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark for each. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit–IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. One question from Unit IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:

<table>
<thead>
<tr>
<th>Map</th>
<th>Explanatory Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>06</td>
</tr>
<tr>
<td></td>
<td>04</td>
</tr>
</tbody>
</table>

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

Paper I:

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the Early History of the region.

Pedagogy: Lectures, library work and discussions.
Unit-I

I. Ancient Punjab: Physical features; impact on history.
II. Historical Sources: Literary; archaeological.
III. Harappan Culture: Extent and town planning.

Unit-II

IV. Harappan Culture: Social, Economic and Religious life; causes of disappearance.
V. Rig Vedic Age: The rise of Indo Aryans; main features of life in the early Vedic Age.
VI. Later Vedic Age: Political, Social, Economic and Religious life of later Vedic Aryans.

Unit-III

VII. Caste System: Origin and evolution.
VIII. The Epics: Historical importance of Ramayan and Mahabharat.
IX. Political Condition on eve of Alexander’s invasion.

Unit-IV

X. Impact of Alexander’s invasion on social and cultural life.
XI. Position of women: Harappan, early Vedic and later Vedic Age.
XII. Important Historical places of Punjab: Mohenjodaro, Harappa, Kotla Nihang Khan, Sanghol, Banawali, Taxila, Indraprastha, Hastinapur, Kurukshetra, Srinagar, Purusapura, Sakala.

Suggested Readings:


Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:
(a) That the students have not studied Punjabi upto class 10th.
(b) Ward of/and Defence Personnel and Central Government Employee/Employees who are transferable on all India basis.
(c) Foreigners.
HISTORY AND CULTURE OF PUNJAB
(For B.A. Candidates Only)
B.A. (General) 2nd SEMESTER EXAMINATION

Paper: HISTORY AND CULTURE OF PUNJAB FROM MAURYAN TIMES TO 1200 A.D.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES: (For Paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark of each. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit–IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. One question from Unit IV shall be set on the map.

Explanation:

4. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

5. The distribution of marks for the map question would be as under:
   Map : 06 marks
   Explanatory Note : 04 marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

6. The paper-setter would avoid repetition between different types of questions within one question paper.

Paper

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>45</td>
<td>05</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

Objectives: To introduce the students to the history of the early history of the region.

Pedagogy: Lectures, library work and discussions.
Unit-I

I. The Mauryan Empire: Social, Economic and religious life.
III. The Kushanas: Impact of Kanishka’s rule on Punjab.

Unit-II

IV. Gandhara School of Art: Salient features.
V. The Guptas: Cultural and scientific developments.
VI. Position of Women: Under the Mauryas, the Guptas and the Vardhanas.

Unit-III

VII. Depiction of Punjab in the accounts of Chinese travelers, Fahien and Hwen Tsang.
VIII. Main developments in literature.
IX. Education: Significant developments; Taxila.

Unit-IV

X. Society and Culture on the eve of the Turkish invasion of Punjab.
XI. Punjab in the Kitab-ul-Hind of Alberuni.
XII. Important Historical places: Lahore, Multan Bathinda, Uchh, Jalandhar, Thanesar, Kangra, Taxila, Kundalvana, Pehowa, Thatta.

Suggested Readings:

1. Joshi, L.M. (ed.): History and Culture of the Punjab, Part I, Publication Bureau, Punjabi University, Patiala, 1989 (3rd edn.)

Note: The following categories of the students shall be entitled to take the option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:
(a) That the students have not studied Punjabi upto class 10th.
(b) Ward of/and Defence Personnel and Central Government employee/employees who are transferable on all India basis.
(c) Foreigners.
HISTORY AND CULTURE OF PUNJAB
(All Candidates other than B.A.)

SEMESTER I

HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1849

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES: (FOR PAPER in semester 1 AND 2)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each unit –IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks

In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 marks each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1849

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I

2. Life in Vedic Age: socio-economic and religious;
3. Growth of Jainism and Buddhism in Panjab on the region.
UNIT II

4. Society and Culture under Maurayas
5. Society and Culture under Guptas
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III

9. Institution of Khalsa: new baptism; significance

UNIT IV

10. Changes in Society in 18th century: social unrest; emergence of misls and institutions - rakhi, gurmata, dal khalsa.
11. Society and Culture of the people under Maharaja Ranjit Singh
12. MAP (of undivided physical geographical map of Punjab):

Suggested Readings:

5. Basham, A.L : The Wonder That was India, Rupa Books, Calcutta (18th rep., 1992)
6. Sharma, B.N : Life in Northern India, Munshi Ram Manohar Lal, Delhi, 1966
7. Singh, Kirpal : History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).

Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:

A. That the students who have not studied Punjabi upto class 10th.
B. Ward of/and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners
HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

INSTRUCTIONS FOR THE PAPER – SETTER AND CANDIDATES: (FOR PAPER IN SEMESTER 1 AND 2)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each unit – IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   
   Map : 6 Marks
   Explanatory Note : 4 Marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 marks each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region in modern times.
Pedagogy: Lectures, library work and discussions.

UNIT I

1. Introduction of Colonial Rule in Punjab: Annexation of Punjab; Board of Administration.
2. Western Education: Growth of Education and rise of middle classes.
3. Agrarian Development: Commercialization of agriculture; canalization and colonization.
UNIT II

5. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
6. Development of Press & literature: growth of print technology; development in literature

UNIT III

7. Emergence Of Political Consciousness: Agrarian uprising of 1907; Ghadar Movement.
8. Gurudwara Reform Movement: Jallianwala Bagh; foundation of SGPC and Akali Dal- Morchas; Activities of Babbar Akalis.
9. Struggle for Freedom: activities of revolutionaries - Naujawan Bharat Sabha; Kirti Kissan Movement; participation in mass movements – non co-operation, civil disobedience, Quit India.

UNIT IV

10. Partition and its Aftermath: resettlement; rehabilitation
12. MAP (physical geographical map of undivided Punjab): Major Historical places: Delhi, Kurukshetra, Jaito, Ferozepur, Ambala, Amritsar, Lahore, Ludhiana, Qadian, Jalandhar, Lyallpur, Montgomery.

Suggested Readings:

1. Singh, Kirpal   :  History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
ENVIRONMENT, ROAD SAFETY EDUCATION AND VIOLENCE AGAINST WOMEN & CHILDREN

SEMESTER II

PART - I (ENVIRONMENT)

**Note:** The syllabus has 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topic from 2 to 11 and one each for the topics 1 and 12 to 15.

1. **Environment Concept:**
   Introduction, concept of biosphere—lithosphere, hydrosphere, atmosphere; Natural resources—their need and types; principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

2. **Atmosphere:**
   Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.

3. **Hydrosphere:**
   Types of aquatic systems. Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.

4. **Lithosphere:**
   Earth crust, Soil—a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

5. **Forests:**
   Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban Forests, Chipko Andolan.

6. **Conservation of Environment:**
   The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems—soil, water, air, wildlife, forests.

7. **Management of Solid Waste:**
   Merits and demerits of different ways of solid waste management—open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

8. **Indoor Environment:**
   Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.
9. **Global Environmental Issues:**
   Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.

10. **Indian Laws on Environment:**
    Indian laws pertaining to Environmental protection: Environment (Protection) Act, 1986; General information about Laws relating to control of air, water and noise pollution. What to do to seek redressal.

11. **Biodiversity:**
    What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.

12. **Noise and Microbial Pollution:**
    Pollution due to noise and microbes and their effects.

13. **Human Population and Environment:**

14. **Social Issues:**
    Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.

15. **Local Environmental Issues:**
    Environmental problems in rural and urban areas, Problem of Congress grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

**Practicals:**

Depending on the available facility in the college, a visit to Vermicomposting units or any other such non-poluting eco-friendly site or planting/caring of vegetation/trees could be taken.

**Examination Pattern:**

A qualifying paper of 50 marks comprising of fifty multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong answer or unattempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added/included in the final mark sheet.
PART - II (ROAD SAFETY)

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Engineering – Concept & Significance.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

Note: Examination Pattern:

- The Environment and Road Safety paper is 70 marks.
- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted questions).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit II is to be covered in 10 hours.
- All the questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination: 90 minutes.
- The paper setter is requested to set the questions strictly according to the syllabus.

Suggested Readings

2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

Websites:

(a) www.chandigarhpolicenic.in
(b) www.punjabpolicegov.in
(c) www.haryanapolice.gov.in
(d) www.hppolicenic.in
PART - III (VIOLENCE AGAINST WOMEN & CHILDREN)

1. Concept and Types of Violence: Meaning and Definition of violence; Types of Violence against women – domestic violence, sexual violence (including rape), sexual harassment, emotional/psychological violence; Types of Violence against children – physical violence, sexual violence, verbal and emotional abuse, neglect & abandonment.

2. Protective Provisions of IPC on Domestic Violence & Sexual Violence against Women:

   **Dowry Death** – Section 304B;
   **Rape** – Sections 375, 376(1), 376(A), 376B, 376C, 376D and 376E;
   **Cruelty** - Section 498A;
   **Insult to Modesty** – The Indian Penal Code does not define the word eve-teasing; there are three sections which deal with crime of eve-teasing. These are Sections 294, 354 and 509 of Indian Penal Code. Section 509 of the Indian Penal Code defines (Word, gesture or act intended to insult the modesty of a women), Section 294 – (Obscene acts and songs) and Section 354 (Assault or criminal force to woman with intent to outrage her modesty).
   **Hurt & Grievous Hurt Provisions** – Sections 319 to 326;
   **Acid Attacks** – Sections 326A and 326B;
   **Female Infanticide** – Section 312, Section 313 of Indian Penal Code (Causing miscarriage without women’s consent) and section 314;
   **Sexual Harassment** – For providing protection to working women against sexual harassment, a new section 354 A is added; 354 B (Assault or use of criminal force to women with intent to disrobe); 354 C Voyeurism; 354 D (Stalking). All these provisions are added in IPC to protect women against acts of violence through Criminal Law (Amendment) Act, 2013; Human Trafficking and Forced Prostitution- Sections 370 and 370A

3. Protective Laws for Women:


   **3.2 The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** – Definition, Internal Complaint Committee, Local Complaint Committee, Procedure adopted by Committee for punishing accused.

4. Protective Provisions of IPC regarding Sexual Violence against Children:

   Section 293(sale etc. of obscene objects to young persons); 294 (obscene acts & songs); 305 (abatement of suicide of child); 315 to 317 (act causing death after birth of a child etc.); 361 (kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A (kidnapping or maiming a minor for purposing of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).

   **4.1 The Protection of Children from Sexual Offences Act, 2012**: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.
Note: Instructions for Examination:

- Unit III of the paper dealing with Violence against Women and Children is of 30 Marks.
- It shall have 30 multiple-choice questions (with one correct and three incorrect choice options and no deduction of marks for wrong or un-attempted questions).
- Minimum two questions from each topic must be covered.
- All the questions are to be attempted
- Qualifying Marks 33 percent
- Duration of Examination 30 Minutes
- The Paper Setter is requested to set the questions strictly according to the syllabus.

Pedagogy:

- The entire syllabus of Unit III is to be covered in ten hours in total, with each lecture of one-hour duration.
- The purpose behind imparting teaching-learning instructions is to create basic understanding of the contents of the Unit III among the students.

RELEVANT READING MATERIAL

Ahuja, Ram (1998), Violence against Women, New Delhi: Rawat Publication
NRHM, Child Abuse, A Guidebook for the Media on Sexual Violence against Children
The Protection of Children from Sexual Offences Act, 2012
The Protection of Women from Domestic Violence Act 2005
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
UNO, United Nations Secretary-General's Study on Violence against Children, adapted for Children and Young People
www.slideshare.net/HRLNIndia/a-life-free-from-violence
http://hrln.rg/admin/issue/subpdf/Sexual_Harrassment_at_Workplace.pdf

-----------------------
PART – IV (DRUG ABUSE: PROBLEM, PREVENTION AND MANAGEMENT)

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three year of degree course.

The paper/Topic “Drug Abuse: Problem, Prevention and Management” having 2 credit/50 marks (40 theory+10 Internal) at undergraduate level, as a fourth part of the paper ‘Environment, Road Safety Education and Violence against Women and Children’ from the academic session 2017-18.

Main Objective

This module introduces to the students the problem of drug abuse and its adverse consequences for the society. The students would get an understanding of why drug abuse is such a serious problem to our society. The course also apprises them of how to prevent and manage this menace.

Learning objectives of the course

1. Understand the meaning of the term drug.
2. Understand the difference between use, misuse and abuse of drugs.
3. Differentiate between commonly abused legal and illegal drugs.
5. Understand the causes and consequences of drug abuse
6. Identify and access safety measures for support to stay away/give up drug abuse

Pedagogy of the course work

1. 70% Lectures (Including expert lectures)
2. 30% assignments, discussion, seminars and class tests.

- A visit to drug de-addiction centre could also be undertaken

Course content

UNIT I: Problem of Drug Abuse


b) Types of drugs often abused and their effects

Stimulants: tobacco Amphetamines: dl-amphetamine (Benzedrine ®), dextroamphetamine (Dexedrine®). Cocaine.

Depressants: Alcohol. Barbiturates: phenobarbitone (Nembutal®), secobarbital (Seconal®), Benzodiazepenes: diazepam (valium ®), alprazolam (Xanax®), flunitrazepam (Rohypnol®)

Narcotics: Morphine, heroin (‘Chitta’/ ‘Brown Sugar’), pethidine, oxycodone.

Miscellaneous: cough/cold medicines: diphendydramine (Benadryl®), chlorpheneramine maleate+ codeine+alcohol (Corex®). Iodex®, Vicks®, Amrutanjan® and correction fluid (Whitener).

UNIT II: Theories of consequences of drug abuse

a) Theories of drug abuse: Physiological theory. Psychological theory. Sociological theory.

b) Consequences of drug abuse: For individuals, families, society and economy.

Unit III: Extent and nature of the problem


UNIT IV: Prevention and management of drug abuse


Suggested readings:

5. 2003 National Household survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, AIIMS, 2004
ENGLISH (Elective)

SEMESTER –I

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : Three Hours

Section -A

The following Units from Fluency in English Ed., Promodini Verma, Mukti Sanyal, Tulika Prasad, New Delhi: Macmillan India, 2009 (the prescribed text) are recommended for First Semester:

Units: 1, 3, 5, 6, 7, 8, 9, 10, 12, 14, 16, 17


Testing Pattern:

Q.1. It shall be on literary terms/concepts. Eight terms shall be given in all and the students will be required to do five in not more than 50-60 words.

Q.2. The examiner will set twelve short questions (to be answered in not more than 30-40 words) from Fluency in English (the prescribed text), out of which a student shall be expected to attempt any ten.

Q.3. The examiner shall give two passages from the anthology Fluency in English along with five questions. The students shall be expected to attempt only one passage of the two. In other words, this question shall have internal choice. This question shall test the comprehension, critical acumen and the presentation skills of a student.

Section -B

Q.4. Letter Writing (Official) (10 marks)

Q.5. Applied Grammar:
   (a) Voice, Direct/Indirect, Transformation of Sentences (simple, complex, compound) (15 marks)
   (b) Articles, Preposition, Conjunctions (10 marks)

Q.6. Vocabulary:
   Antonyms/Synonyms, Use of words/phrases in sentences (10 marks)

------------------------
ENGLISH (Elective)

SEMESTER –II

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : Three Hours

Section -A


Essays 1-6
Stories 1-6
Plays 1-4


Testing Pattern:

Q. 1. Literary terms/concepts (Five out of Eight) (15 marks)

Q. 2. Ten short questions to be attempted out of fourteen, based on A Collection of Essays, Short Stories and One Act Plays’ (each to be answered in not more than 30-40 words.) (15 marks)

Q. 3. Long questions five out of seven, again based on A Collection of Essays, Short Stories and One Act Plays’ (each to be answered in not more than 100-120 words) . (15 marks)

Section -B

Q. 4. Paragraph Writing (based on outline, a situation, a string of questions etc.) (15 marks)

Q. 5. Applied Grammar-

(a) Corrections (10 marks)
(b) Use of the same words as different parts of speech (10 marks)

Q. 6. Translation from Vernacular into English (10 sentences only) (10 marks)

OR

(For foreign students, a paragraph on any one of the two given topics, preferably, proverbs or idioms)
हिंदी (अध्ययन)
सेमेस्टर-1

पूर्णक : 90+10 = 100
समय : 3 घण्टे

1 विषयतालोक :

सं. ड्र. शिवकुमार शर्मा, पदवीक्षेत्र बघू, पंजाब विश्वविद्यालय, चन्दीगढ़ द्वारा प्रकाशित।
इस वर्तमान कार्यक्रम की रचना प्राप्त किया गया है–
कमी, देशवास, गुरुवार देव, सुरदास।

(क) 5-5 अंकों की दो संख्या लिखित व्याख्याओं करनी होगी। कुल 4 संख्या पूछे जाएँगे।
(ख) 6 अंकों का एक समावेशायक प्रश्न करना होगा। कुल 2 प्रश्न पूछे जाएँगे।
इन खंड में ले कित-परिवार, काहित-सात तथा उद्घोत्स संबंधित प्रश्न पूछे जाएँगे। उत्तरों की शब्द-सीमा 200 होगी।

2 समीक्षा कहानियाँ :

सं. ड्र. लक्ष्मीचंद्र खुराना, पदवीक्षेत्र बघू, पंजाब विश्वविद्यालय, चन्दीगढ़ द्वारा प्रकाशित। निम्नलिखित सात कहानियाँ पाठ्यक्रम में हैं:–
शतरंज के खिलाड़ी, ममता, अर्थविद्या का अवध, नीति के नुक़सान में, लखार मंदी, सुरदास, सम्भ-असभ्य।

(क) 5-5 अंकों की दो संभावित व्याख्याओं करनी होगी। कुल 4 व्याख्याएँ पूछी जाएँगी।
(ख) 6 अंकों का एक समावेशायक प्रश्न करना होगा। कुल 2 प्रश्न पूछे जाएँगे।
इन खंड में कथावतृता, विश्वविद्यालय एवं उद्घोत्स संबंधित
कुल दो प्रश्न पूछे जाएँगे। प्रयोगक उपलब्ध की शब्द-सीमा 200 होगी।

3 तीव्र-तीव्र अंकों के तीर्थ लघु-उत्तरार्थ के प्रश्न करने होगे।
कुल 6 प्रश्न पूछे जाएँगे। प्रयोगक उपलब्ध की सीमा 50 अंक होगी। ये प्रश्न इस पाठ के पूर्वार्थ के खंडों
(विषयतालोक एवं समीक्षा कहानियाँ) पर आधारित होंगे।

4 हिंदी-कहानिय का उद्देश्य :

आदिकाल (अपवांश साहित्य को खोजकर) से निम्नलिखित शीर्षकों पर आधारित प्रश्न पूछे जाएँगे।
अदिकाल का जन्मकाल, काल-तीमा, परिशिष्टिक, दृष्टिकोण और पुरातात्विक तथा विश्वविद्यालय का परिचय।
7 अंकों का एक समावेशायक प्रश्न करना होगा। कुल 2 प्रश्न पूछे जाएँगे। (शब्द-सीमा 200)

5 वद्युक्तिक प्रश्न
इस पाठ के पूर्वार्थ खंडों के संबंध में 1-1 अंक के दस वद्युक्तिक प्रश्नों के उत्तर देने होंगे। कुल पद्धत प्रश्न पूछे जाएँगे।

6 समीक्षा तिथिप्राप्त : 
कहानियों- पदभाषण, तत्व और कविताक्रम संबंधी दो प्रश्न पूछे जाएँगे। 7 अंकों का केवल एक प्रश्न करना होगा।
(शब्द-सीमा 200)

7 वाक्यात्मक व्याकरण : 

(क) वित्तीयात्मक शब्द (सात में से पांच करने होगे) 5 अंक
(ख) समाचारी शब्द (सात में से पांच करने होगे) 5 अंक
(ग) शब्द-शब्द और वाक्य-शब्द (सात में से पांच करने होगे) 5 अंक
(घ) वाक्यांश के लिए एक शब्द (सात में से पांच करने होगे) 5 अंक

8 परिभाषित कहानियों (समूह संबंधत) :
कुल आठ में से पांच के उत्तर देने होंगे।

9 आंतरिक समूह प्रश्नों : 

(क) हिंदी साहित्य का इतिहास : कुछ सब्ज
(ख) यह आमतौर पर Text के और तीन लेखक या कार्यक्रम के अधिवर्धन होगे।
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Abbreviation</td>
<td>संक्षिप्ति</td>
</tr>
<tr>
<td></td>
<td>Absence</td>
<td>अनुपस्थिति, नैसाधिकी</td>
</tr>
<tr>
<td></td>
<td>Accommodation</td>
<td>आवास</td>
</tr>
<tr>
<td></td>
<td>Advice</td>
<td>प्रावधान, सलाह, सूचना, संबंधापन</td>
</tr>
<tr>
<td></td>
<td>Allegiance</td>
<td>विवेक</td>
</tr>
<tr>
<td></td>
<td>Alteration</td>
<td>परिवर्तन, हेत-फेर</td>
</tr>
<tr>
<td></td>
<td>Amendment</td>
<td>संशोधन</td>
</tr>
<tr>
<td></td>
<td>Appendix</td>
<td>पीवीडी</td>
</tr>
<tr>
<td></td>
<td>Assistant</td>
<td>सहायक</td>
</tr>
<tr>
<td></td>
<td>Attendance</td>
<td>उपस्थिति, हाजिरी</td>
</tr>
<tr>
<td>B</td>
<td>Basic pay</td>
<td>मूल बेताल</td>
</tr>
<tr>
<td></td>
<td>Birth Date</td>
<td>जन्म तिथि, जन्म की तारीख</td>
</tr>
<tr>
<td></td>
<td>Block</td>
<td>खंड, क्लास</td>
</tr>
<tr>
<td></td>
<td>Board</td>
<td>बोर्ड, मंडप</td>
</tr>
<tr>
<td></td>
<td>Break in Service</td>
<td>सेवा में व्यवस्थापन</td>
</tr>
<tr>
<td></td>
<td>By Hand</td>
<td>दस्ती</td>
</tr>
<tr>
<td>C</td>
<td>Cancel</td>
<td>रद्द करना</td>
</tr>
<tr>
<td></td>
<td>Clarification</td>
<td>स्पष्टीकरण</td>
</tr>
<tr>
<td></td>
<td>Closing Balance</td>
<td>अंत-शेष, रोकड़ बाकी</td>
</tr>
<tr>
<td></td>
<td>Committee</td>
<td>समिति</td>
</tr>
<tr>
<td></td>
<td>Competence</td>
<td>सहभागता</td>
</tr>
<tr>
<td></td>
<td>Conference</td>
<td>सम्मेलन</td>
</tr>
<tr>
<td></td>
<td>Confirmation</td>
<td>पुष्टि</td>
</tr>
<tr>
<td></td>
<td>Consolidated fund</td>
<td>समूचे विषय</td>
</tr>
<tr>
<td></td>
<td>Conveyance allowance</td>
<td>वाहन भर्ता</td>
</tr>
<tr>
<td></td>
<td>Corruption</td>
<td>भ्रष्टाचार</td>
</tr>
<tr>
<td></td>
<td>Covering letter</td>
<td>स्पष्टन</td>
</tr>
<tr>
<td>Number</td>
<td>Term</td>
<td>Translation</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>28</td>
<td>Dealing Assistant</td>
<td>संबंधित सहायक</td>
</tr>
<tr>
<td>29</td>
<td>Dearness Allowance</td>
<td>महंगाई भत्ता</td>
</tr>
<tr>
<td>30</td>
<td>Department</td>
<td>विभाग</td>
</tr>
<tr>
<td>31</td>
<td>Deputy Secretary</td>
<td>उपसचिव</td>
</tr>
<tr>
<td>32</td>
<td>Dissent</td>
<td>विरामित, विरामित, (विघि), अहसामित</td>
</tr>
<tr>
<td>33</td>
<td>Duplicate</td>
<td>अनुविधि, दूसरी प्रति</td>
</tr>
<tr>
<td>34</td>
<td>Duration</td>
<td>अवधि</td>
</tr>
<tr>
<td>35</td>
<td>Duty</td>
<td>हृदयी, काम, कर्य, कर्त्तव्य, भार, शुल्क</td>
</tr>
<tr>
<td>36</td>
<td>Encashment</td>
<td>मुंकाला, तुड़वाला</td>
</tr>
<tr>
<td>37</td>
<td>Entry</td>
<td>प्रविधिक, इंतजाम, प्रेश</td>
</tr>
<tr>
<td>38</td>
<td>Evidence</td>
<td>साध्य, गवाही, प्रमाण</td>
</tr>
<tr>
<td>39</td>
<td>Expert</td>
<td>विशेष</td>
</tr>
<tr>
<td>40</td>
<td>Export</td>
<td>वियात</td>
</tr>
<tr>
<td>41</td>
<td>Extract</td>
<td>उद्दल</td>
</tr>
<tr>
<td>42</td>
<td>Fitness Certificate</td>
<td>स्थायीता प्रमाणपत्र, योग्यता प्रमाणपत्र</td>
</tr>
<tr>
<td>43</td>
<td>Fresh Receipt (F.R.)</td>
<td>नई आदेश</td>
</tr>
<tr>
<td>44</td>
<td>Further Action</td>
<td>आज की कार्यवार्ता, अपली कार्यवाही</td>
</tr>
<tr>
<td>45</td>
<td>General Manager</td>
<td>प्रधान प्रबंधक, महाप्रबंधक</td>
</tr>
<tr>
<td>46</td>
<td>General Meeting</td>
<td>साधारण तत्त्व, साधारण वैक्क</td>
</tr>
<tr>
<td>47</td>
<td>Grant-in-aid</td>
<td>सहायता-अनुदान</td>
</tr>
<tr>
<td>48</td>
<td>Guidance</td>
<td>मार्गदर्शन, सिद्धहस्त</td>
</tr>
<tr>
<td>49</td>
<td>Head Clerk</td>
<td>प्रधान विद्यिक, हेड कलर्क</td>
</tr>
<tr>
<td>50</td>
<td>Head of Account</td>
<td>लेखा-शीर्ष</td>
</tr>
<tr>
<td>51</td>
<td>Head office</td>
<td>प्रधान कार्यालय</td>
</tr>
<tr>
<td>52</td>
<td>Head Quarter</td>
<td>मुख्यालय</td>
</tr>
<tr>
<td>53</td>
<td>Holiday</td>
<td>अवकाश</td>
</tr>
</tbody>
</table>
I
54. Immediate officer
55. Import
56. Increment
57. Inquiry
58. Inspector
59. Instruction
60. Instructor
61. Interpretation
62. Intimation
63. Investigation
64. Irrelevant
65. Issue

J
66. Job
67. Joining Date
68. Joint Secretary

L
69. Labour Welfare
70. Leave Salary
71. Leave Vacancy
72. Length of Service

-----------
1. कक्षात्मकः

ल. द. विबंधाग्रहण, संयोग, परिवर्तन, निर्देश विकास, चक्षुस्त्र, विश्लेषण द्वारा प्रकाशित।
इन तीन कार्यों की दृष्टि से पाठ्यक्रम में निर्धारित की गई हैं:
मौलिक, तुल्यतादाता, विचारधारी कार्यों

(क) 5-5 अंकों की वो संरक्षित व्याख्याएँ करनी होंगी। कुल 4 व्याख्याएँ पूरी जाएंगी।
(ख) 6 अंकों का एक समीक्षात्मक प्रश्न करना होगा। कुल 2 प्रश्न पूरे जाएंगे।

इस खण्ड में से कक्ष-परिचय, कक्षा-पाठ्य तथा उद्देश्य संबंधी प्रश्न पूरे जाएंगे। उत्तर की श्रेणी 200 होगी।

2. ज्ञानी की रजत- बूढ़वाल वर्मा, मनुष्य प्रकाशन, इंटर सी।

बालकरण, कालदृष्टि, चित्र-वितरण, उद्देश्य के आधार पर चार समीक्षात्मक प्रश्न पूरे जाएंगे, जितने- 8 अंकों के बोझ का दो प्रश्न करने गए। (शब्द-सीमा 200-250)

3. हिंदी साहित्य का इतिहासः

भक्तिकाल :- जिन सीरीजों पर चर्चा करें 2 प्रश्न पूरे जाएंगे। का उत्तर देना होगा। (शब्द-सीमा 200)

भक्तिकाल की पद्यत्तिताओं, तन्त्रकाल, प्रेमवासानाट्य, संगीतकाल और कुछ काव्य की विशेषताओं, कवीर, जगदीश, मुलाली और मुलालकता

4. वर्तुळिका प्रश्न

इस पाठ के पूर्वार्थ तीनों खण्डों के संबंध में 1-1 अंक के दस वर्तुळिका प्रश्नों के उत्तर देने होंगे। कुल पचास प्रश्न पूरे जाएंगे।

5. समीक्षा सिद्धांत

उपयोगी-परिस्थितियाँ, तथा और वर्गीकरण संबंधी दो प्रश्न पूरे जाएंगे। 7 अंकों का एक प्रश्न करना होगा।
(शब्द-सीमा 200)

6. मुहाद से और लोकविद्याओं (सत्ता में से पाठ के उत्तर देने होंगे)

अंक-10

7. विचारधारित विषय पर अनुदेश-लेखन (रीति में से एक प्रश्न करना होगा)

अंक-10

8. आधुनिक परिचय (दो में से एक प्रश्न करना होगा)

अंक-08

9. परिसंचरण शब्दावली-(उल्लंघन शब्दावली)

अंक-05

आंतरिक मूल्यांकन

अंक-10

निर्देश :-इह लेखक Text के और तीन लेखक व्यक्तन के अनुसार होंगे।
<table>
<thead>
<tr>
<th>M</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management</td>
<td>प्रबंध</td>
</tr>
<tr>
<td>2. Medical</td>
<td>चिकित्सा</td>
</tr>
<tr>
<td>3. Medical Leave</td>
<td>चिकित्सा-पुरूषी</td>
</tr>
<tr>
<td>4. Medical Officer</td>
<td>चिकित्सा-अधिकारी</td>
</tr>
<tr>
<td>5. Messenger</td>
<td>टेलिग्राफर</td>
</tr>
<tr>
<td>6. Ministry</td>
<td>मंत्रालय, मंत्रमंडल</td>
</tr>
<tr>
<td>7. Modification</td>
<td>संस्करण, समंतर</td>
</tr>
<tr>
<td>8. Most Immediate</td>
<td>अति-तात्कालिक</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>N</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Nationality</td>
<td>तात्कालिक</td>
</tr>
<tr>
<td>10. Necessary Action</td>
<td>आवश्यक कार्य एवं अभ्यासी</td>
</tr>
<tr>
<td>11. Negligence</td>
<td>उपेक्षा, प्रमाण, गळन</td>
</tr>
<tr>
<td>12. No-Objection</td>
<td>आरोपित</td>
</tr>
<tr>
<td>13. Non-Official</td>
<td>मैत्र-सकारात्मक, असाल्कृष्य</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Obedience</td>
<td>अभावपत्ति, अभावपत्ति</td>
</tr>
<tr>
<td>15. Objection</td>
<td>आपेक्षा</td>
</tr>
<tr>
<td>16. Offence</td>
<td>अपराध</td>
</tr>
<tr>
<td>17. Offer</td>
<td>प्रस्तुत</td>
</tr>
<tr>
<td>18. Office</td>
<td>कार्यालय, दफ्तर, पद</td>
</tr>
<tr>
<td>19. Office Copy</td>
<td>कार्यालय-प्रति, दफ्तर की प्रति</td>
</tr>
<tr>
<td>20. Office Hours</td>
<td>कार्यालय-समय</td>
</tr>
<tr>
<td>21. Office Order</td>
<td>कार्यालय-आदेश</td>
</tr>
<tr>
<td>22. Officer</td>
<td>अधिकारी, अफसर</td>
</tr>
<tr>
<td>23. Officer-in-charge</td>
<td>प्रभावी अधिकारी</td>
</tr>
<tr>
<td>24. Officiating</td>
<td>उपाध्यक्ष</td>
</tr>
<tr>
<td>25. Option</td>
<td>विकल्प</td>
</tr>
<tr>
<td>26. Original Copy</td>
<td>मूल प्रति</td>
</tr>
<tr>
<td>27. Outstanding</td>
<td>कारक्षा</td>
</tr>
<tr>
<td>28. Overtime</td>
<td>समयपूर्व, अतिरिक्त समय</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>29. Part Time</td>
<td>अभिनंदनिक</td>
</tr>
<tr>
<td>30. Pay</td>
<td>देल्टा</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>31.</td>
<td>Payment</td>
</tr>
<tr>
<td>32.</td>
<td>Penalty</td>
</tr>
<tr>
<td>33.</td>
<td>Pending</td>
</tr>
<tr>
<td>34.</td>
<td>Pension</td>
</tr>
<tr>
<td>35.</td>
<td>Planning</td>
</tr>
<tr>
<td>36.</td>
<td>Proceedings</td>
</tr>
<tr>
<td>37.</td>
<td>Proposal</td>
</tr>
<tr>
<td>38.</td>
<td>Publicity</td>
</tr>
<tr>
<td>39.</td>
<td>Postpone</td>
</tr>
<tr>
<td>Q</td>
<td>Qualification</td>
</tr>
<tr>
<td>40.</td>
<td>Quarterly</td>
</tr>
<tr>
<td>41.</td>
<td>Rectification</td>
</tr>
<tr>
<td>42.</td>
<td>Reference</td>
</tr>
<tr>
<td>43.</td>
<td>Remark</td>
</tr>
<tr>
<td>44.</td>
<td>Remuneration</td>
</tr>
<tr>
<td>45.</td>
<td>Renewal</td>
</tr>
<tr>
<td>46.</td>
<td>Revenue</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>47.</td>
<td>Scrutiny</td>
</tr>
<tr>
<td>48.</td>
<td>Seal</td>
</tr>
<tr>
<td>49.</td>
<td>Secret</td>
</tr>
<tr>
<td>50.</td>
<td>Security</td>
</tr>
<tr>
<td>51.</td>
<td>Seniority</td>
</tr>
<tr>
<td>52.</td>
<td>State Government</td>
</tr>
<tr>
<td>53.</td>
<td>Stores</td>
</tr>
<tr>
<td>54.</td>
<td>Summary</td>
</tr>
<tr>
<td>55.</td>
<td>Superintendent</td>
</tr>
<tr>
<td>56.</td>
<td>Supervisor</td>
</tr>
<tr>
<td>T</td>
<td>Target</td>
</tr>
<tr>
<td>57.</td>
<td>Technical</td>
</tr>
<tr>
<td>58.</td>
<td>Testimonial</td>
</tr>
<tr>
<td>59.</td>
<td>Tour</td>
</tr>
<tr>
<td>60.</td>
<td>Training</td>
</tr>
<tr>
<td>61.</td>
<td>Translation</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>31.</td>
<td>अदायनी</td>
</tr>
<tr>
<td>32.</td>
<td>वंद, अव-वंद, जुर्माना</td>
</tr>
<tr>
<td>33.</td>
<td>अविनाश पड़ा हुआ, लूप्त हुआ, लूप्त</td>
</tr>
<tr>
<td>34.</td>
<td>पेंशन</td>
</tr>
<tr>
<td>35.</td>
<td>चोज्जा, चोज्जा बचावा</td>
</tr>
<tr>
<td>36.</td>
<td>कार्यवाही</td>
</tr>
<tr>
<td>37.</td>
<td>प्रस्ताव</td>
</tr>
<tr>
<td>38.</td>
<td>प्रबाह</td>
</tr>
<tr>
<td>39.</td>
<td>स्थिर करता, सुलभ करता</td>
</tr>
<tr>
<td>Q</td>
<td>अहंता, योग्यता</td>
</tr>
<tr>
<td>40.</td>
<td>तैमारिक</td>
</tr>
<tr>
<td>41.</td>
<td>परिवेशवन</td>
</tr>
<tr>
<td>42.</td>
<td>संबंध, विरोध, हवाला</td>
</tr>
<tr>
<td>43.</td>
<td>विचार, अनुमोदन</td>
</tr>
<tr>
<td>44.</td>
<td>परिशिष्टिक, भेदभाव</td>
</tr>
<tr>
<td>45.</td>
<td>वर्तीकालन</td>
</tr>
<tr>
<td>46.</td>
<td>राजस्व</td>
</tr>
<tr>
<td>S</td>
<td>संतोषजनक</td>
</tr>
<tr>
<td>47.</td>
<td>संविदा</td>
</tr>
<tr>
<td>48.</td>
<td>मुदा, मोहर</td>
</tr>
<tr>
<td>49.</td>
<td>जुलू, जुलू कल</td>
</tr>
<tr>
<td>50.</td>
<td>प्रतिसूतित, सुलबा</td>
</tr>
<tr>
<td>51.</td>
<td>वीरिकता</td>
</tr>
<tr>
<td>52.</td>
<td>राज्य तलाकर</td>
</tr>
<tr>
<td>53.</td>
<td>सामान, समभ्र, संबंध</td>
</tr>
<tr>
<td>54.</td>
<td>सांबंध, संबंध</td>
</tr>
<tr>
<td>55.</td>
<td>आवीकक</td>
</tr>
<tr>
<td>56.</td>
<td>पत्रबंधक</td>
</tr>
<tr>
<td>T</td>
<td>लघु</td>
</tr>
<tr>
<td>57.</td>
<td>तक्तीकी</td>
</tr>
<tr>
<td>58.</td>
<td>शंसापत्र</td>
</tr>
<tr>
<td>59.</td>
<td>दीवा</td>
</tr>
<tr>
<td>60.</td>
<td>प्रतिभाक</td>
</tr>
<tr>
<td>61.</td>
<td>अध्यादर</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>65.</td>
<td>Travelling Allowance</td>
</tr>
<tr>
<td></td>
<td>यात्रा-सहा</td>
</tr>
<tr>
<td>66.</td>
<td>Under Secretary</td>
</tr>
<tr>
<td></td>
<td>अद्वितीय</td>
</tr>
<tr>
<td>67.</td>
<td>Unemployment</td>
</tr>
<tr>
<td></td>
<td>वैकल्पिक, वैशेषभक्ति</td>
</tr>
<tr>
<td>68.</td>
<td>Unofficial Letter</td>
</tr>
<tr>
<td></td>
<td>अत्याध्यायी पत्र</td>
</tr>
<tr>
<td>69.</td>
<td>Up-to-date</td>
</tr>
<tr>
<td></td>
<td>अद्वितीय</td>
</tr>
<tr>
<td></td>
<td>V</td>
</tr>
<tr>
<td>70.</td>
<td>Verification</td>
</tr>
<tr>
<td></td>
<td>सत्यापन</td>
</tr>
<tr>
<td>71.</td>
<td>Violation</td>
</tr>
<tr>
<td></td>
<td>अतिक्रमण</td>
</tr>
<tr>
<td></td>
<td>W</td>
</tr>
<tr>
<td>72.</td>
<td>Waiting list</td>
</tr>
<tr>
<td></td>
<td>प्रतीक्षा-पूर्वी</td>
</tr>
<tr>
<td>73.</td>
<td>Warning</td>
</tr>
<tr>
<td></td>
<td>चेतावनी</td>
</tr>
<tr>
<td>74.</td>
<td>Working days</td>
</tr>
<tr>
<td></td>
<td>कार्य-दिवस, काम के दिन</td>
</tr>
<tr>
<td>75.</td>
<td>Working Hours</td>
</tr>
<tr>
<td></td>
<td>कार्य-समय, काम के प्रति</td>
</tr>
<tr>
<td>76.</td>
<td>Working Knowledge</td>
</tr>
<tr>
<td></td>
<td>कार्य-प्रक्टिक्युल ज्ञान</td>
</tr>
<tr>
<td>77.</td>
<td>Write off</td>
</tr>
<tr>
<td></td>
<td>बट्टे-बांटे डालना</td>
</tr>
<tr>
<td></td>
<td>Z</td>
</tr>
<tr>
<td>78.</td>
<td>Zone</td>
</tr>
<tr>
<td></td>
<td>जोन, अंचल</td>
</tr>
</tbody>
</table>

-------------------
B.A./B.Sc.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS

ਪ੍ਰੌਸਤੀ (ਨਿਠਲੋਚਿਤ)

ਦੱਖਣੀ ਸਲਵਾਜ਼ ਭਾਗ ਦੇ ਨਿਠਲੋਚਿਤ ਲੂਟੀ

ਸਮਾਨਤਾ ਪਾਸਿੰਗ

ਪ੍ਰਾਪਤੀ : 100
ਧਾਤੀਅਂ : 90
ਨਿਠਲੋਚਿਤ ਸਮੇਤੀਅਂ : 10
ਸੰਖਾ : 3 ਚੌਟੀ

ਪ੍ਰਤਕੁਝ

1. ਆਪਣੀਆਂ ਸੂਚੀਆਂ ਵਹਿਣਾ ਰਾ ਅਵਵਾਲਤ 25 ਮੌਂ
2. ਪ੍ਰੌਸਤੀ ਵਿਦਾਲੀ 25 ਮੌਂ
3. ਪ੍ਰੌਸਤੀ ਸਾਰਿਸੁੰਦਰ ਨਾ ਨਿਠਲੋਚਿਤ (1901 ਦੇ 2000 ਦੇਣਦਰ) 20 ਮੌਂ
4. ਵਹਿਣਾ ਦੇ ਪ੍ਰੌਸਤੀ ਵਹਿਣਾ 10 ਮੌਂ
5. ਸਾਰਿਸੁੰਦਰ ਦੇ ਵਹਿਣਾ 10 ਮੌਂ

ਵਿਚਵਾਦ

1. ਸਕੂਲ ਤਹਾਡ (ਸਾਬਕ) ਦਾ. ਸਾਰਿਸੁੰਦਰ ਸਿਧਾ, ਪ੍ਰੌਸਤੀ ਸੂਚੀਆਂ ਪ੍ਰੋਕੌਂਸ ਕਰਨਾ (1901 ਦੇ 2000 ਦੇਣਦਰ),
ਪਹਾੜੀਆਂ ਪੁਲੀਕਾਰਟ ਸੀਕਿਆਂ, ਪ੍ਰੋਕੌਂਸ ਪੁਲੀਕਾਰਟ ਸੀਕਿਆਂ, ਚੰਡੀਗਡ਼ ਦੇ।
(ਨਿਠਲੋਚਿਤ ਵਲੇ: ਸੂਚੀ ਸਿਧਾ ਸਿਧਾ, ਪੁਲੀਕਾਰਟ ਸਿਧਾ, ਸੂਚੀ ਤਹਾਡ ਸਿਧਾ, ਪੁਲੀਕਾਰਟ ਸਿਧਾ, ਸਕੂਲ ਤਹਾਡ,
ਚੰਡੀਗਡ਼, ਦਾ. ਉਦਿਕਸਤ ਸਿਧਾ, ਦਾ. ਸਾਬਕਾਡ਼)

2. ਦੇ ਵਹਿਣਾ ਦੇ ਵਹਿਣਾ ਦੇ ਸਿਧਾ ਕੁਮਾਰ ਦੇ ਸਿਧਾ ਕੁਮਾਰ ਦੇ ਸਿਧਾ ਕੁਮਾਰ ਦੇ ਸਿਧਾ ਕੁਮਾਰ

ਪ੍ਰਭਾਵਾਦ ਮੋਹਵਾਂ

1. (ਦੇ) ‘ਸਕੂਲ ਤਹਾਡ’ ਸਕੂਲ ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ

2. (ਦੇ) ਸਰਦਾਰ ਮੰਗੂਰੀ ਨਿਚੇ ਸਰਦਾਰ ਮੰਗੂਰੀ ਨਿਚੇ ਸਰਦਾਰ ਮੰਗੂਰੀ ਨਿਚੇ ਸਰਦਾਰ ਮੰਗੂਰੀ

3. (ਦੇ) ਨਿਚੇ ਮੰਗੂਰੀ ਨਿਚੇ ਮੰਗੂਰੀ ਨਿਚੇ ਮੰਗੂਰੀ ਨਿਚੇ ਮੰਗੂਰੀ

4. ਪ੍ਰੌਸਤੀ ਸਾਰਿਸੁੰਦਰ ਨਾ ਨਿਠਲੋਚਿਤ (1901 ਦੇ 2000 ਦੇਣਦਰ) : ਵਹਿਣਾ, ਤਹਾਡ ਦੇ ਨਿਚੇ ਪ੍ਰੌਸਤੀ ਸਾਰਿਸੁੰਦਰ ਨਿਚੇ ਨਿਠਲੋਚਿਤ ਨਾ ਨਿਠਲੋਚਿਤ ਨਾ ਨਿਠਲੋਚਿਤ

5. ਪ੍ਰੋਕੌਂਸ ਨਾ ਪ੍ਰੋਕੌਂਸ ਪ੍ਰੋਕੌਂਸ ਪ੍ਰੋਕੌਂਸ

6. ਸਾਰਿਸੁੰਦਰ ਦੇ ਵਹਿਣਾ, ਵਹਿਣਾ, ਸਾਰਿਸੁੰਦਰ ਨਾ ਵਹਿਣਾ, ਸਾਰਿਸੁੰਦਰ ਨਾ ਵਹਿਣਾ, ਸਾਰਿਸੁੰਦਰ ਨਾ ਵਹਿਣਾ

ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ : ਨਿਚੇ ਪ੍ਰਭਾਵਾਦ ਲੰਕਾ ਨਿਚੇ ਲੰਕਾ ਨਿਚੇ ਲੰਕਾ ਨਿਚੇ ਲੰਕਾ

ਵਿਕੇਸ਼ ਦੇਟ : ਮਹੀਨੇ ਪ੍ਰਭਾਵਾਦ ਲੰਕਾ ਨਿਚੇ ਨਿਚੇ ਨਿਚੇ ਲੰਕਾ
### पंजीकरण (दिल्ली विश्वविद्यालय)

#### भी.पी. (मूल कक्षा) पिछले अभ्यास/ मंत्री 2018-19 देखिए उनकी गणना लेटी

<table>
<thead>
<tr>
<th>भावना</th>
<th>पाठ्यक्रम</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>अनुपयोगी पंजीकरण द्वारा अनुष्ठान</td>
</tr>
<tr>
<td>2.</td>
<td>पंजीकरण तालिका</td>
</tr>
<tr>
<td>3.</td>
<td>पंजीकरण मानदंड देखिए (1901 से 2000 तक)</td>
</tr>
<tr>
<td>4.</td>
<td>अर्थव्यवस्था मान्यता</td>
</tr>
<tr>
<td>5.</td>
<td>मान्यता मान्यता</td>
</tr>
</tbody>
</table>

#### वेक्स

1. रसायन धारण (भूमा.) डा. समानिच भिन्न, अनुपयोगी पंजीकरण (1901 से 2000 तक), पाक्शिकता तपाई, पंजीकरण सुरक्षित, विश्वविद्यालय।
2. इंजीनियरिंग वर्ग: रसायन, मैत्र नि:मान, शुची, समूह दीवार, तत्काल विद्युत, मूलधार मान्यता, (रसायन विश्वविद्यालय, समान-विद्या, समान-विद्या, समान-विद्या)
3. कुर्सी, अनुवाद अभिव्यक्ति विभाग, चीनी गतिविधियों, समर्थन।

#### पृष्ठभूमि अंक

<table>
<thead>
<tr>
<th>पाठ्यक्रम</th>
<th>पाठ्यक्रम</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>रसायन धारण (भूमा.) डा. समानिच भिन्न, अनुपयोगी पंजीकरण (1901 से 2000 तक), पाक्शिकता तपाई, पंजीकरण सुरक्षित, विश्वविद्यालय।</td>
</tr>
<tr>
<td>1.</td>
<td>रसायन धारण वर्गिक पाठ्यक्रम विभाग पप्पला पप्पला (दे हिंदी हिंदी)</td>
</tr>
<tr>
<td>2.</td>
<td>अवधारणा रसायन पाठ्यक्रम वर्गिक पप्पला पप्पला (दे हिंदी हिंदी)</td>
</tr>
<tr>
<td>3.</td>
<td>रसायन रसायन वर्गिक पाठ्यक्रम किसी नतीजे क्षेत्रीय पत्रिका (दे हिंदी हिंदी)</td>
</tr>
<tr>
<td>4.</td>
<td>रसायन पत्रिका युद्ध पत्रिका (1901 से 2000 तक): रसायन, नवजीवन देखिए (किसी नतीजे क्षेत्रीय पत्रिका वर्गिक पत्रिका 50 संख्या दे हिंदी हिंदी)</td>
</tr>
<tr>
<td>5.</td>
<td>अवधारणा रसायन पाठ्यक्रम: (किसी नतीजे क्षेत्रीय पत्रिका) (किसी नतीजे क्षेत्रीय पत्रिका)</td>
</tr>
<tr>
<td>6.</td>
<td>रसायन रसायन पाठ्यक्रम दी परिक्षा, पुलिस, पुलिस दे उड़</td>
</tr>
</tbody>
</table>

#### पाठ्यक्रम तत्कालिन

1. पंजीकरण मानदंड देखिए (स्पष्टता वर्ग), पंजीकरण पुरीतिश्चितता, पाक्शिकता।
2. पंजीकरण मानदंड देखिए (स्पष्टता वर्ग), अफवाह विकास, पंजीकरण, पाक्शिकता।
3. पंजीकरण मानदंड देखिए (स्पष्टता वर्ग), अफवाह विकास, अमीन विकास वर्ग, समूह पूंजी सूचना, सूचना, सुसंदर।
4. विपणाकार, शेयर भिन्न (किसी नतीजे क्षेत्रीय पत्रिका) (किसी नतीजे क्षेत्रीय पत्रिका) | 2002 |
5. विपणाकार, शेयर भिन्न (किसी नतीजे क्षेत्रीय पत्रिका) (किसी नतीजे क्षेत्रीय पत्रिका) | 2012 |
6. विपणाकार, शेयर भिन्न (किसी नतीजे क्षेत्रीय पत्रिका) (किसी नतीजे क्षेत्रीय पत्रिका) | 2012 |
7. अनुपात, वेबसाइट (किसी नतीजे क्षेत्रीय पत्रिका) वर्ग, पंजीकरण पुरीतिश्चितता, पाक्शिकता।
8. वेबसाइट (किसी नतीजे क्षेत्रीय पत्रिका) वर्ग, पंजीकरण पुरीतिश्चितता, पाक्शिकता।
9. समूह, समूह, अनुपात, अभिव्यक्ति वर्ग वर्ग, पंजीकरण पुरीतिश्चितता, पाक्शिकता

#### विद्यमान टेंट : पाठ्यक्रम तत्काल देखिए हिंदी हिंदी, हिंदी हिंदी, हिंदी हिंदी 6 + 6 - 12 पढ़ीमान।


### Paper - Sanskrit

#### (आत्मार्क्षिक परीक्षा - 10, निर्दिष्ट परीक्षा - 90)

#### निर्देश तथा उद्देश्य-

- प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
- विद्यार्थियों को रोचक कथाओं के माध्यम से काम-कोध-लोभ-मोह-अन्धकार, मातस्यत्व तथा ईश्वर इत्यादि दृष्टिगोचर के बारे में न हीकर जीवन-पथ पर अप्रसंग होने, विद्या का वास्तविक अर्थ एवं वृद्धि की महिमा की विवरण देना।
- इसके अतिरिक्त व्यावहारिक शब्दावली द्वारा विद्यार्थियों की संस्कृत के प्रति रुचि प्रजागत करना।
- संस्कृत पूरा वैज्ञानिक पंि व्याकरणिक भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के अध्ययनार्थ, अवधारणा का प्रयोग, संस्कृतवाची शब्द, शब्दरूप, परिवर्तन एवं अन्य सामान्य ज्ञान से परिचित करवाना।
- पत्र का अवधारण समय नौ पीरियड (प्रतिचारण) प्रतिसाह होगा, जिसमें तीन पीरियड कम्प्युटर ज्ञान के होंगे।
- सभी प्रश्नों में शारीरिक अथवा निर्देश विकल्प आवश्यक हैं।

### UNIT - I

#### (क) अपरीक्षितकालकृ (1-4 कहानी)

- (i) गद्य-भाग (सहस्रसंग अनुवाद - तीन में से एक)
- (ii) सूक्ष्म-शोक (दो की सहस्रसंग-व्याख्या)
- (iii) कथासार

#### (ख) नीतिवचनकृ (1-25 शोक)

- (i) शोक (दो की सहस्रसंग व्याख्या)
- (ii) सूक्ष्म-सहस्रसंग अनुवाद/ व्याख्या (तीन में से एक)

### UNIT - II

#### (ग) व्यावहारिक संस्कृत शब्दावली:

1. अंगुला-अंधुः
2. वृंट-चंदुः; वृंट-चंदुः; वृंट-चंदुः; वृंट-चंदुः; वृंट-चंदुः; वृंट-चंदुः;
3. अंगुलड़ि-अंहुः
4. अंघा-अंड्भा
5. कम-कमः; कमः; कमः; कमः; कमः; कमः;
6. कलाई-कलाई
7. कान-कान; कान; कान; कान; कान; कान;
8. गद्य-गद्य
9. घुटना-पान
10. जीन-जीन; जीन; जीन; जीन; जीन; जीन;
11. दृष्ट-दृष्ट; दृष्ट; दृष्ट; दृष्ट; दृष्ट; दृष्ट;
12. नाक-नाक; नाक; नाक; नाक; नाक; नाक;
13. फुंट-कुंड; फुंट; फुंट; फुंट; फुंट; फुंट;
14. बाँह-बाँह; बाँह; बाँह; बाँह; बाँह; बाँह;
15. भू-भूः; भू-भूः; भू-भूः; भू-भूः; भू-भूः; भू-भूः;
B.A./B.Sc.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS

UNIT-III

(8) वर्णों के उच्चारण स्थान

(9) निप्पणित अव्ययों का वाक्यों में प्रयोग

(10) संस्कृत (गणना) वाक्य शब्द (1 से 50 तक (पाँच शब्द))

(11) सामान्य-ज्ञान - तिथि, नक्षत्र, पोषा, करण, वार

(12) स्वर संबिधा (पाँच संख्याओं प्रणय)

UNIT-IV

(13) वद्वस्त्रुः: राम, लता, मल, दुनि, भर्तरी (दो वद्वस्त्रु प्रणय)

(14) पात्रस्तुः: पति, गम, फळ, कीडा, वद्व, पा (केवल लट्टे, टुटे, लोट, लड़ विचिठ्ठिक लकार में, दो घट्टुस्त्रु प्रणय)

UNIT-V

(15) हिंदी से संस्कृत में अनुवाद (5 वाक्य)

(16) सहायक पुस्तकें - 1. अपरिशिष्टकारकम (विषयुत्तम)। 2. नीतिशतकम (भट्टहरि)। 3. श्रीग्रामभोग, चौथमा, वाराणसी।

..............................
संस्कृत (इलेक्ट्रिक)
सेमेस्टर-2

Paper - Sanskrit : कथा, नीति एवं व्यकरण
(आन्तरिक परीक्षा- 10, विलिक्त परीक्षा- 90)
पूर्णांक: 90+10=100
समय-3 घण्टे

निर्देश तथा उद्देश्य- 
- प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
- विद्यार्थियों को रोचक कथाओं के माध्यम से काम-कोष-लोम-मोह-अंदेश, मातर्म तथा ईश्वर इत्यादि दुरुपयोगों के बदले, बुद्धि की महिमा की विशेष देखी।
- इसके अन्तर्गत व्याकरणविद चर्चा विद्यार्थियों की संस्कृत के प्रति रुचि जागृत करना।
- संस्कृत पूर्ण वेदांतिक एवं व्यक्तिक भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के अध्ययनार्थ, व्याख्यान का प्रयोग, संवादविद्याचुं शब्द, शब्दरूप, ध्वनि पर अध्ययन करना।
- पत्र का अध्ययन समय नी परिक्षा(प्रतिवार) प्रतिमान होगा, जिसमें तीन परिक्षा माध्यमिक में कराई जाएगी।
- सभी प्रश्नों में व्याख्यातात्व अथवा निर्दिष्ट विकल्प आवश्यक हैं।

(५) अपरीक्षाकालम् (5-8 कहानी)
(i) गद्य-भाषा (सामान्य अनुवाद - तीन में से एक) 05अंक
(ii) सूक्ति/शोक (दो की सामान्य-भाषा) 10अंक
(iii) कथासार 05अंक

(६) नीतिनिर्देश (26-50 शोक)
(i) शोक (दो की सामान्य भाषा) 10अंक
(ii) सूक्ति-समान्य अनुवाद / भाषा (तीन में से एक) 05अंक

(७) व्याकरणिक संस्कृत शब्दावली : पेश, पश्चि में वनस्पति समर्थक (15 में से 10 शब्दों की संस्कृत) 10अंक
22. कीवा-काफ़:
23. गीय-मुख:
24. चक्वा-चक्वाफ़:
25. दिदिया-चन्दक़ा
26. तीता - शुक़:
27. परीहा-चाँगक़:
28. वगला-क़क़:
29. वततः-वर्तक़:, वर्तिका
30. बाज-शेनः:
31. मोर-मूरः:
32. मुर्गा-कुळः:
33. हंस-हंसः:
34. सारस-सारसः:
35. आंबला-आंतक़ी
36. आम(वुड़)-आमः:
37. जाॅमुन (वुड़)-जामुः
38. नारियल (वुड़)-नारिज़लः
39. नीम-निष्कः:
40. पीपल-अश्वः:
41. बेल (वुड़)-बिल्वः
42. गुड़ज्ज-स्थलप्रमः
43. कमल-कुळमः, पुषोरिकमः, पदमः
44. घंडा-घनघूषमः
45. चामेली-मारङ्गी
46. चम्पा-चम्पक़:
47. पराग-मकरन्दः
48. रात की रानी-रजनीगण्यः
49. पत्ता-पत्रमः, पर्णमः
50. त्वत-वलति:, वीसुः

(घ) निरनिरिक्त अवधियों का वायु को प्रयोग 5x1=5अक

कथम, अथः:, धः:, परस्थः:, सचः:, पूर्तः:, गुणः:, वामः:, दक्षिणः:, नीचः, ऊँचः:, बढः:, अन्तः:

(ड) संव्या (गणना) वाची शब्द (51 से 100 तक) पाँच शब्द 5x1=5अक

(च) सामान्य- श्लान (राचि, मास, ग्रह एवं दश दिशाओं के नाम) 5अक

(ङ) शब्दरूपः: गुणः, पितृः, मातृः, भवतः, अस्मः, चुम्मः (दो शब्दरूप प्रद) 2x5=10अक

(ङ) धातुरूपः: विषः, नीः, देशः, भूः, त्वजः, सम्प्रातः (के तह त्र्तृत, त्र्तृत, त्र्तृत, त्वजः, विगितः त्वजः त्वजः में दो धातुरूप प्रद) 10अक

(ह) हिंदी से संक्षेप में अनुवाद (10 वाक्य) 5x2=10अक

स्मायक पूर्ति- अपरिश्वेतवक्तक्यमः (विषयुष्मोः)। नीतिततकमः (भर्तहरि)। शीत्रिहोषः, चौकम्या वारणसी।
**URDU (Elective)**

**SEMESTER - I**

**Essay and Composition:**

- **Theory:** 90 marks
- **Internal Assessment:** (5+3+2) : 10 marks
- **Time:** 3 Hrs

<table>
<thead>
<tr>
<th>Unit</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit-I</td>
<td>30</td>
</tr>
<tr>
<td>Unit-II</td>
<td>20</td>
</tr>
<tr>
<td>Unit-III</td>
<td>20</td>
</tr>
<tr>
<td>Unit-IV</td>
<td>20</td>
</tr>
</tbody>
</table>

**Books Recommended:**

2. Urdu Qaedah-mae- Intekhaab Nasar-o-nazm by Dr. Haroon Ayub.
URDU (Elective)

SEMESTER - II

Prose and Poetry

Theory : 90 marks
Internal Assessment (5+3+2) : 10 marks
Time : 3 Hrs

Unit-I

Explanation of Prose Passages from : 30 marks
Urdu Zuban Hamari, Mirza Ghalib ki Seerat, Darogha ki Panchon Ghee mein, Nasooh ki Bimari.

Unit-II

Explanation of Ghazal verses from : 20 marks
Muhammed Valiullah Vali, Mir Taqi Mir, Mirza Asadullah Khan Ghalib, Faiz Ahmed Faiz,
Raghupati Sahay Firaq Gorakhpuri, Jigar Moradabadi.

Unit-III

Explanation of Nazm verses from : 20 marks
Ajanta, Taj Mahal, Kashmir, Shikast-e-zindan ka khwab, Dastan Shahzade ke ghayab hone ki,
Farzi latifa, Ek chehlum par, Clerk.

Unit-IV

Summary of poem or a lesson from prose and poetry (given in Unit I & III) 20 marks

Books Prescribed

PERSIAN (Elective)

Note: There will be one paper in each Semester i.e. 1st and 2nd Semester of 90 marks each and Internal Assessment 10 marks each Semester for the session of 2017-18.

SEMESTER-I

Paper-A – Prose:

Time: 3 Hours
Written Paper: 90 Marks
Internal Asst.: 10 Marks

Instructions to the paper setter/examiner and also the distribution of marks as follows:

1. Translation of two passages into English, Urdu, Punjabi, Hindi or Persian. (Out of three question 2 have to be attempted) Marks: 30
2. Explanation of Hikayat or Intekhab into English, Urdu, Punjabi, Hindi or Persian. (Choice must be given) Marks: 30
3. Summary of any one of the Hikayat from Gulistan-e-Saadi into English, Urdu, Punjabi, Hindi or Persian. Marks: 10
4. Simple and direct short biographical questions on the authors. Marks: 20

Books Prescribed for this Paper:

   Complete Prose section. Publisher: Ram Narayan, Beni Madhauv
   2, Katra Road Ilahabad.
PERSIAN (Elective)

SEMESTER-II

Paper-B – Poetry:

Time: 3 Hours
Written Paper: 90 Marks
Internal Asst. : 10 Marks

Instructions to the paper setter/examiner and also the distribution of marks as follows:

1. Explanation of poems into English, Urdu, Punjabi, Hindi or Persian (Out of three poems comprising five Ashaar two have to be attempted) Marks: 30
2. Explanation of the theme of the poem into English, Urdu, Punjabi, Hindi or Persian. (Choice must be given) Marks: 30
3. Summary of any one of the poem into English, Urdu, Punjabi, Hindi or Persian. Marks: 10
4. Simple and direct short biographical questions on the poets. Marks: 20

Only the following poems from the book Guldasta-ye-Farsi:

1. انتخاب از سعدی
شنايدم که در وقت نزع روان
شنايدم که دا راتي فرخ تیار
مشتاقی وصبری از حذ گزشت پارا

2. غزلیات حافظ
دوش وقت سحر از غصه نجات دانند
dl می رود زدستم صاحب دلان خدار

Books Prescribed for this Paper:

   From Hissa-ye-Nazm. Publisher: Ram Narayan, Beni Madhauv
2. 2, Katra Road Allahabad.
FRENCH (Elective)

SEMESTER - I

EXAMINATION: WRITTEN COMPREHENSION AND EXPRESSION, GRAMMAR IN CONTEXT AND CREATIVE WRITING

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

1. Ten questions (including General and based on Civilization) pertaining to the prescribed textbook. 20 marks
2. Comprehension of an unseen text (easier than the prescribed textbook). Ten questions to be put and answered in French. 10 marks
3. Translation from English into French and from French into English of a passage or short sentences based on the vocabulary of the prescribed textbook. 10+10 marks
4. Questions on applied grammar, including conjugation of verbs in applied form, pertaining to the text book. 30 marks
5. Write a dialogue of 150 words on the topics covered in the syllabus. 10 marks

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


(a) Livre de l’élève
(b) Cahier d’exercices

Note: 1. Questions on composition and unseen passage to be based on the vocabulary and grammar of the textbook covered by the students in B.A. First Semester.
2. All questions are to be asked and answered in French (except questions on translation).

For the information of private candidates:

The theory paper would be proportionately marked out of 100 as there is no internal assessment.
FRENCH (Elective)

SEMESTER – II

EXAMINATION : WRITTEN COMPREHENSION AND EXPRESSION, GRAMMAR IN CONTEXT
AND CREATIVE WRITING

Max. Marks : 100
Theory : 70 marks
Internal Assessment : 10 marks
Viva : 20 marks
Time : 3 hours

1. Ten questions (including General and based on Civilization) pertaining to the prescribed textbook. 20 marks

2. Comprehension of an unseen text. Ten questions to be put and answered in French. 10 marks

3. Questions on applied grammar, including conjugation of verbs in applied form pertaining to the text book. 30 marks

4. Write an essay/composition of 150 words on any topic covered in the syllabus 10 marks

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


(a) Livre de l’élève
(b) Cahier d’exercices

Note: 1. Questions on composition and unseen passage to be based on the vocabulary and grammar of the textbook covered by the students in B.A. First Year.

2. All questions are to be asked and answered in French

Viva: 20 marks
Reading 10 marks
Seen 05 marks
Unseen 05 marks
Conversation 10 marks

For the information of private candidates:

1. Viva is compulsory.
2. The theory paper would be proportionately marked out of 80 as there is no internal assessment.
GERMAN (Elective)

SEMESTER – I

Summary

Max. Marks : 100 marks (Total)
Paper-A (Theory) : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Note : Use of dictionary is allowed

I. Questions in applied grammar (including fill in the blanks) conforming to prescribed text-book "Lagune-1": Chapters 1-15 upto page 78 (5 questions) : 50 marks

II. Questions on "Culture & Civilization" from the prescribed book text-book "Lagune-1": Chapters 1-15 upto page 78 (3 out of 4 questions to be attempted) : 20 marks

III. Paraphrasing of a poem or stanzas out of the following poems from "German Verse" by Kulkarni & Chapekar : 20 marks
   i. Gefunden (Goethe)
   ii. Da ich ein Knabe war (Hölderlin)
   iii. Sehnsucht (Eichendorff)

Internal Assessment : 10 marks (Total)

- Continuous Evaluation
- Attendance

Note: 1. The mode of evaluation for Internal Assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in paper B)

Prescribed Textbook:

i. "Lagune-1" Kursbuch by Hartmut Aufderstraße a.o: Chapters 1-15 upto page 78.
ii. "German Verse" by Kulkarni & Chapekar

Supplementary Book:

"Lagune-1" Arbeitsbuch by Hartmut Aufderstraße a.o: Chapters 1-15.
GERMAN (Elective)

SEMESTER –II

Summary

Max. Marks : 100 marks (Total)
End-Semester Exam Paper-B (Theory) : 60 marks
Oral (viva-voce) Examination : 30 marks
Internal Assessment : 10 marks
Time : 3 hours

Note: Use of dictionary is allowed

I. Questions in applied grammar (including fill in the blanks) conforming to prescribed text-book "Lagune-1": Chapters 16-30 (5 questions) : 30 marks

II. Questions on "Culture & Civilization" from the prescribed book text-book "Lagune-1" : Chapters 16-30 (3 out of 4 questions to be attempted) : 15 marks

III. Paraphrasing of a poem or stanzas out of the following poems from "German Verse" by Kulkarni & Chapekar : 15 marks
   i.  Die Lorelei (Heine)
   ii.  Sommerbild (Hebbel)
   iii.  Abendlied (Keller)

Oral (viva-voce) Examination : 30 marks (Total)
   i.  Easy conversation in German
   ii.  Reading of a simple unseen text and answering questions there-on.

Internal Assessment : 10 marks (Total)
   i.  Continuous Evaluation
   ii.  Attendance

Note: 1. The mode of evaluation for Internal Assessment is to be followed as per University guidelines.
    2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in paper B)

Prescribed Textbook:
   i.  "Lagune-1" Kursbuch by Hartmut Aufderstraße a.o: Chapters 16-30.
   ii.  "German Verse" by Kulkarni & Chapekar

Supplementary book:
   i.  "Lagune-1" Arbeitsbuch by Hartmut Aufderstraße a.o: Chapters 16-30.
RUSSIAN (Elective)

SEMESTER - I

Paper : (General Translation, Grammar, Composition and comprehension): Written

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
(For regular students)
Maximum Time : 3 hrs.

1. Translation from simple Russian into English/Hindi/Punjabi (about 120 words) 15 Marks

2. Translation from simple English / Hindi / Punjabi into Russian (about 100 words). 15 Marks

3. Simple applied grammar: 3 questions out of 5 (5 marks each) (Covered in Lessons 1-15, Wagner) 15 Marks

4. Questions on prescribed texts in Russian: 3 questions out of 5 (5 marks each) (Covered in Lessons 1-15, Wagner) 15 Marks

5. Composition (One out of three) on the following topics:
   1. My family.  2. My day.  3. Our class.  4. Working day. 15 Marks

6. Comprehension: 5 questions out of 7 (3 marks each) on the unseen texts to be reproduced in the question paper: 15 Marks

Note : Use of dictionaries is allowed.

Book Prescribed :

1. V.N.Wagner : Russian, PPH, New Delhi.(Lessons 1-15)

Books recommended for additional reading


   Russian -English dictionary.
RUSSIAN (Elective)  
SEMESTER - II

Paper : (General Translation, Grammar, Composition and comprehension): Written

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
(For regular students)
Maximum Time : 3 hrs.

1. Translation from simple Russian into English/Hindi/Punjabi (about 80 words) 10 Marks
2. Translation from simple English / Hindi / Punjabi into Russian (about 75 words). 10 Marks
3. Simple applied grammar: 3 questions out of 5 (4 marks each) (Covered in Lessons 16-31, Wagner) 12 Marks
4. Questions on prescribed texts in Russian: 4 questions out of 6 (2 marks each) (Covered in Lessons 16-31, Wagner) 08 Marks
5. Composition (One out of three) on the following topics: 10 Marks
   1. Our city.  2. Our flat.  3. An evening party.  4. Birthday.
6. Comprehension: 5 questions out of 7 (2 marks each) on the unseen texts to be reproduced in the question paper: 10 Marks

Note : Use of dictionaries is allowed.

Book Prescribed :

1. V.N.Wagner : Russian, PPH, New Delhi. (Lessons 16-31)

Books recommended for additional reading


Oral/ Practical  Maximum Marks: 30

Reading of text(s) and conversation in simple Russian.

1. V.N.Wagner : Russian, PPH, New Delhi. (Lessons 6-31)
SUBJECT:

ARABIC (Elective)
BENGALI (Elective)
TAMIL (Elective)
TELGUGU (Elective)
KANNADA (Elective)
MALAYALAM (Elective)

The above Syllabus for B.A.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS has been KEPT IN ABYANCE
PHYSICAL EDUCATION

SEMESTER-I

THEORY :

Max. Marks : 65
Theory : 60 marks
Internal Assessment : 05 marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :

(a) There shall be nine questions in all, spread over Five Units.

(b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks, i.e two marks each question.

(c) Rest of the paper shall contain four Units for descriptive questions. Each Unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each Unit.

(d) All questions/Units will carry equal marks.

(e) Private candidates and the students of the University School of Open Learning (USOL) are not allowed to take this subject.

(f) The University paper shall be set in three languages i.e., English, Punjabi and Hindi.

UNIT-I 12 Marks

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first question/Unit of the question paper which is compulsory.

UNIT-II 12 Marks

Education :

- Meaning and concept of Education

Physical Education :

- Meaning and definition of Physical Education, its aim and objectives.
- Need and importance of Physical Education in the Modern Society and its relationship with other subjects.

History of Physical Education :

- Pre and Post Independence Development of Physical Education in India.
UNIT-III 12 Marks

Olympic Games, Asian Games & Common Wealth Games :

- Ancient Olympic Games.
- Modern Olympic Games.
- Asian Games; and
- Common Wealth Games.

UNIT-IV 12 Marks

Sports Schemes, National Institutions of Sports and National and International Governing Bodies of Olympic Games :

- Raj Kumari Amrit Kaur Coaching Scheme.
- Netaji Subash National Institute of Sports, Patiala (NSNIS, Patiala).
- Sports Authority of India (SAI).
- Indian Olympic Association (IOA).
- International Olympic Committee (IOC).

UNIT-V 12 Marks

Basics of Handball :

- History of the game.
- Basic fundamentals.
- Equipment and specifications.
- Marking/layout of court.
- Rules and regulations (number of players, duration of game, number of officials required and general rules of play).
- Major tournaments and Arjuna Awardees of the game.

References :


PRACTICAL

Max. Marks : 35
Practical : 30
Internal Assessment : 05

ATHLETICS
Sprints (Types of Start and Finish) :

(a) Crouch start-fixing of starting blocks, getting in and off the block, emphasizing on body position, need of starting blocks in a sprint race.

(b) Practice of starts with starting blocks using proper commands.

(c) Training the students for correct running style.

(d) Practice of Finishing the sprint with different techniques.

(e) Rules and Regulations of Sprint races.

Middle Distance, Long Distance and Walking Events :

(a) Marking of standard tracks, width of lanes and starting points for various races.

(b) Practical of Standing Start.

(c) Correct running and walking style, emphasis on proper body position and foot placement.

(d) Running tactics.

(e) Rules of competition.
Physical Fitness Tests: More emphasis shall be given on general physical fitness and principles of physical exercises (Speed and agility).

Test 1 SPEED: 50 mts dash test.

Test 2 AGILITY: Shuttle run test.

Division of Practical Marks:

Marks for each activity shall be divided as under:

Athletics 15 marks, participation and achievement in Athletics 5 marks, Physical fitness 5 marks, viva voce 5 marks and internal assessment 5 marks based on overall performance of a student during the current academic session which will be assessed by the teacher concerned.

Note:

1. Pole vault, Hammer Throw Hurdles, Relay Races and steeple chase men are not included in the practical syllabus/course due to the fact that these events are highly technical. Moreover, in the absence of proper facilities required for the events mentioned above may prove to be injurious/fatal to the students.

2. 12 periods per week (6 periods for theory and 6 periods for practicals) shall be allotted to a Teacher/class for each semester.

3. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.

4. The theory (Paper) shall consist of 65 marks and practical paper shall consist of 35 marks in each semester.

5. A student shall be given a project work related with athletics.
PHYSICAL EDUCATION

SEMESTER-II

THEORY

Max. Marks : 65
Theory : 60 marks
Internal Assessment : 05 marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :

(a) There shall be nine questions in all, spread over Five Units.

(b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks i.e., two marks each question.

(c) Rest of the paper shall contain four Units for descriptive questions. Each Unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each Unit.

(d) All questions/Units will carry equal marks.

(e) Private candidates and the students of the University School of Open Learning (USOL) are not allowed to take this subject.

(f) The University paper shall be set in three languages i.e., English, Punjabi and Hindi.

UNIT-I

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first question/Unit of the question paper which is compulsory.

UNIT-II

Cell:

- Meaning and definition of Anatomy & Physiology, Structure and Functions of a cell.

Skeletal System :

- Meaning and functions of skeletal system.
- Types of Bones and names of various bones of the body.

Muscular System :

- Introduction of Muscular system, structure and function of muscular system.
- Effect of short and long duration physical Exercise on the muscular system.
UNIT-III

Warming up, Cooling down and Physical Fitness:

- Warming up and cooling down in sports and its significance
- Meaning, definition and components of Physical Fitness.
- Influence of age, sex, body composition, diet, climate, exercise and training on Physical Fitness.

Kho-kho:

- History of the game
- Basic fundamentals
- Equipment and specifications
- Marking/layout of court
- Rules and regulations (number of players, duration of game, number of officials required and general rules of play); and
- Major tournaments and Arjuna Awardees of the game

UNIT-IV

Health & Health Education:

- Meaning and definition of health.
- Meaning, definition, objectives, scope, principles and importance of Health Education.
- Personal hygiene, its meaning and importance.

First Aid:

- Meaning and importance of First Aid in Physical Education and Sports with special reference to Drowning, Dislocation of a joint, Fracture of bone, Sprain and Strain.

UNIT-V

Biological Basis of Physical Education:

- Growth and Development, Differences between growth and development.
- Factors affecting growth and development.
- Heredity and Environment and its effects on Growth and Development.
- Various stages of growth and development.
References:


PRACTICAL

Max. Marks : 35
Practical : 30 marks
Internal Assessment : 05 marks

Games :
Note : Volleyball or Kabaddi (NS) and any one game of the choice of the student (other than the two) which should be confined to the list of games approved by the Association of Indian Universities.

Volleyball
(a) Measurements (volleyball court, net, poles, antenna and ball).
(b) Number and position of players and officials.
(c) Types of service (under arm service, side arm service and tennis service).
(d) Types of passes (under hand and over head pass).
(e) Rules of the game.

OR

Kabaddi (NS)
(a) Measurements (Kabaddi court for men and women).
(b) Number of players and officials.
(c) Fundamental offensive skills, touching with hand, leg thrust, front kick, side kick, Mule kick, jump and dive counter.
(d) Defensive Skill (wrist catch, normal grip, ankle catch, knee catch and chain formation).
(e) Tactics : (a) getting bonus point (b) counter to bonus line crossing (c) Delaying tactics for getting lona.

Physical Fitness Tests : More emphasis shall be given on general physical fitness and principles of physical exercises (Speed and agility).

Test 1 SPEED : 50 mts dash test.
Test 2 AGILITY : Shuttle run test.

Division of Practical Marks :

Marks for each activity shall be divided as under : Games 15 marks, participation and achievement in sports/games 5 marks, Physical fitness 5 marks, viva voce 5 marks and internal assessment 5 marks based on overall performance of a student during the current academic session which will be assessed by the teacher concerned.

Note : 1. The choice of games by the students shall be confined to the list of games approved by the Association of Indian Universities.
   2. 12 periods per week (6 periods for theory and 6 periods for practicals) shall be allotted to a Teacher/class semester.
   3. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
   4. The theory (Paper) shall consist of 65 marks and practical paper shall consist of 35 marks in each semester.
   5. A student shall be given a project work related with athletics.

--------------------------
EDUCATION

SEMESTER – I

PAPER : EDUCATION AND SOCIETY

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :

The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 18 marks each. Unit V will consist of eight short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in all. Each short question will carry 3 marks.

GENERAL INSTRUCTIONS FOR THE CANDIDATE :

The students will be required to attempt one question each from Units I, II, III and IV. The students are required to attempt 6 short questions out of 8 in Unit V which will be compulsory. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit (300-350 words for Units I, II, III, IV and; 75 words for each short answer type question in Unit V) for answer.

Objectives :

To enable the students to understand :
1. The Meaning, Nature and Scope of Education along with its types.
2. Functions of Education in light of its aims.
3. Role of Education viz-a-viz present day needs.

Course Contents :

UNIT-I : (a) Meaning and Nature of Education : Education as a Socio-Political Process and Developmental Process.
(b) Informal, Formal and Non-Formal Education.

UNIT-II : (a) Aims of Education – Individual, Social, Vocational and Democratic.

UNIT-III : (a) Education for Democratic Citizenship.
(b) National Integration and International Understanding.

UNIT-IV : (a) Value Education – Meaning of Values, their Development
(b) Transactional Strategies.
Books Recommended:


.........................
EDUCATION
SEMESTER – II

PAPER : EDUCATION AND HUMAN DEVELOPMENT

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :
The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two
questions from the respective Units of the syllabus and will carry 18 marks each. Unit V will consist of
eight short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in
all. Each short question will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATE :
The students will be required to attempt one question each from Units I, II, III and IV. The students are
required to attempt 6 short questions out of 8 in Unit V which will be compulsory. The question paper
should preferably carry internal division of marks for all the sub-questions of one main question.
Preferably set the words limit (300-350 words for Units I, II, III, IV; and 75 words for each short answer
type question in Unit V) for answer.

Objectives :
To make the students understand :
1. The meaning, scope and uses of psychology in education.
2. Human growth and development upto the stage of childhood.
4. The concept of intelligence - its meaning and measurements.
5. Causes and significance of individual differences.

Course Contents :

UNIT-I : (a) Educational Psychology : Meaning, Nature and Scope.
(b) Individual Differences – Causes, Significance and Educational Implications.

UNIT-II : (a) Nature of Human Growth and Development – Physical, Mental, Emotional and Social.
(b) Stages of Human Development : Infancy and Childhood, their Needs, Significance and Problems.

UNIT-III : (a) Learning : Meaning and Definition.
(b) Theories of Learning - Trial and Error by Thorndike and Classical Conditioning by Pavlov.

UNIT-IV : (a) Intelligence : Meaning, Types
(b) Measurement of Intelligence.
Books Recommended:


ADULT EDUCATION

SEMESTER-I

Max. Marks : 100
Theory : 45 marks
Internal Assessment : 05 marks
Practical : 45
Internal Assessment : 05 marks
Time : 03 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER:
The question paper will consist of five Units: I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 9 marks each. Unit V will consist of 6 short answer type questions which will cover the entire syllabus uniformly and will carry 9 marks in all. Each short question will carry 1\(\frac{1}{2}\) marks comprising 6 questions.

GENERAL INSTRUCTIONS FOR THE CANDIDATE:
The students will be required to attempt one question each from Units I, II, III and IV. The students are required to attempt 6 short questions out of 8 in Unit V which will be compulsory. The question paper should preferably carry internal division of marks for all the sub-questions of one main question.

OBJECTIVES OF THE COURSE:
The main objectives of the paper are:

1. To introduce students with meaning, scope and components of adult education.
2. To provide an overview of history of adult education.
3. To equip students with objectives, strategies and implementation of National Literacy Mission’s Programs.
4. To acquaint students with structuring of teaching – learning environment for an adult learner.
5. To explain to students the various forms of Adult Education.

THEORY:

UNIT-I : Adult Education : Concept, Meaning, Brief History during Post-Independence Period.

UNIT-II : Scope and Components of Adult Education i.e. Literacy, Numeracy, Awareness and Functionality.


PRACTICAL/ FIELD WORK:

Participation of the students in the following and preparation of Project Report:

Survey of the Village/Area: General information regarding the village; its Economic, Social and Cultural Activities: Needs and Problems.

The break up of 50 marks allotted to practical is as under:

<table>
<thead>
<tr>
<th></th>
<th>External</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Viva-Voce</td>
<td>15 marks</td>
<td></td>
</tr>
<tr>
<td>(ii) Written questions based on the Project</td>
<td>10 marks</td>
<td>5</td>
</tr>
<tr>
<td>(iii) Project Report</td>
<td>20 marks</td>
<td></td>
</tr>
</tbody>
</table>

The Project Report must be submitted 15 days in advance from the date/s of practical examination, to the Principal of the concerned College/Institution.

Books Recommended:

4. Directorate of Adult Education : *Fifty Years of Adult Education in India.*
ADULT EDUCATION

SEMESTER-II

Max. Marks : 100
Theory : 45 marks
Internal Assessment : 05 marks
Practical : 45
Internal Assessment : 05 marks
Time : 3 Hours

UNIT-I : Structuring Teaching Learning Environment for Adult Learners : Identification of Areas. Survey of the Community, Identification of Learners.

UNIT-II : Campaign for enrolment of Adult Learning, enrolment of the learners and day-to-day functioning of Adult Education Centre, Involvement of Community & Developmental Agencies.

UNIT-III : Various forms of Adult Education i.e. Social Education, Community Education.

UNIT-IV : Basic Education and Life Long Education.

PRACTICAL/FIELD WORK :

Participation of the students in the following and preparation of Project Report :
1. Preparation of profile of the area.
2. Organization of Adult Education Centres for Basic Literacy Development.

The break up of 50 marks allotted to practical is as under :

<table>
<thead>
<tr>
<th></th>
<th>External</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Viva-Voce</td>
<td>15 marks</td>
<td></td>
</tr>
<tr>
<td>(ii) Written questions based on the Project</td>
<td>10 marks</td>
<td>5</td>
</tr>
<tr>
<td>(iii) Project Report</td>
<td>20 marks</td>
<td></td>
</tr>
</tbody>
</table>

The Project Report must be submitted 15 days in advance from the date/s of practical examination, to the Principal of the concerned College/Institution.

Books Recommended:

4. Directorate of Adult Education : Fifty Years of Adult Education in India.


--------------------------
MUSIC (Vocal)

SEMESTER – I

GENERAL INSTRUCTIONS:
1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to 10 students in one section of Practical Class.
3. There should not be more than eight students in a batch for practical examination.
4. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
5. While sending the syllabus to paper setter in theory, the syllabus prescribed for the practical paper should also be sent.
6. The candidate can take vocal music along with Instrumental Music/Tabla.
7. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting by one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 question of 01 marks each.

THEORY (3 Hours duration)                                                                                                        45 Marks
PRACTICAL (20 minute’s duration)                  45  Marks
  (i) Choice & Viva     :  35 Marks
  (ii) Harmonium     :  05 Marks
  (iii) Tabla      :  05 Marks

Internal Assessment (Theory + Practical) (05+05)                       10 Marks

Total :                          100 Marks

THEORY

Unit-I

1. Bhatkhande Notation System in Modern Period.
2. Elementary knowledge of Raga
3. Different Jaties of Ragas of *the Present Raga System* of North Indian Music
Unit-II
1. Elementary knowledge of the following Musical terms (not more than 100 words):
   Shruti, Swara (Shudh & Vikrit), Saptak, Alankar
2. Life sketch and contribution of Bhatkhande.
3. Sangeet: (Definition and Importance)

Unit-III
1. Brief description of Tanpura.
2. Definitions and types of Khayal.

Unit-IV
1. Notation & brief description of Ragas prescribed in the course with Alap and Taans:- Alhaiya Bilawal, Bhopali
2. Notation & Description of Talas prescribed in the course:- Teentala, Dadra (Single & Double)

NOTE :- Both the questions from this part must contain one notation of Raga alongwith the notation of Talas.

Unit-V
1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

PRACTICAL
1. One Drut Khayal in each of the following Ragas with Alaps and Tanas: - Alhaiya Bilawal, Bhopali
2. One Sargamgeet in any of the prescribed ragas
3. Ability to play Dadra Tala on Tabla
4. Ability to recite bols of the tala prescribed in the course in Thah and Dugun by hand:-Teen tala, Dadra
5. Ability to play on Harmonium at least three alankaras based on Shudh and Vikrit swaras and sing alongwith it.
6. Ability to sing national Anthem
Books Recommended:

3. Sangeet Kala ka Itihas : Panna Lal Madan
4. Sangeet Sar Part (I) : Mrs. Veena Mankaran
10. Sangeet Kaumudi Part II : V.S. Nigam.
11. Sangeet Shastra Darpan Part II : Shanti Goverdhan.

------------------------
MUSIC (Vocal)

SEMESTER-II

GENERAL INSTRUCTIONS:

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be up to 10 students in one section of Practical Class.

3. There should not be more than eight students in a batch for practical examination.

4. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.

5. While sending the syllabus to paper setter in theory, the syllabus prescribed for the practical paper should also be sent.

6. The candidate can take vocal music along with Instrumental Music/Table.

7. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting by one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 question of 01 marks each.

THEORY (3 Hours duration) 45 Marks

PRACTICAL (20 minutes duration) 45 Marks

(i) Choice & Viva : 35 Marks
(ii) Harmonium : 05 Marks
(iii) Tabla : 05 Marks

Internal Assessment (Theory + Practical) (05 + 05) : 10 Marks

THEORY

Unit-I

1. Knowledge of Bhatkhande Thaat Paddhati
2. Study of Naad
Unit-II

1. Elementary knowledge of the following Musical terms (not more than 100 words):
   Matra, Avartan, Sam, Tali, Khali, Vibhag, Aroh, Avaroh

2. Elementary knowledge of the Gun Dosh of Gayak

Unit-III

1. Elementary knowledge of the Laya & Taal in Music


Unit-IV

Notation and Description of the prescribed Ragas and Talas :-

1. To write one drut khyal in each of the following ragas:- Yaman, Kafi with Alap and Taans

2. To write one bada khyal in any raga of the syllabus with Alap and Taans

3. To write the notation of Talas:- Ektal, Kehrwa.

4. To write the description of ragas of the syllabus

NOTE:- Both the questions from this part must contain one notation of Raga alongwith the notation of Tala.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PRACTICAL

1. One Drut Khayal in each of the following Ragas with Alaps and Tanas : -Yaman, Kafi

2. One Vilambit Khayal in any of the prescribed Ragas.

3. Ability to play Teen Tala on Tabla

4. Ability to recite bols of the talas prescribed in the course in Thah and Dugun by hand:- Ek tal, Kehrwa

5. Ability to play on Harmonium at least three alankaras based on Shudh and Vikrit swars and sing along with it.
Books Recommended:

2. *Sangeet Shastra Vigyan* : Panna Lal Madan
3. *Sangeet Kala ka Itihas* : Panna Lal Madan
MUSIC (Instrumental)

SEMESTER-I

GENERAL INSTRUCTIONS :-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be upto 10 students in one section in Practical Class.

3. There should not be more than eight students in a batch for practical examination.

4. Harmonium can be used while singing Alankars.

5. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting by one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 question of 01 marks each.

6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.

7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

8. The candidate can take vocal music or Tabla along with instrumental music.

THEORY (3 Hours duration) 45 Marks

PRACTICAL (20 minutes duration) 45 Marks

(i) Viva : 35 Marks
(ii) Harmonium : 05 Marks
(iii) Tabla : 05 Marks

Internal Assessment (Theory + Practical) (05 + 05) : 10 Marks
THEORY

Unit – I

1. Elementary knowledge of Raga
2. Sangeet (Definition & importance)

Unit – II

1. Elementary knowledge of the following terms: (not more than 100 words):
   Swara, Saptak, Alankar, Aron, Avroh, Pakad, Thaat
2. Elementary knowledge of Bhatkhande Notation System.

Unit – III

1. Brief description of your own instrument.
2. Definition and types of Gat (Razakhani and Maseetkhani).

Unit – IV

Notation and Description of the prescribed Ragas and Talas:
1. Rag Bhopali (one Razakhani gat)
2. To write Alankars.
3. To write the notation of Tala (Dadra & Teental) with dugun layakaries

NOTE:- Both the questions from this part must contain one notation of Raga alongwith the notation of Talas.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.
PRACTICAL

1. Demonstration of different Alankars of Shudh & Vikrit Swaras on your instrument.
2. One Razakhani gat of raga Bhopali
4. Ability to demonstrate the following talas by hand in Ekgun and Dugun layarkaries: Dadra, Teental.
5. Ability to play Shudh-Swaras on Harmonium.
6. Ability to play Dadra tala on tabla.

Books Recommended

2. Sangeet Kaumudi Part-II (Punjabi): V.S. Nigam
6. Sangeet Manjusha: Dr. Indrani Chakravarti.
7. Sangeet Shastra Vigyan: Sh. Panna Lal Madan
8. Sangeet Kala ka Itihas: Sh. Panna Lal Madan

........................
MUSIC (Instrumental)

SEMESTER-II

GENERAL INSTRUCTIONS

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be upto10 students in one section in Practical Class.

3. There should not be more than eight students in a batch for practical examination.

4. Harmonium can be used while singing Alankars.

5. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting by one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 question of 01 marks each.

6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.

7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

8. The candidate can take vocal music or Tabla along with instrumental music.

THEORY (3 Hours duration) 45 Marks
PRACTICAL (20 minutes duration) 45 Marks

(i) Viva : 35 Marks
(ii) Harmonium : 05 Marks
(iii) Tabla : 05 Marks

Internal Assessment (Theory + Practical) (05 + 05) : 10 Marks
THEORY

Unit-I

2. Knowledge of Bhatkhande That Paddhati.
3. Study of Nada

Unit-II

1. Elementary knowledge of the following terms (not more than 100 words):
   Matra, Avaratan, Sam, Tali, Khali and Vibhag
2. Study of various bols of Mizrab, Tora, Jhala

Unit-III

1. Elementary knowledge of Laya and Taal in Music
2. Brief life sketches and their contributions to Indian Music of the following great masters:
   (i) Pt. Ravi Shanker
   (ii) Pt. V.N. Bhatkhande

Unit-IV

Definition and description of the prescribed Ragas and Tala: - Yaman, Kafi
1. One Maseetkhani Gat in any prescribed raga and talas: - Yaman, Kafi
2. To write the notation of Razakhani Gat of rag Kafi and Yaman with atleast four todas
3. Write in notation Jhaptala, Keharva Tala with dugan layakaries.

NOTE: Both the questions from this part must contain one notation of Raga alongwith the notation of Talas.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PRACTICAL

1. One Maseetkhani Gat in any raga of your syllabus.
2. Razakhani gats with toras & Jhala in the following ragas:- Kafi, Yaman
3. Ability to demonstrate the following talas by hand in Ekgun and Dugun layakaries: Talas: Jhaptal & Keharva
4. Ability to play Teen tala on Tabla
5. Ability to play Aroh, Avron of Raag Yaman & Kafi on Harmonium.
6. Ability to play National Anthem on your own instrument.
Books Recommended:

1. Rag Parichaya Part II and III : H.C. Srivastava
2. Sangeet Kaumudi Part-II (Punjabi) : V.S. Nigam
3. Sitar Marg Part-II : S. Bandopadhyia
4. Sangeet Sar, Part-I : Mrs. Veena Mankaran
5. Sangeetanjali, Part I & IV : Pt. Onkar Nath Thakur
6. Sangeet Manjusha : Dr. Indrani Chakravarti
7. Sangeet Shastra Vigyan : Sh. Panna La Madan
8. Sangeet Kala ka Itihas : Sh. Panna La Madan

----------------------
GENERAL INSTRUCTION:

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. In all, *nine* questions will be set from the whole syllabus of Semester-I. The question paper will be divided into five Units. First four units will contain two questions each, out of which the candidates are to attempt one question from each Unit, fifth unit based on notation shall be compulsory. Thus in all, the candidates are required to attempt five questions.

3. Harmonium/Sarangee will be allowed to play Nagma/Lehra. No electronic Lehra machine will be allowed for practical examination.

4. Practical Paper shall be set from the syllabus for Paper-B (Practical).

**Paper-A: THEORY** (3 Hours duration) : 45 Marks

**Paper-B: PRACTICAL** (20 minute’s duration). : 45 Marks

(i) Viva 30 Marks
(ii) Harmonium 05 Marks
(iii) Tabla (Tuning) 05 Marks
(iv) Padhant on Hand 05 Marks

Internal Assessment (Theory+Practical) (5+5) 10 Marks

**Total: 100 Marks**

**Paper-A THEORY**

**UNIT-I**

1. Define :- Dahina, Bayan, Palli, Kinar, Syahi
2. Explain :- Laya, Matra, Vibhag, Tali
3. Brief Introduction of Bhatkhande Tala notation system.

**UNIT-II**

1. Description of playing techniques of Ten Varnas.
2. Definition with example:- Tihai, Mukhra, Mohra and SimpleTukra.
3. Definition of Thah and Dugun.
UNIT-III

1. Importance of Taal in Music.
2. A structural study of the following Instruments: Dholak, Naal, Pakhawaj
3. Definition of Avanaddha Vadyas.

UNIT-IV

1. Definition of Baaj and Gharana.
2. Detail playing techniques of Delhi Gharana and its Kayda.
3. Life sketches and contribution of the following artists:
   (i) Ustad Siddhar Khan
   (ii) Ustad Nathoo Khan

UNIT-V

Ability to write in notation the composition prescribed in Teen Taal, Chautaal. (Quaida, Simple Tukra, Tihai).

Paper-B PRACTICAL

(1) Taals Prescribed Teen Taal, Chautaal, Kehrwa
(2) Laggi in Kehrwa Taal and its variety.
(3) Teen Taal (Peshkara, Two Paltas, Two Kaydas, Two Mukhra)
(4) Chautaal (Theka in Thah and Dugun)
(5) Practice of playing the above Taals with Vocal and Instrumental performances.
(6) Ability to play Nagma/Lehra on Harmonium in Teen Taal.

Books Recommended:

2. Tabla Tarang : B.S. Nigam
4. Avanaddha Vadhya : M.P. Sharma
6. Tabla ki Utpatti Evam Vikas : Yogmaya Sharma
7. Tabla Vadan Part-1 : Jagmohan Sharma
B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS

TABLA (Instrumental)

SEMESTER-II

GENERAL INSTRUCTION:

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. In all, 09 questions will be set from the whole syllabus of Semester-II. The question paper will be divided into five Units. First four units will contain 02 questions each, out of which the candidates are to attempt one question from each Unit, 5th unit based on the notation shall be compulsory. Thus in all, the candidates are required to attempt five questions.

3. Harmonium/Sarangi will be allowed to play Nagma/Lehra. No electronic Lehra machine will be allowed for practical examination.

4. Practical Paper shall be set from the syllabus for Paper-B (Practical).

5. All syllabus included of Semester-I.

Paper-A: THEORY (3 Hours duration) : 45 Marks

Paper-B: PRACTICAL (20 minutes duration). : 45 Marks

(i) Viva : 30 Marks
(ii) Harmonium : 05 Marks
(iii)Tabla (Tuning) : 05 Marks
(iv)Padhant on Hand : 05 Marks

Internal Assessment (Theory & Practical) (5+5) : 10 Marks

Total : 100 Marks

Paper-A Theory

UNIT- I

1. Define- Lav (maidan), Baddhee, Gatta, Gudri (Yaduri)
2. Explain:- Khali, Sum, Avarthan and Theka.
3. Detail Introduction of Bhatkhande Taal notation system and writing of Talas in Bhatkhande notation system.

UNIT- II

2. Define with examples:- Quaida (Kayda), Rela, Peshkar and Paran.
3. Definition of Chougun and Athgun.
UNIT- III

1. Importance of Taal in Music & Dance.
3. A structural study of the following instruments:
   Khol, Khanjari, Damru.

UNIT- IV

1. Definition of Gharana and brief history of Delhi and Ajrada Gharana of Tabla Vadan.
2. Detail Playing techniques and characteristics of Delhi and Ajrada Gharana.
3. Life sketches and contribution of the following Artists:
   (i) Ustad Habibuddin Khan
   (ii) Pt. Beeroo Mishra

UNIT- V

Ability to write in notation the composition prescribed in Teen Taal and Ektaal (Simple and Chakradar Tukra, Paran, Mukhra)

Paper-B: PRACTICAL

1. Taals prescribed Dadra, Ektaal, Teen Taal
2. Laggi in Dadra and Kehrwa Taal.
3. Ektaal (One Qaida, Two Tukra, Two Tihai, One Paran)
4. Teentaal (One Rela, One Chakradar Paran, One Tukra, One Mohra)
5. Practice of Dholak playing in Kehrwa Taal.
6. Ability to play Nagma/Lehra on Harmonium in Ektaal.
7. Tuning of Tabla.

Books Recommended:

2. Tabla Tarang : B.S. Nigam
4. Avanaddha Vadya : M.P. Sharma
6. Tabla ki Utpatti Evam Vikas : Yogmaya Sharma
7. Tabla Vadan Part-1 : Jagmohan Sharma
INDIAN CLASSICAL DANCE

SEMESTER-I

GENERAL INSTRUCTIONS:

1. In case of the private candidates, there would be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be upto ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic Instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance along with Vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

THEORY (Time duration 3 hours.) 45 Marks
PRACTICAL (20 minutes duration) 45 Marks
Internal assessment (Theory and Practical) (5 + 5) 10 Marks

Paper-A : Theory

Unit –I
1. Origin of Tandava
2. Four Neck movements
3. Eight eye glances

Unit-II
1. Definition of Mudra. Explain Asamyukta Mudras based on Abhinaya Darpan.
2. Definition of the following terms:
   Tora, Salami, Theka, Tehai, Amad.

Unit-III
1. Definition of folk Dance.
2. A study of folk dances of Punjab, their costumes and background music.
3. A study of folk dance of Haryana, their costumes and background music.
Unit-IV

1. Notation of Tatkar and Theka in Ekgun, Dugun and Chaugun laykaries.
2. Notation of Amad, Tukra, Salami, Tora and Tihai in Teentaal.
3. Notation of Nagma in Teentaal.

Unit-V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each

Practical: Paper-B

(A) Teen Taal:
   i) Tatkar in Ekgun, Dugun and Chaugun laykaries. Theka and Tatkar with Ekgun. Dugun and Chaugun Layakaries
   ii) Salami - 1
   iii) Amad - 1
   iv) Tora - 4
   v) Tihai - 1
   vi) Tukra - 1

B) Practical of all the technical part in Teentaal on hand
C) Theka of Teentaal on hand in Ekgun and Dugun laykaries
D) Theka of Teentaal on table.

...............
INDIAN CLASSICAL DANCE

SEMESTER –II

GENERAL INSTRUCTIONS:

1. In case of the private candidates, there would be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance along with Vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

THEORY (Time duration 3 hours.)  45 Marks
PRACTICAL (20 minutes duration)  45 Marks
Internal assessment (Theory and Practical) (5 + 5)  10 Marks

Paper-A: THEORY

Unit –I

1. Study of Lasya Dance.
2. Six Eyebrow movements.
3. Nine Head movements.

Unit-II

1. Detail knowledge of Samyukta Mudras based on Abhinaya Darpan.
2. Essential characteristics of Bharatnatyam.
3. Detailed study of Kathak in mughal period.
Unit-III

1. Brief study of Abhinaya and its various parts.
3. Definition of Nritta, Nritya and Natya.

Unit IV

1. Notation of Theka of Jhaptaal in Ekgun, Dugun and Chougun layakaries.
2. Notation of Tatkar, Tora, Amad and Paran and Chakardar Paran in Jhaptaal.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B : PRACTICAL

(A) Teen Taal:

i) Tatkar in teentaal in Ekgun, Dugun and Chougun layakaries.
ii) Thaat - 1
iii) Tora - 2
iv) Kavit - 1
v) Tihai - 1

(B) Jhaptaal:

i) Tatkar in Ekgun, Dugun and Chaugun layakaries.
ii) Tora - 2
iii) Amad - 1
iv) Paran - 1
v) Chakardar paran - 1
(C) Practice of prescribed material in both the taals on hand.
(D) Practical knowledge of Samyukta Mudras.
(E) Ability to play nagma in teentaal on Harmonium.
(F) Ability to play theka of Jhaptaal on Tabla.
FINE ARTS

SEMESTER – I

Theory (History of Art)

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Written Paper</th>
<th>Internal Assessment</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>54 Marks</td>
<td>06 Marks</td>
<td>60 Marks</td>
</tr>
</tbody>
</table>

Instruction to paper-setters

The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.

The first question shall be of short answer type containing 9 questions, spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 18 marks and shall be a Compulsory question.

8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 9 marks.

Objectives:

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

Unit-I : History of Indian Painting

- Pre-historic paintings from Bhim–Betka.
- Ajanta Cave Painting: Shaddanta Jataka, Padmapani, Avalokitesvara, Dying Princess, Mahajanaka Jataka, Decorative ceiling panels from Cave No. 2.

Unit-II : History of Indian Sculpture

- Indus Valley Civilization - Seals, Metal Dancing Girl, Red Sandstone Torso, Bust of Priest from Mohenjodaro.
- Mauryan Art: Rampurva Bull Capital, Lion Capital from Sarnath, Didarganj Yakshi.

Unit-III : History of Western Art

- Pre-historic Art - Wounded Bison (Altamira), Venus of Willendorf.
- Egyptian Art - Palette of King Narmer, Seated Scribe.
- Greek Art - Standing Youth, Discobolus, Laocoon Group.
Unit-IV : Definition of Key Terms and General Concepts

- Colour: Colour Theory, Colour wheel, Colour terminology and meaning of colour, Line - different types of lines and its meaning, Perspective: Linear and Aerial, Foreshortening.

Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.

Suggested Readings:

PRACTICAL

This paper consists of three sections:

1. **Still Life Study**  
   - Max. Marks: 30  
   - Max. Time: 5 hours

2. **Drawing from Life**  
   - Max. Marks: 30  
   - Max. Time: 5 hours

3. **Landscape Painting (on the spot)**  
   - Max. Marks: 30  
   - Max. Time: 5 hours

**Total: 90 Marks**

**SECTION-I  Still Life Study  (30 Marks)**

1. Drawing and Painting of a number of objects and to study the proportion, volume and rhythmic relationship of masses, study and rendering of texture of different objects.

2. Number of objects: Three objects with display at the back.

3. Medium: Pencil, charcoal or Pastel colours.

4. Size: ½ Imperial sheet

**SECTION-II  Drawing from Life  (30 Marks)**

1. Portrait: From Live Model or Cast in Monochrome

2. Medium: Pencil Shading, charcoal

3. Size: ½ Imperial size sheet.

4. Emphasis should be on structure, proportion, foreshortening, Textural Values, Posture & Individuality of the model.

**SECTION-III  Landscape Painting (on the spot)  (30 Marks)**

1. Landscape painting: Study relationship of objects, their arrangements in the foreground, middle and distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective.

2. Medium: Pencil Sketching or Pastel, Pencil colours.

3. Size: ½ Imperial sheet

**SESSIONAL MARKS: 50 (Based on work related equally to 3 sections).**

Sessional marks will be given on the basis of the work done during the session in all the three sections. At least, three works will be submitted in each section. Sessional marks shall be given by external and internal examiners jointly. In case of difference of opinion, marking may be done separately by each examiner giving marks out of 50% of the aggregate of the sessional marks.

**NOTE:**

1. Choice of option to be offered would depend on the facility available in each Institution concerned.

2. Minimum of 9 hours’ teaching per week be assigned to the subjects and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week)

.........................
FINE ARTS

SEMESTER – II

Theory (History of Art)

Max. Marks : 60
Written Paper : 54 Marks
Internal Assessment : 06 Marks
Total : 60 Marks

INSTRUCTIONS TO PAPER-SETTERS

The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.

The first question shall be of short answer type containing 9 questions, spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 18 marks and shall be a Compulsory question.

8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 9 marks.

Objectives:

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

Unit-I : History of Indian Painting

• Sittanavasal - Lotus Pond.
• Eastern Indian Miniature Painting with special reference to Ashtasahasrika Prajnaparamita.
• Western Indian Miniature Painting with special reference to Nativity of Mahavira from Palm-leaf manuscripts.

Unit-II : History of Indian Sculpture

• Bharhut - Dream of Queen Maya, Yakshas and Yakshini figures.
• Amravati - The Great Departure, Subjugation of Nalagiri.

Unit-III : History of Western Art

• Roman Art - Augustus of Primaporta, Arch of Titus.
• Byzantine Art – Mosaic: Emperor Justinian and his Attendants in S. Vitale.
• Gothic Art - Madonna Enthroned by Duccio, The Lamentation by Giotto.

Unit-IV : Definition of Key Terms and General Concepts

Mural - Fresco and Tempera techniques, Miniature, Chiaroscuro (light-shade), Sculpture in round and in relief.

Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitons and art galleries are a part of study.
Suggested Readings:


PRACTICAL

This paper consists of three sections:

1. Still Life Study Max. Marks : 30 Max. Time: 5 hours
2. Drawing from Life Max. Marks : 30 Max. Time: 5 hours
3. Landscape Painting (on the spot) Max. Marks : 30 Max. Time: 5 hours
   Total : 90 Marks
SECTION-I    Still Life Study  (30 Marks)
1. Drawing and Painting of a number of objects to study proportion, volume and rhythmic: relationship of masses, study and rendering of texture of different objects.
2. Number of objects: Three objects with display at the back.
3. Medium: Oil, acrylic or water colours.
4. Size: ½ Imperial sheet or Canvas Pad

SECTION-II  Drawing from Life  (30 Marks)
1. Portrait: From Live Model or Cast in Monochrome
2. Medium: Charcoal or Pastels (Monochrome)
3. Size: ½ Imperial size sheet.
4. Emphasis should be on structure, proportion, foreshortening, Textural Values, Posture & Individuality of the model.

SECTION-III  Landscape Painting (on the spot)  (30 Marks)
Landscape painting: Study relationship of objects, their arrangements in the foreground, middle and distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective.
1. Medium: Oil, acrylic or water colours.
2. Size: ½ Imperial sheet or Canvas pad

SESSIONAL MARKS : 50 (Based on work related equally to 3 sections).
Sessional marks will be given on the basis of the work done during the session in all the three sections. At least, three works will be submitted in each section. Sessional marks shall be given by external and internal examiners jointly. In case of difference of opinion, marking may be done separately by each examiner giving marks out of 50% of the aggregate of the sessional marks.

NOTE :
1. Choice of option to be offered would depend on the facility available in each Institution concerned.
2. Minimum of 9 hours’ teaching per week be assigned to the subjects and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week)

------------------------
HISTORY OF ART

SEMESTER – I

Note:

1. Each paper carries 100 marks.

2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.

3. The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a Compulsory question.

4. 8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So, the candidate shall attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.

HISTORY OF INDIAN PAINTING AND SCULPTURE

Max. Marks : 100
Time : 3 Hours

Objectives:
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

Study of Indian Painting:

Unit-I

(a) Pre-historic Painting.

(b) Ajanta : Early Period, Classical Period and Post-Classical Period.

Unit-II

(a) Bagh
(b) Badami.
(c) Sittanavasal.
(d) Ellora.
Study of Indian Sculpture:

Unit-III
(a) Indus Valley Civilization.
(b) Mauryan Period.
(c) Bharhut.
(d) Sanchi.

Unit-IV
(a) Amaravati.
(b) Nagarjunikonda.
(c) Mathura under the Kushanas.
(d) Gandharan Art.

Pedagogy:
The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings:


..........................
HISTORY OF ART

SEMESTER – II

Max. Marks : 100
Time : 3 Hours

Note :

1. Each paper carries 100 marks.

2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.

3. The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a Compulsory question.

4. 8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So, the candidate shall attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.

STUDY OF WESTERN PAINTING AND SCULPTURE (from the earliest times to ca. 1400 A.D.) and Theory and Principles of Art Appreciation

Objectives :

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in the west. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

History of Western Art :

Unit-I

(a) Pre-historic Painting.
(b) Egyptian Art.

Unit-II

(a) Greek Art.
(b) Roman Art.

Unit-III

(a) Art of Early Christian Period.
(b) Byzantine Period.
(c) Gothic Period.
Unit-IV

Explanation through illustrations of the concept of :

(a) Space, Line, Colour, Form, Texture, Light and Shade, Design, Balance, Harmony, Composition, Perspective, Foreshortening.

(b) Mural, Fresco and Tempera techniques.

Pedagogy :

The students are expected to familiarize themselves with the art form as seen from the books, slides and related films.

Suggested Readings :

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

SEMESTER – I

Max. Marks : 100
Theory : 90 Marks
Internal Assessment :10 Marks
Time : 3 Hours

Paper-A : HISTORY AND CULTURE OF INDIA FROM THE INDUS VALLEY CIVILIZATION TO 321 B.C.

Objectives:
The paper is a survey of the proto-historic and historic background to Indian history from the Harappan Civilization to the time of the Iranian and Macedonian invasions.

Pedagogy of the Course Work:
Students are expected to familiarize themselves with sources and with methods of reconstructing ancient political history. Further, an attempt is made to view the political events in their situational context, locating the interconnection of social, economic and political developments, as far as their sources permit.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

1. The theory paper will be of 90 marks and 10 marks will be for internal assessment.

2. For Private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. The paper-setter is required to set 9 questions in all. All questions shall carry equal marks. The paper shall be of 3 hours duration.

4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks to be answered in 25 to 30 words. OR a question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

5. The map question shall have the following topics:
   (a) Extent of the Harappan Civilization.
   (b) Location of the 16 Mahajanapadas.
   (c) Alexander’s Indian campaign.

6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper setter shall set 2 questions from each Unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit. Each question shall carry 18 marks.
UNIT-I

Sources of Ancient Indian history: Harappan Civilization: origin; extent; urban features and decline.

UNIT-II

Vedic Civilization (Rig Vedic and Later Vedic Period): society; polity; economy; culture and religion.

UNIT-III

The Sixteen Mahajanapadas with special reference to the rise of Magadha (from Bimbisara to the fall of the Nandas); The rise of Buddhism and Jainism.

UNIT-IV

The Iranian and Macedonian invasions: political and cultural impact on the Indian subcontinent.

Essential Readings:

7. Singh, Upinder : *A History of Ancient and Early Medieval India (From the Stone age to the 12th Century)*, Pearson Education, Delhi, 2009.

.........................
ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY
SEMESTER – II

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Paper : HISTORY AND CULTURE OF INDIA FROM THE MAURYAS TO 319 A.D.

Objectives :
This course deals with the political and cultural history of India from Mauryas to 319 A.D. It also acquaints the students about the foreign invasions which took place during the time span as mentioned above and their impact on the Indian Culture.

Pedagogy of the Course Work :
The students are to be taught with the help of slides, photographs, topographical maps, political maps etc. In addition to it, lectures, workshops and seminars may be arranged to facilitate the students to understand the subject in a better way.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :
1. The theory question paper will be of 90 marks and 10 marks will be for internal assessment.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper-setter must put note (2) in the question paper.

3. The paper-setter is required to set 9 questions in all. All questions shall carry equal marks. The paper shall be of 3 hrs. duration.

4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks to be answered in 25 to 30 words. OR a question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

5. The map question shall have the following topics :
   (a) Extent of the Mauryan empire.
   (b) Location of Ashokan inscriptions.
   (c) Extent of Kanishka’s empire.

6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper setter shall set 2 questions from each Unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit. Each question shall carry 18 marks.
UNIT-I:

The Mauryan empire: sources; political and cultural relations; administrative organization; society and economy; Ashoka’s dhamma; downfall of the Mauryan Empire.

UNIT-II:

Sungas, Kanvas and Satvahanas: Survey of the sources; political overview; society and economy; culture and religion.

UNIT-III:

The Indo Greeks, Shakas and Parthians: Survey of the sources; polity; society and economy.

UNIT-IV:

Kushana and Post-Kushana Period: Survey of the sources; Political; socio-economic; cultural and religious conditions.

Essential Readings:

10. Singh Upinder : A History of Ancient and Early Medieval India (From the Stone age to the 12th Century), Pearson Education, Delhi, 2009.
DEFENCE & STRATEGIC STUDIES

SEMESTER – I

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS

Note:

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

PAPER : CONCEPT OF WARFARE

M. Marks : 70
Time : 3 Hrs.

Objective : This paper deals with the conceptual aspects of warfare focuses on the various aspects of warfare from conventional to Nuclear age.

SECTION-I

1. War : Its definition concept and evolution.

SECTION-II

5. Asymmetric Warfare

SECTION-III

6. Nuclear War, Beginning of Nuclear Era, Effects of Nuclear explosions, Nuclear strategy, Deterrence, Missiles and their classification.
SECTION-IV

7. Psychological aspects of war, Leadership, Motivation, Morale, Discipline, Panic and Fear.
8. Information Warfare.

Books Recommended:


Paper: PRACTICAL

Total Marks: 20
Time: 1 hrs

Note:

1. There will be 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.

2. Practical exercise should be carried out on drawing sheets with explanatory notes or on Computer.
SECTION-A, Practical Test

Marks: 10

Note:

1. There will be three questions in all carrying 5 marks each and candidates will be required to attempt any two questions.

2. Examiners are required to set the question paper at least half an hour before the examination.

Course Contents for Practical

2. Introduction to Topographical Maps: Definition, features, classification, enlargement and reduction of maps.
3. Grid System: Four figure, six figure and eight figure map, references.

SECTION-B

Marks: 10

1. Practical Record 5 marks
2. Viva-Voce 5 marks

(Students be asked to prepare on current topics of general interest)
DEFENCE & STRATEGIC STUDIES

SEMESTER – II

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS

Note:

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper: INTERNATIONAL RELATIONS, STRATEGIC ASPECTS

M. Marks : 70
Time : 3 Hrs.

Objective: This paper focuses on the various attributes of international relations and its role in maintaining peace & security.

SECTION-I

1. International Relations: Meaning, concept and its relationship with strategic aspects.

2. National interest and war: Definition of national interest & its relationship with security; War as an instrument of National Policy.

SECTION-II


SECTION-III

6. Disarmament and Arms Control, Meaning and Concept, Efforts by UNO towards its achievement.

**Books Recommended:**

7. Kumar, Mahendra, *Theoretical Aspects of International Politics*, University of Notre Dame Press, Notre Dame, Ind., 1959

**Paper-B: PRACTICAL**

**Total Marks : 20**

**Time : 1 hrs**

**Note:**

1. There will be 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.

2. Practical exercise should be carried out on drawing sheets with explanatory notes or on computer.

**SECTION-A, Practical Test**

**Marks: 10**

**Note:**

1. There will be three questions in all and candidates will be required to attempt any two questions.

2. Examiners are required to set the question paper at least half an hour before the examination.
Course Contents for Practical

1. Distance and Scale: Definition, types, methods of representing scale, inters conversion of statement, into representative fraction, construction of simple scale line and comparative scale lines.

2. Directions: Types of North, finding out True North, direction by equal altitude method, Watch method, Map method and Compass method.


SECTION-B

Marks: 10

1. Practical Record 5 marks
2. Viva-Voce 5 marks

(Students be asked to prepare on current topics of general interest)
INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES: (For Paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit– IV in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (2) in the question paper.

3. One question from Unit IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:

   Map : 10 marks
   Explanatory Note : 08 marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

Max. Marks : 100
Theory : 90
Internal Assessment : 10
Time : 3 Hours

Objectives: To introduce the students to the history of the Ancient period in Indian History.

Pedagogy: Lectures, library work and discussions.
UNIT I

I. Major Sources of History: Literary and travel accounts; Archaeological findings; inscriptions; coins.
II. Harappan Civilization: Extent, town planning; social economic and religious life.
III. Life in Vedic Age: Political and Economic; social and religious.

UNIT II

IV. Republics and Kingdoms 600-321 B.C.: Mahajanpadas; the rise of Magadha.
V. Jainism and Buddhism: Life and teachings of Vardhman Mahavir; Life and teachings of Gautam Buddha.
VI The Mauryan Empire: Central and Provinicial Administration; revenue, judicial and local administration; Ashoka’s Dhamma.

UNIT III

VII Post Mauryan Period: Decline of Mauryas and Kanishka and his achievements.
VIII. The Gupta Empire: The rise of Guptas and social, economic, cultural and scientific Developments under Guptas.
IX. The Rise of Southern Kingdoms: Administration Under Pallavas; Rashtrakutas; Chalukyas.

UNIT IV

X. Regional Kingdoms in the North: Administration under Harsh Vardhana; origin of Rajputs.
XI South Indian States: Administration under Cholas; Taxation and trade under Pandayas.
XII Map:
(ii) Map on important Historical places: Ajanta, Bodhgaya, Ellora, Harrappa, Indraprastha, Kalibangan, Kalinga, Kannauj, Lothal, Nalanda, Patliputra, Sanchi, Sopara, Taxila, Ujjain, Varanasi.
(iii) Extent of Harappan Civilization.
(iv) Mauryan Kingdom under Ashoka.

Reading List:

5. Thapar, Romila : Early India from the Origin to A.D. 1300, Penguin, 2002.
7. Chakravarty Ranbir : Exploring Early India

.........................
INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES : (For Paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit– IV in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   **The paper-setter must put note (2) in the question paper.**

3. One question from Unit IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   
   - Map : 10 marks
   - Explanatory Note : 08 marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

   Max. Marks : 100
   Theory : 90
   Internal Assessment : 10
   Time : 3 Hours

Objectives: To introduce the students to the history of Medieval India.

Pedagogy: Lectures, library work and discussions.

UNIT I

I. Establishment of Turkish rule under Muizuddin of Ghor; Consolidation under Iltutmish and Balban.

II. The Khaljis: Administration; agrarian and market reforms of Alauddin Khailji.

III. The Tughlaqs: Muhammad Bin Tughlaq’s administrative experiments and its impact, Feroz Shah Tughluq’s administrative and economic reforms.
UNIT II

IV. Vijaynagar Kingdom: Establishment; Administration and Economy.
V. Formation of the Mughal Empire: Political condition of India on the eve of Babur’s invasions; conquests and causes of his success.
VI. The Afghans: Establishment of Afghan power under Sher Shah Suri; administrative reforms.

UNIT III

VII. The Mughal Empire: Central and Provincial administration; Land revenue system.
VIII. The Mughal Empire: Mansabdari system; Jagirdari System.
IX. Debates on the Decline of the Mughal Empire.

UNIT IV

X. The Rise of the Marathas: conquests of Shivaji; administration.
XI. Evolution and main features: Bhakti movement; Sufism.

XII. MAP:

(i) Important Historical places: Lahore, Delhi, Agra, Mathura, Fatehpur Sikri, Chittor, Jaipur, Udaipur, Panipat, Lucknow, Ahmednagar, Poona, Surat, Golkonda, Bijapur, Daulatabad,
(ii) Extent of Empire under Allauddin Khalji.
(iii) Mughal Empire in 1707.

Reading List:

3. Chandra, Satish: Medieval India from Sultanate to the Mughals, Part -II Mughal Empire (1526-1748).
POLITICAL SCIENCE

SEMESTER – I

POLITICAL THEORY-I

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Objectives : The objective of this paper is to introduce first year undergraduate students to some of the basic aspects, concepts and themes in the discipline of Political Science.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(a) There shall be 9 questions in all.

(b) In Question No. One, 15 short answer type questions be asked spreading over whole syllabus to be answered in 10-20 words each. The students shall have to attempt 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be a compulsory question.

(c) Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice. The candidates shall attempt one question from each Unit i.e. 4 in all of 18 marks each.

(d) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (d) in the question paper.

Unit-I

1. Political Science : Meaning, Definition and Scope.

2. Relationship of Political Science with Economics, History and Sociology.

Unit-II

1. The State : Definition, Elements and its Distinction from Government and Society.

Unit-III

1. State : Liberal, Marxian and Gandhian View.

Unit-IV

1. Sovereignty : Definition, Attributes/ Characteristics and Types.
2. Theories of Sovereignty : Monistic and Pluralistic.
   Political System : b) Functions according to David Easton & Almond & Powell.

Books Recommended :


..........................
POLITICAL SCIENCE

SEMESTER – II

POLITICAL THEORY-II

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Objectives : The aim of this paper is to deepen and expand the knowledge of the student in Political Science. It introduces higher level concepts and themes in political theory. It will provide students with the tools to engage with some key political issues of our times.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(a) There shall be 9 questions in all.

(b) In Question No. One, 15 short answer type questions be asked spreading over whole syllabus to be answered in 10-20 words each. The students shall have to attempt 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be a compulsory question.

(c) Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice. The candidates shall attempt one question from each Unit i.e. 4 in all of 18 marks each.

(d) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (d) in the question paper.

Unit-I

1. Power, Authority, Legitimacy: Meaning and Characteristics.
2. Political Culture: Meaning, Characteristics and Types.

Unit-II

1. Rights & Duties: Meaning, Types and Co-relation between the two.
Unit-III


Unit-IV


**Books Recommended:**

**ECONOMICS**

**SEMESTER – I**

**Paper : MICRO ECONOMICS**

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

**Course Objective :**

Microeconomics is concerned with the analysis of economic phenomena from the perspective of the individual. The course covers the basic concepts and tools needed to undertake the analysis of such problems that arise due to the law of scarcity. The course also aims at introduction of the functioning of competitive and noncompetitive product markets and performance of the markets for resources. The students are expected to develop rudimentary understanding of how and why consumers, firms, and markets in the economy function the way they do.

**INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :**

*The syllabus has been divided into four units.*

(i) There shall be 9 questions in all. All questions carry equal marks. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

*The paper-setter must put note (ii) in the question paper.*

**Unit-I**


**Unit-II**


*Market Forms and Revenue: Behaviour of Average Revenue and Marginal Revenue under Perfect Competition and Imperfect Competition. Relationship between Average Revenue, Marginal Revenue and Elasticity of Demand.*

**Unit-III**

Unit-IV

Distribution: Marginal Productivity and Modern Theories of Wage Determination, Ricardian and Modern Theories of Rent. Classical and Loanable Funds Theory of Interest, Risk and Uncertainty theories of Profit.

**Recommended Readings:**


**Supplementary Readings:**


.....................
Course Objective:

This paper aims to familiarize the student with the generally accepted principles of macroeconomics. It deals with aggregates i.e. consumers as a whole, producers as a whole, exporters and importers as a whole, the effects of government spending and taxation, and the monetary policy of the central bank. The course includes the basic theories of determination of income, consumption, investment, employment, money and interest, inflation, Monetary and Fiscal policies, and business cycles.

INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

*The syllabus has been divided into four units.*

(i) There shall be 9 questions in all. All questions carry equal marks. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type question i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (ii) in the question paper.

Unit-I


*Consumption Function:* Average and Marginal Propensity to Consume, Keynes’ Psychological Law of Consumption.

*Investment Function:* Types of Investment, Investment Demand Schedule and Factors Affecting Investment Decisions, Marginal Efficiency of Capital, Static and Dynamic Multiplier.

Unit-II


Unit-III

*Money and Banking:* Money: Definition, Functions and Role
Banking: Major Functions of Commercial Banks and Process of Credit Creation.
Unit-IV

Inflation and Macro-Economic Policies:
Cost-push and Demand-pull Theories of Inflation, Measures to Control Inflation. Monetary and Fiscal Policies for Stabilization.

Trade Cycle: Meaning and Phases.

Recommended Readings:


Supplementary Readings:

SOCIOLGY

SEMESTER - I

FUNDAMENTALS OF SOCIOLOGY

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

(i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12, i.e. 9 x 2 = 18 marks.
In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks each i.e. 4 x 18 = 72 marks.

(ii) On an average, 15 hours are to be devoted for each Unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective:
This paper aims at introducing Fundamentals of Sociology to the beginners of the subject, the basic understanding about Sociology as a discipline. Study of various terms, concepts and processes will help students in formulating a Sociological Viewpoint and an easy comprehension of the discipline at later stages.

Course Content:

Unit-I

Introduction to Sociology: Origin and Development; Nature and Significance.

Relationship of Sociology with other Social Sciences – Anthropology, History and Psychology.

Unit-II


Social Groups - Meaning, Characteristics and Classification Primary and Secondary Groups Ingroups & Outgroups, Reference Group.

Unit-III

Culture: Meaning and Features, Culture and Civilization, Cultural Lag, Acculturation, Assimilation, Cultural Pluralism.

Dimensions of Culture: Cultural Trait, Cultural Patterns, Cultural Complexes, Cultural Relativism.
Unit-IV

Socialization: Meaning, Stages, Agencies and Theories of Mead and Cooley.
Social Control: Meaning, Types and Agencies – Formal and Informal

Essential Readings:


Further Readings:


.................
SOCIOLOGY

SEMESTER - II

SOCIOLOGY STRATIFICATION

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12, i.e. $9 \times 2 = 18$ marks.
In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks each i.e. $4 \times 18 = 72$ marks.

(ii) On an average, 15 hours are to be devoted for each Unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective :
All over the world, social groups are differentiated from one another and often ranked in terms of certain criteria. In this paper, students are exposed to the theoretical understanding of social stratification. In the Indian context, it is pertinent to apprise the students of the concept of social mobility and various factors that contribute to it. The major purpose of this course is to prepare the students to understand the hierarchical structure of groups in various societies and help them understand the social mobility.

Course Content

Unit-I

Social Stratification – Meaning, feature and functions; Inequalities – Social and Natural.
*Elements*: Differentiation, Hierarchy, Ranking, Reward, Evaluation.

Unit-II

Theories of Social Stratification:
Functionalist – Davis and Moore.
Conflict – Marx.
Class, Status, Party – Weber.

Unit-III

*Forms of Social stratification*: Caste, Class, Race and Gender. Interface between caste and class.
## Unit-IV

Social Mobility – Meaning, types, factors.
Indicators – Education, Occupation, Income.

### Essential Readings:


### Further Readings:


-----------------------------
PUBLIC ADMINISTRATION

SEMESTER - I

PAPER : ADMINISTRATIVE THEORY

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 03 Hours

Objective of the Paper :
The objective of this paper is to acquaint the student with the basic concepts and principles of public administration. In addition, the paper would trace the evolution of public administration and its relationship with other social sciences.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES :

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I

Meaning, Nature, Scope and Significance of Public Administration; Public and Private Administration; Public Administration as a Science or an Art; Relationship of Public Administration with other Social Sciences; Evolution of Public Administration since 1887.

Unit-II

Organization: Meaning, Types: Formal and Informal Organization
Forms of Organization: Department, Public Corporation, Government Company.

Unit-III

Chief Executive- Types, functions and Role
Line, Staff and Auxiliary Agencies
Centralisation and Decentralisation
Decision Making: Meaning, types and process

Unit-IV

Coordination: Concept, Methods and Hindrances
Communication: Concept, Process and Barriers
Supervision: Concept and Methods
Leadership: Concept, Styles, Qualities of a Good Administrator
Essential Readings


Further Readings

PUBLIC ADMINISTRATION
SEMESTER - II

PAPER :  INDIAN ADMINISTRATION

Objective of the Paper:

The objective of this paper is to give the student an in-depth understanding of various aspects of Indian administration particularly the functioning of executive, legislature and judiciary at the union and state levels. It would also make them aware of the bureaucratic set up at these levels.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

➢ For Private/University School of Open Learning (USOIL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

➢ The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I

Features of Indian Administration
Union Executive: President; Prime Minister, and Council of Ministers
Union Legislature: Lok Sabha – Composition, Functions and Role: Rajya Sabha – Composition, Functions and Role

Unit-II

State Executive: Governor, Chief Minister and State Council of Ministers
State-Legislature: Legislative Assembly and Legislative Council – Composition, Functions and Role
Centre-State Relations: Administrative and Legislative

Unit-III

Union and State Judiciary: Supreme Court – Composition, Functions and Role
High Court – Composition, Functions and Role
Control over Administration: Legislative and Judicial
Delegated Legislation: Meaning, Reasons and Safeguards
Unit-IV

Cabinet Secretariat– Composition, Functions and Role
State Secretariat– Composition, Functions and Role
District Administration: Structure and Functions

Essential Readings


Further Readings


PHILOSOPHY

SEMESTER – I

Outlines of Tests, Syllabi and Courses of Reading

Paper : ELEMENTS OF PHILOSOPHY

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours
Lectures : 75

AIMS & OBJECTIVES :

The aim of this paper is to familiarize the students with the subject, its branches, problems and methods. The contents of this paper provide the students with a wider canvas about tackling day-to-day problems from a larger perspective.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(i) There shall be 9 questions in all.

(ii) The first question shall be of short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25-30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.

(iii) Rest of the paper shall contain 4 Units and each Unit shall have two questions with internal choice. The candidates shall attempt one question from each Unit i.e. – 4 in all.

(iv) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iv) in the question paper.

Unit-I

2. Problems of Philosophy with special focus on social equality, self knowledge and rationality.
Unit-II

4. Introduction to main branches of Philosophy: Metaphysics, Epistemology, Ethics, Social Philosophy and Aesthetics (The interrelation between the branches will be focused).
5. Relation of Philosophy with Science and Religion.
6. Nature of Art and Aesthetic Experience

Unit-III

7. Ethics and Social Philosophy: Good life and Good Society.

Unit-IV


Essential Readings:


Suggested Readings:

PHILOSOPHY

SEMESTER-II

Paper : LOGIC

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours
Lectures : 75

AIMS AND OBJECTIVES :

This paper aims at a systematic study of the Science of Logic which is the most effective means of developing logical abstract thinking in us. It tries to provide students with a mastery of Logic so that they can think in clearer terms and be less prone to error.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(i) There shall be 9 questions in all.

(ii) The first question shall be of short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25-30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.

(iii) Rest of the paper shall contain 4 Units and each Unit shall have two questions with internal choice. The candidate shall attempt one question from each Unit i.e. – 4 in all.

(iv) For private and reappear candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iv) in the question paper.

Unit-I


2. Terms and Propositions : Kinds of Terms, Connotation and Denotation of Terms. Aristotle’s classification of proposition (Square of Opposition—Contradictories), Contraries, Sub-Contraries and Sub-Alterns.

Unit-II

3. Laws of Thought : Identity, Contradiction, Excluded Middle and Sufficient Reason.

Unit-III

6. Introduction to Truth-Tables, Negation, Conjunction, Disjunction, Implications and Equivalences.

Unit-IV


Essential Readings:


Suggested Readings:

Objectives:

(I) The course introduces to the students the general concepts and historical viewpoints in general psychology. The students would also get an understanding of the principles and theories in different areas like personality, motivation, intelligence, etc. The course also apprises them of the concept of growth and development and also introduces them to the elementary statistics.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

Paper: GENERAL PSYCHOLOGY-I

Max. Marks: 80
Theory: 70 marks
Internal Assessment: 10 marks
Time: 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit I

Nature of Psychology, Goals and Branches of Psychology, Historical Evolution of Psychology, Development of Psychology in India.

Unit II

Emotions: Definition and Concept of Emotions, Types of Emotions, Theories of Emotions (James–Lange, Cannon Bard, Schacter-Singer Theory.), Introduction to Emotion Intelligence.

Unit III

Motivation: Definition, Nature, Concept. Types of Motives (Physiological, Psychological, Social): Theories of Motivation: Humanistic (Maslow), Need Theories (McClelland and Murray).

Note: The use of non-programmable calculators and statistical tables is allowed in the examination.

PSYCHOLOGY PRACTICALS

Max. Marks : 20
Time : 3 Hrs.

Four practicals have to be performed out of six:

1. Level of Aspiration.
2. Facial Expressions in Emotions
4. Measurement of Motivation
5. Zeigarnik Effect
6. Familiarization of any five apparatuses

Suggested Readings:

PSYCHOLOGY

SEMESTER – II

Objectives:

(I) The course introduces to the students the general concepts and historical viewpoints in general psychology. The students would also get an understanding of the principles and theories in different areas like personality, motivation, intelligence, etc. The course also apprises them of the concept of growth and development and also introduces them to the elementary statistics.

(II) Pedagogy of the Course Work:

80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

Paper: GENERAL PSYCHOLOGY-II

Max. Marks : 80
Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit I

Personality – Concept, Trait Theories (Eysenck, Costa and MCrae), Psychoanalytic Theory (Freud).

Humanistic Theory (Rogers). Measurement of Personality, (Self Report Measures, Projective Techniques and Behavioural Assessment)

Unit II


Correlation - Meaning of Correlation, Rank Order and Product Moment-Correlation and Interpretation.
Unit III

Development: Concept, Heredity and Environmental Influences. Theories of Development: Erickson, Psychosocial Theory, Piaget’s theory of Cognitive Development.

Unit IV

Intelligence: Concept, Theories of Intelligence: Spearman, Thurstone, Cattell, Guilford. Measurement of Intelligence (Verbal and Non Verbal Test and Individual and Group Tests).

Note: The use of non-programmable calculators and statistical tables is allowed in the examination.

PSYCHOLOGY PRACTICALS

Max Marks: 20
Time: 3 Hrs.

Four practicals have to be performed out of the following:

1. Verbal Test of Intelligence
2. Non Verbal Test of Intelligence
3. Performance Test of Intelligence.
4. McCosta & Crae NEO Big Five Personality Inventory.
5. Interest Inventory.
6. Familiarization of any five apparatuses

Suggested Readings:

B.A./B.SC.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS

GEOGRAPHY

SEMESTER - I

Paper-I : PHYSICAL GEOGRAPHY-I : Geomorphology

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:
The course aims to familiarize the students with the fundamental concepts in physical geography, essentially geomorphology.

Course Content:

UNIT-I

Nature & Scope of Geography: Place of Physical Geography within the discipline of Geography, Divisions of Physical Geography (Geomorphology, Climatology Oceanography and Biogeography).

Interior of the Earth: Constitution, Isostasy, Continental Drift (with special reference to Wegener’s Theory and Plate Tectonics).

UNIT-II

Movements of the Earth: Orogenic and Epeirogenic (with special reference to Geosyncline theory); landforms resulting from forces of Compression and Tension; Earthquakes and Volcanoes (causes, types and distribution)

UNIT-III

Rocks: Origin, classification and characteristics.

Major Land Forms: Mountains, plateaus and plains in the world.

UNIT-IV

Geomorphic Agents and Landscapes: Fluvial, Glacial, Aeolian, Coastal and Karst.
Note: 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should be in about 25 words. Each part will carry 2 marks (Total 20 marks).

2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 10 marks (Total 40 marks). These will be in addition to the compulsory question.

3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked map stencils and colour pens/pencils are allowed.

4. Internal assessment will be based on written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (5) in the question paper.

List of Readings:

Essential Readings:


Further Readings:


Pedagogy:
- Use of Audio-visual aids, maps, diagrams and other forms of illustrations especially in the Indian context are recommended.
- Relevant educational field trips must be arranged to illustrate the theory being taught.

Paper-II: CARTOGRAPHY-I

Max. Marks: 30
Time : 3 Hours

Written paper of 3 hours duration at college level (except USOL) : 20 marks
Viva and Practical Record (5+5) : 10 marks

Objective:
- To introduce the concept of maps and relevance of maps in Geography.
- To explain the elements of Map (Scale and Orientation) and steps in Map making.
- To introduce relief representation.
Course Content:

UNIT-I

Maps: Brief history of map making and types of maps.
Geometry of the Earth: Latitude, Longitude (Time Zones and International Date Line), Size and Shape of the Earth. (3 lectures, 6 lab sessions)

UNIT-II

Scales: Methods of representing scale;
Methods of construction of Graphic scales: Plain, Comparative, Time and Diagonal. (6 lectures, 12 Lab. sessions)

UNIT-III

Directions and Bearings: Plotting of a course, True North, Magnetic North, finding True North with the Pole star, a watch and a rod; Bearing and its conversion. (6 lectures, 12 Lab. sessions)

UNIT-IV

Representation of Relief: Hill-shading, Hachures, and Layer Tints, Spot heights, Benchmarks, Contours. (6 lectures, 12 Lab. sessions)

Note:

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.

2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of Geography in the college.

3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared for USOL students from the prescribed syllabus.

4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should be in about 25 words. Each part will carry 1 mark (Total 4 Marks).

5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks (Total 16 marks). The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question.

6. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 15 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

7. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).
8. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.


10. For practical classes, the number of students in one group shall not exceed fifteen.

11. There will be 3 hours of teaching per week for this paper.

12. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

   **The paper-setter must put note (12) in the question paper.**

   **List of Readings**

   **Essential Readings:**

   **Further Readings:**

   **Pedagogy:**
   - The use of topographical sheets of Survey of India
   - A well equipped cartographic laboratory with necessary instruments to prepare exercises.

   ………………………
GEOGRAPHY

SEMESTER - II

Paper-III: PHYSICAL GEOGRAPHY-II: Climatology & Oceanography

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:

• To acquaint the students with the elements and attributes of climatology and oceanography
• To underscore the role of climate in human life
• To emphasize the significance of oceans within the global environmental system

Course Content:

UNIT-I

Definition of Climatology: Concepts of Climate and Weather, Nature and Scope of Climatology. (2 Lectures)
Climate: Elements and Controls. (4 Lectures)
Physical Structure of the Atmosphere: Troposphere, Tropopause, Stratosphere, Ozonosphere, Mesosphere, Thermosphere and Exosphere (attributes of these layers).
Physical and Chemical Composition of the Atmosphere: Dust particles, Vapour Particles, Active gases, Inert gases.
Insolation and Temperature: Distribution of Insolation (horizontal); Distribution of Temperature (vertical, horizontal, annual, seasonal and diurnal)

UNIT-II

Atmospheric Pressure and Wind Distribution: Atmospheric disturbances: Tropical Cyclones, (8 Lectures)
Temperate Cyclones and Anticyclones.
Atmospheric Moisture: Condensation forms: cloud, dew, fog, frost and snow. (8 Lectures)
Precipitation: forms and types, world patterns (spatial and seasonal).
Introduction to Koppen’s classification of world climate (4 lectures)
Role of Climate in Human Life: Atmospheric pollution and global warming: causes, consequences and measures of control (4 lectures)

UNIT-III

Oceanography: Definition, Nature and Scope (5 lectures)
Topography of the Ocean Basins; Continental Shelf, Continental Slope, Abyssal Plain, Ridges, Deeps and Trenches (5 lectures)
Temperature and Salinity of ocean waters: World patterns and controlling factors (6 lectures)

UNIT-IV

Movements of Oceanic Waters: Waves, Tides and Currents; Surface currents of the oceans; Role of Ocean Currents in heat distribution over the globe. (10 lectures)
Marine Deposits and Corals: Origin and types. (10 lectures)
Note: 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should be about 25 words. Each part will carry 2 marks (Total 20 marks).

2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 10 marks. These will be in addition to the compulsory question I.

3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked map stencils and colour pens/pencils are allowed.

4. Internal assessment will be based on written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (5) in the question paper.

Essential Readings:

Further Readings:
Pedagogy:

- Conscious effort be made to make the students aware of the significance of climate and oceans to human life.
- Use of Slides, photographs and documentaries on climates and oceans strongly recommended.

Paper-IV: CARTOGRAPHY-II

Max. Marks: 30

Time : 3 Hours

Written paper of 3 hours duration at college level (except USOL) : 20 marks
Viva and Practical Record (10+10) : 10 marks

Objective:

- To introduce the concept of maps and relevance of maps in Geography
- To explain the elements of Map (Scale and Orientation) and steps in Map making
- To introduce relief representation and weather symbolization on maps

COURSE CONTENT

UNIT-I

Brief History of Cartography
Elements of Map Design

(6 lectures, 12 lab sessions)

UNIT-II

Enlargement and Reduction of Maps: Graphic methods – Square and Similar Triangles.
Introduction to concept of Global Positioning System (GPS).

(6 lectures, 12 Lab. sessions)

UNIT-III

Interpretation of Indian Weather Maps: General introduction to the study of weather maps, the scheme of weather symbols including Beaufort’s scale employed in Indian Daily Weather Maps.

(6 lectures, 12 lab. sessions)

UNIT-IV

Weather in India: Summer season (period of summer monsoon), winter season, Weather Forecasting through the study of weather maps and recent advances in weather forecasting.

(6 lectures, 12 lab. sessions)
Note:

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.

2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of Geography in the college.

3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared for USOL students from the prescribed syllabus.

4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should be about 25 words. Each part will carry 1 mark (Total 4 Marks).

5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks. The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question I.

6. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 15 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

7. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).

8. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.


10. For practical classes, the number of students in one group shall not exceed fifteen.

11. There will be 3 hours of teaching per week for this paper.

12. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (12) in the question paper

Essential Readings:


Further Readings:


Pedagogy:

- The use of topographical sheets of Survey of India and weather maps.
- A well equipped cartographic laboratory with necessary instruments to prepare exercises.
GANDHIAN STUDIES
SEMESTER –I

MAHATMA GANDHI: FAMILY AND EARLY LIFE (INDIA, ENGLAND AND SOUTH AFRICA)

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Course Objectives :
The paper is designed to acquaint the students with the early life of Mahatma Gandhi in India and in London.

Pedagogy of the Course Work :
90% Lectures (including expert lectures)
10% Unit Tests, Snap Tests, assignments, attendance and classroom participation.

Note :
1. The syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each units shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I

Family and Schooling
a) Family Background – Parents, Rambha & others
b) Neighbourhood and Early Impact
c) Schooling
d) Influence of Indian Scriptures

UNIT-II

As a Law Student in London
a) Dilemma Before Going to London
b) As a Law Student
c) Vegetarianism
d) Self-transformation and Home Coming
UNIT-III

Gandhi in South Africa
a) Journey to South Africa
b) Encounter with Racial Discrimination/Apartheid
c) Conditions of Indians in South Africa
d) Birth of Satyagraha

UNIT-IV

Satyagraha in Practice
a) Disfranchisement of Indians
b) Establishment of Natal Indian Congress
c) Asiatic Law Amendment Ordinance
d) Home Coming

ESSENTIAL READINGS:


FURTHER READINGS:


.....................
GANDHIAN STUDIES

SEMESTER –II

GANDHI IN FREEDOM STRUGGLE - SOUTH AFRICA AND INDIA

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Course Objectives:
The paper is designed to acquaint the students with life in South Africa and struggle against racial discrimination.

Pedagogy of the Course Work :

90% Lectures (including expert lectures).
10% Unit Tests, Snap Tests, assignments, attendance and classroom participation.

Note:
1. The syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I

Struggle for Human Rights in South Africa
a) Green Pamphlet
b) Indian Opinion
c) Visit to London
d) Interaction and Confrontation : Race & Caste

UNIT-II

Establishing Ashrams
a) Experience of Community Life in South Africa
b) Phoenix Settlement
c) Tolstoy Farm
d) Return to India

UNIT-III

Western Influences-I
a) Influence of John Ruskin
b) Influence of Henry David Thoreau
c) Influence of Leo Tolstoy
d) Influence of Emerson
UNIT-IV

Gandhi’s entry into Indian Politics
a) Early Political Activities
b) Champaran Satyagrah
c) Kheda Satyagrah
d) Ahmadabad Mill Strike

Essential Readings:


Further Readings:


------------------------
JOURNALISM & MASS COMMUNICATION

SEMESTER – I

INTRODUCTION TO MASS COMMUNICATION - I

Max. Marks : 100
Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:

The course will introduce to the students the general concepts and historical viewpoints in communication and media. The students would also get an understanding of the basic models communication and gain an understanding of the current scenario of media industry in India.

B. Pedagogy of the Course Work:

80 % Lectures (including expert lectures).
20 % assignments, discussion and seminars.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I : Definition, nature and concept of communication; types of communication: intra; inter; group and mass.
Unit-II : Basic models of mass communication : S-R model; Schramm’s Model; Model based on Lasswell formula; Mathematical Model.
Unit-III : Early Press History in India (1782-1947); Role of nationalist newspapers in freedom struggle; Laws to curb press freedom before Indian independence; Role of press in Post Independence era (1947-1975); Role of Press during Emergency (1975-1977); Press in modern India (1978-present)
Unit-IV : Brief overview of media industry in India with emphasis on growth of
- Press
- Radio
- TV
- New Media

PRACTICALS

Max. Marks : 20 Marks

1. Project on any one aspect of communication : 10 Marks
2. Case study of any one early newspaper : 10 Marks
Books Recommended:

**Essential Reading:**


**Additional Reading:**

PAPER: INTRODUCTION TO MASS COMMUNICATION-II

Max. Marks : 100

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:
This course will introduce students to the basic terminology of various forms of mass media as well as folk and new media. They will also be apprised with application areas such as Advertising & Public Relations.

B. Pedagogy of the Course Work:
80 % Lectures (including expert lectures).
20 % assignments, discussion and seminars.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I : Basic terms, concepts, definitions and nature of Print, TV and Radio Journalism.
Unit-II : Folk Media: Types, reach and relevance.
Unit-III : New Media: Cyberspace as a source of information, communication and entertainment.
Unit-IV : Definition, role of Advertising and Public Relations.

PRACTICALS

Max. Marks : 20 Marks

1. Case study of any one newspaper, radio station or TV channel : 10 Marks
2. Project on either folk or new media : 10 Marks
Books Recommended:

Essential Reading:

1. Luthra, H.P., 1984, Indian Broadcasting. Publications Division, Min. of I & B.

Additional Reading:

POLICE ADMINISTRATION

SEMESTER – I

Outlines of Tests, Syllabi and Courses of Reading

PAPER : POLICE ADMINISTRATION IN INDIA

(A) Course Objectives:

The principal objective of this paper is to acquaint the students with the features of Indian Police Administration along with its history and growth. Considerable attention has been paid to the concept and significance of reforms in Police Administration with special reference to reform initiatives after independence. The endeavor of the course would be to familiarize the students with the Police Administration at the Union Level with special focus on the Union Ministry of Home Affairs and Central Armed Police Forces. The powers functions and role of Police at Union, State, District and Police Station level will also be discussed.

(B) Pedagogy of the Course Work:

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:

(i) Internal Test-5%
(ii) Academic activities (Seminar, Project, Assignment)-3%
(iii) Attendance-2%

(C) Instructions for Paper Setters and Candidates:

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9×2 =18 marks).
- Rest of the paper shall contain 4 Units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4×18 = 72 marks).

(D) Course Content:

Unit-I

Concept, Role and Significance of Police; Origin and development of Police in Ancient, Medieval and British Period. Police Reforms in India after Independence.
Unit-II

Organization and Working of Union Ministry of Home Affairs; Organization and Working of Central Police Organizations with special reference to Central Bureau of Investigation (CBI); Intelligence Bureau (IB); Bureau of Police Research and Development (BPR & D); and National Crime Records Bureau (NCRB).

Unit-III

Origin, Structure and Working of Central Armed Police Forces (CAPFs) with Special Reference to BSF, CRPF, ITBP, CISF and SSB.

Unit-IV

Organization and Working of Police Administration at the State Level, District Level and Police Station Level. Commissionerate System of Policing.

Essential Readings:


Further Readings:

POLICE ADMINISTRATION

SEMESTER – II

Paper: CONSTITUTION OF INDIA

(A) Course Objectives:
The objective of this course is to give an overview to the students the basic information about the Constitution of India. The students would be taught concepts such as Preamble, Citizenship, Fundamental Rights, Directive Principles of State Policy and Fundamental Duties. They are made to understand the political executive at the union and state level; the union and state legislature and judiciary at the Union and in the state. In addition, efforts would be made to discuss the mechanism available for ensuring police accountability.

(B) Pedagogy of the Course Work:

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:
(i) Internal Test-5%
(ii) Academic activities (Seminar, Project, Assignment)-3%
(iii) Attendance-2%

(C) Instructions for Paper Setters and Candidates:

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks \(9 \times 2 = 18\) marks).
- Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks \(4 \times 18 = 72\) marks).

(D) Course Content:

Unit – I


Unit – II

Executive at the Union Level; President, Prime Minister and Council of Ministers; Union Legislature: Lok Sabha and Rajya Sabha; Judiciary at the Union Level: Supreme Court.
Unit-III

Executive at the State Level; Governor, Chief Minister and Council of Ministers. State Legislature: Vidhan Sabha and Vidhan Parishad. Judiciary in the State : High Court and Subordinate Courts.

Unit – IV


Essential Readings:


Further Readings :

WOMEN’S STUDIES

SEMESTER–I

Paper- : FOUNDATIONAL CONCEPTS IN WOMEN’S STUDIES

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives : The objective of this course is to conscientise the students about some of the key concepts in women’s studies, their meaning from a feminist and gender perspective with special reference to India.

Course Contents :

Unit I: Gender
- Sex and Gender : Definition and Difference
- Gender Stereotypes: Genesis and Persistence through Family, School and Peer Group
- Social Construction of Gender: From infancy to Adulthood to Old age

Unit II: Patriarchy
- Definition and Origin of Patriarchy
- Manifestations of Patriarchy:
  (a) Preference for Male Child
  (b) Discrimination against girl-child and women in the family
  (c) Violence against Women
  (d) Discrimination against Women at the Workplace

Unit III: Empowerment
- Definition
- Types of Empowerment:
  (a) Social – with reference to women’s role in marriage and family
  (b) Political – 73rd and 74th Constitutional Amendment Acts
  (c) Economic – Employment and Property Rights

Unit IV: Women’s Studies
(a) Definition,
(b) Rationale for Women’s Studies,
(c) Evolution of Women’s Studies,
(d) Women’s Studies as a discipline.
NOTE:
- In each of the papers, the candidate will be assessed for 90 marks on the basis of a written examination and internal assessment will be for 10 marks.
- There shall be 9 questions in all. The first question shall be compulsory containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit- 4 in all. Each question will carry 18 marks.

**Essential Readings:**


**Further Readings :**

WOMEN’S STUDIES

SEMESTER -II

Paper : STATUS OF WOMEN IN INDIA-I

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives: The status of women in India has changed over time in relation to historical and cultural realities, levels of consciousness, perceptions and actions of individual women, women’s groups and finally State initiatives. This course first aims to acquaint the student with women in the Indian tradition from ancient times to the present, a tradition which has arisen out of the heterogeneity of experience. Further it aims to sensitize the student with the status of women in contemporary India, with a special focus upon the factual situation apart from the major issues confronting Indian women.

Course Contents

Unit I : Status of women in India in a historical perspective:

(a) Ancient India
(b) Medieval India
(c) Modern India

Unit II: Women and Family

(a) Origin of the family
(b) Types of family
(c) Gender Division of labour in family
(d) Female headed households

Unit III: Women, Religion and Caste

(a) Religion: Women’s Status in major Indian religions - Hinduism, Islam, Sikhism, Christianity
(b) Caste: Introduction to caste system in India; Caste and Gender

Unit IV: Violence against Women

(a) Violence against Women: Definition as given by the United Nations
(b) Prevalent forms of violence against Women :

- Domestic violence
- Rape and Molestation
- Sexual Harassment
- Dowry Related Violence
NOTE:

- In each of the papers the candidate will be assessed for 90 marks on the basis of a written examination and internal assessment will be for 10 marks.
- There shall be 9 questions in all. The first question shall be compulsory containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit- 4 in all. Each question will carry 18 marks.

Essential Readings:

**Further Readings:**


HUMAN RIGHTS AND DUTIES

SEMESTER-I

Paper : HUMAN RIGHTS AND DUTIES : CONCEPTUAL UNDERSTANDING

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective :
The course is designed to provide adequate theoretical understanding about human rights and duties. It purports to develop a broad understanding of human rights and duties, awareness about the theoretical origins of human rights and their correlation with governance issues.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

Note : (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of twelve i.e 9×2=18 marks.

(ii) In addition to it, Questions Nos. II to IX will consist of long answer (Essay Type) questions i.e., 2 questions from each unit with Internal choice carrying 18 marks each i.e., 4×18=72

UNIT-I

THE CONCEPT OF HUMAN RIGHTS:

• Meaning and nature of Human Rights
• Classification of Rights
• The Concept of Human Rights

UNIT-II

CONCEPT OF HUMAN DUTIES:

• Meaning and nature of Human Duties; Moral, ethical, social, economic, political and cultural universal
• Classification of Human Duties: Individual, family, Community, Nation-State, Human kind and Mother Earth.
• Relationship between Rights and Duties.

UNIT-III

INTRODUCTION TO THEORIES OF HUMAN RIGHTS:

• Natural Rights Theory
• Liberal Theory of Rights,
• Legal/ positivist Theory of Rights
• Marxist Theory of Rights.
• Feminist Theory of Rights
UNIT-IV

DEMOCRATIC GOVERNANCE:

- Democracy and People’s participation.
- Rule of Law: Non-arbitrariess.
- Role of Civil Society

Essential Readings:


Further Readings

HUMAN RIGHTS AND DUTIES
SEMESTER-II

Paper : HUMAN RIGHTS : INTERNATIONAL DIMENSIONS

Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective :

This paper purports to deal with promotion and protection of human rights in the international context, particularly in the UN bodies. It aims to create awareness regarding the Universal Declaration of Human Rights, 1948, significant Covenants along with the Optional Protocols.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

Note : (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of twelve i.e. 9×2=18 marks.

(ii) In addition to it, Questions Nos. II to IX will consist of long answer (Essay Type) questions i.e., 2 questions from each unit with Internal choice carrying 18 marks each i.e., 4×18=72 marks

UNIT-I

INTERNATIONAL NORMS AND MECHANISMS:

• League of Nations
• The United Nations Charter and the development of Human Rights.

UNIT-II

INTERNATIONAL BILL OF RIGHTS:

• Universal Declaration of Human Rights (UDHR), 1948
• International Covenant on Civil and Political Rights (ICCPR), 1966; Optional Protocol
• International Covenant on Economic Social and Cultural Rights (ICESCR), 1966; Optional Protocol

UNIT-III

HUMAN RIGHTS AND UNITED NATIONS BODIES (I):

• UN General Assembly
• Economic and Social Council (ECOSOC)
• UN Human Rights Council
UNIT-IV

HUMAN RIGHTS AND UNITED NATIONS BODIES (II):

- International Labour Organization (ILO)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- World Health Organization (WHO)

**Essential Readings:**


**Further Readings**

RELIGIOUS AND SIKH STUDIES
SEMESTER- I

PAPER-I, HINDUISM

Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious and Sikh Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course as one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness regarding the origin, features and teachings of different religions.

Pedagogy:
The Pedagogy of the course involves classroom lectures, assignments, discussions, special lectures. Field trip and feedback from the students.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9x2).

In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. The students are required to attempt any four out of these eight essay type questions selecting one question from each Unit. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4x18).

Course Contents
Unit. I. Vaishnavism : origin, development; features and institutions
Unit. II. Shaiivism: origin, development; features and institutions
Unit. III. Shaktism: origin, development; features and institutions
Unit. IV. Bhakti Movement in India: growth and development; with special reference to Ramanuj and Chaitanya
Essential Readings:

5. द्रिपुष्पिगाणि वहन, ाट्टो स्नातन वी कृष्णचरण (विचि), पुस्तकार नाथ, दिल्ली, 2016 भाषा वेब.
6. भिखार वालमिक, ाट्टो (में), ‘विश्व यात्रा वाली विश्वास अंतः’ प्रसिद्धिमात्र धिविद्य, भूमादी पुस्तकार, नाथ वालमिक, 2014.
7. भिखार, युवेंद्र वृत्ती (कौ.), यात्रा तर्कम वी योग धेन्य, मेंरीलाल वालमिक यात्रा, दिल्ली, 1985.
8. रोज़ार वाटो चेतन, ाट्टो स्नातन (विचि), प्रसिद्धिमात्र नाथ, दिल्ली, 1973.
10. द्रिपुष्पिगाणि, भिश्व नी, ाट्टो स्नातन, भूमादी पुस्तकार, नाथ, 1994.
11. परमल, युवेंद्र मिंट (कौ.), ाट्टो हेतु यात्रा वृत्ती, प्रसिद्धिमात्र पुस्तकार, पाठ्य साहित्य, 2000.

Further readings:

RELIGIOUS AND SIKH STUDIES
SEMESTER-II
PAPER-II NEW FAITHS AND SAINTS

Maximum Marks: 100
Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 Hours

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

Pedagogy:
The Pedagogy of the course involves classroom lectures, assignments, discussions, special lectures. Field trip and feedback from the students.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9X2).
In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. The students are required to attempt any four out of these eight essay type questions selecting one question from each Unit. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4X18).

Course Contents
Unit I. Jainism: Life and Teachings of Mahavira; origin and development of Jainism
Unit II. Buddhism: Life and Teachings of Lord Buddha; origin and development of Buddhism
Unit III. Sant Kabir: Life, Teachings and Contribution
Unit IV. Sant Ravidas: Life, Teachings and Contribution
Essential Readings:

5. तत्त्वानुवादितं मिश्र, दर. (मंप.),'कृषि यथा ब्रह्म गंध्र, यंयुज्यितं भूरे विष्णु उयर जीव', पध्यङ्केश्वर विविध, पंचाय मृतीविधानी, पाठशाला, 2009
6. मिश्र, यथा ब्रह्म गंध्र., यंयुज्यितं, सीवें विष्णु, भंवेरी पुयसंत, महतिहिंस, 2001
7. मवैरे, यथावेदन मिश्र, 'प्राचीन कविताओं मध्य यथा: डीड्राम, यंयुज्यितं डे पवन, पंचाय मृतीविधानी, पाठशाला, 2007.
8. नवमवन गंध्र धार्मिक, 'प्राचीन कविताओं मध्य यथा: यवदेव, यंयुज्यितं डे पवन, पंचाय मृतीविधानी, पाठशाला, 2006 (विविध)
9. नवमवन, गंध्र. (मंप.), यंयुज्यितं, पंचाय मृतीविधानी, पाठशाला, 1990.
10. नवमवन धार्मिक, मंड वसित, सीवें पुयसंत मध्य यथा: यवदेव, यंयुज्यितं डे पवन, पंचाय मृतीविधानी, मंड वसित, 2002
11. नवमवन पुयसंत धार्मिक: 'यथा यंयुज्यितं डे पवन' संस्करण 2005-मंड धार्मिक पध्यङ्केश्वर विविध पंचाय मृतीविधानी, पाठशाला, 2001

Further readings:

### HOME SCIENCE

#### SEMESTER- I

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Paper</th>
<th>No. of Papers</th>
<th>Time in hrs</th>
<th>Marks allotted</th>
<th>Int. Ass.</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** 1. Each Practical group will have 12-15 students.

**PAPER : FAMILY RESOURCE MANAGEMENT, HYGIENE & HEALTH**

- **Max. Marks:** 50
- **Theory:** 40
- **Int. Ass.:** 10
- **Periods:** 6 Hours/8 periods per Week

**INSTRUCTIONS FOR THE PAPER SETTER :**

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

**INSTRUCTIONS FOR THE CANDIDATES :**

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

**Section A**

I (a) Meaning & Importance of Home Science.
    (b) Functions of Home.

II (a) Home Scientist as an Entrepreneur.
    (b) Agencies promoting Entrepreneurship- Commercial Banks, District Industries, Co-operative Societies.
Section B

III Interior Decoration

(a) Elements of Art - Line, Form, Pattern, Texture, Colour, Light and Space.
(b) Principles of Art in relation to interior decoration - Harmony, Balance, Rhythm, Proportion & Emphasis.

IV Colour

(a) Characteristics of colour
(b) Colour wheel
(c) Colour schemes

Section C

V Hygiene & Health

(a) Definition of Hygiene, Health
(b) Definition of infection, sources, carrier and control
(c) Definition and types of immunity.
(d) Immunization schedule

VI Causes & Spread of following diseases.

(a) Caused by insects – Malaria & Dengue
(b) Conveyed by ingestion – Enteric Fever, Cholera, Dysentery & Diarrhoea
(c) Spread by droplet infection- chickenpox, measles, mumps & TB.
(d) Sexually transmitted diseases -AIDS.

Section D

VII Food Hygiene

(a) Definition
(b) Hygiene during preparation, service and storage of food.
(c) Domestic purification of water-
   • Aquaguard
   • Reverse Osmosis

VIII Food Adulteration

(a) Definition
(b) Common food adulterants and their effects on health.
(c) Household Methods of testing food adulteration.
PRACTICAL

Max. Marks : 50 Marks
Practical Theory : 40 Marks
Inter. Asses. : 10 Marks
Time : 3 hours per week.

1. Floor Decoration - Making of Alpana and Rangoli for different occasions.
2. Methods of detecting adulteration in any five foods such as ghee, castor sugar, milk, honey, red chili powder, tea leaves, turmeric powder etc.
3. Table setting, Table manners and Napkin foldings.
4. Making of a Chart/Model/Poster of Colour Wheel or Colour Schemes.
5. Survey of 5 households to study Immunisation schedule.

..................................................
HOME SCIENCE
SEMESTER- II

Scheme of Examination

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Paper</th>
<th>No. of Papers</th>
<th>Time in hrs.</th>
<th>Marks allotted</th>
<th>Int. Ass.</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: 1. Each Practical group will have 12-15 students.

PAPER: FAMILY RESOURCE MANAGEMENT, HYGIENE & HEALTH

Max. Marks : 50
Theory : 40
Int. Ass. : 10
Periods : 6 Hours/8 periods per Week

INSTRUCTIONS FOR THE PAPER SETTER:

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

Section A

I. Resources
   (a) Introduction
   (b) Classification

II. Time Management
   (a) Steps in making time plans.
   (b) Tools in time management- peak loads, work curves and rest periods.
III. Money Management
(a) Types of Income
(b) Budget - Types, Advantages and limitations of budgeting, factors affecting budget, basic steps in planning of budget.
(c) Means of supplementing family income.

IV. Energy Management
(a) Fatigue – Types, Symptoms & Effects.
(b) Work Simplification (Mundel)

Section B

V. Furniture
(a) Factors affecting selection of furniture.
(b) Furniture requirement and arrangement for different rooms.
   (1) Master Bedroom
   (2) Drawing Room
   (3) Dining Room
   (4) Children’s Room

VI. Flower Arrangement
(a) Definition and Types
(b) Principles of art in flower arrangement
(c) Material and Essential equipment used in Flower Arrangement.

Section C

VII. The Home maker as a Consumer
(a) Concept and objectives of Consumer Education.
(b) Rights and responsibilities of a Consumer.
(c) Malpractices in the production of consumer goods.
(d) Consumer guides- Standardized marks, labels, packaging, media and consumer redressal forum.

VII. Health Education
(a) Aims and Objectives
(b) Scope
(c) Importance

Section D

IX. Digestive System
(a) Diagram of Alimentary Canal
(b) Functions of mouth, stomach, intestines (Small and Large)
(c) Digestion of Carbohydrates, proteins and fats.

X. Simple first aid for burns, poisoning, electric shock, bleeding, drowning, fainting, fractures, insect bite, snake bite, nose bleeding, sunstroke, sprain, heart attack.
PRACTICAL

Max. Marks : 50 Marks
Practical : 40 Marks
Inter. Asses. : 10 Marks
Time : 3 hours per week.

1. Making of fresh flower arrangement for a corner and centre table.
2. Introduction to basic first aid techniques.
3. Cleaning & Polishing of household metals: brass, copper, silver, iron, aluminium, plastic and nonstick ware.
4. Cleaning and polishing of Wooden Furniture.
5. Cleaning of Glass windowpanes.

References

22. Phadke : Aids to Hygiene

Journals

2. Inside Outside, Edited and Published by Malika Sarabhai, Wadia Building, 19/21 Dalal Street, Bombay.
AGRICULTURE
SEMESTER-I

Paper-I : Basics of Agricultural Botany & Forestry (THEORY)

Max. Marks : 75
Theory : 70 marks
Internal Assessment : 5 marks
Time : 3 Hours

Period per week :
1. Theory - Six of 45 minutes duration each.
2. Practical - Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS:

1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question I shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit-I

Plant Morphology - Root, Stem, Leaf - Their types and modifications.
Inflorescence - Types and classification.
Flower - Parts and their functions.
Fruit - Types and classification.

Unit-II

Pollination - Types, Significance, Emasculation, Techniques, mode of Reproduction and their significance
Life cycle of a typical angiosperm. Objectives of Plant Breeding, introduction to self – Incompatibility.
Unit-III

Cultivation practices including soil requirements, Water requirements, Improved varieties of the region for:
Cereals - Wheat, Rice, Maize.
Fibres – Cotton, Jute.
Oil Crops - Sarson, Soyabean.
Fruits - Mango, Grapes, Citrus, Sapota.

Unit-IV

Importance of forests, Important forest trees of India and status of forestry in Punjab, its significance.
Raising of Nurseries for forestry.
Social forestry: Definition, concept & its significance.

PRACTICAL

Max. Marks : 25
Practical : 20 marks
Internal Assessment : 5 marks
Time : 3 Hours

Study of root, stem, leaf modifications.
Raising of crops/visit to farms/fields to have knowledge of various agricultural tools, implements, and methods of crop production of related area.
Visit to Fruit and Forest nurseries.
Performance of emasculation techniques.

Books Recommended:


.............
AGRICULTURE
SEMESTER-II

Paper-II: Agricultural Economics and Agronomy (THEORY)

Max. Marks : 75
Theory : 70 marks
Internal Assessment : 5 marks
Time : 3 Hours

Period per week: 1. Theory - Six of 45 minutes duration each.
2. Practical - Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS:
1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question I shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit-I

Agricultural Banking, Agricultural Loans – Its various types, repayment mode, form filling for agricultural loans.
National policy for agricultural loans.
Agriculture credit cards.
Fundamentals of land measurements and land revenue

Unit-II

Various legal aspects of import and export of raw crop and crop products.
Quarantine laws.
Fundamentals of agricultural economics.
Psychological pressure on farmer and villagers of different classes.

Unit-III

Storage of vegetables, Fruits, Grains at local and large level.
Vegetable and fruit preservation.
Unit-IV

Soil types, Management, Improvement and Amendments.
Soil Testing.
Fundamental of fertilizers and manures.
Important fertilizers and their uses.
Nitrogen fixation.

PRACTICAL

Max. Marks : 25
Practical : 20 marks
Internal Assessment : 5 marks
Time : 3 Hours

Visit to Agricultural, Rural Banks to have basic knowledge of loan processing and recovery.
Identification of financial problems of a village.
Identification and collection of fertilizers.
Preservation of fruits and vegetables in Pickle, Jam, Jellies, Squash and Sauce forms.

Books Recommended:

ENVIRONMENT CONSERVATION

SEMESTER – I

Paper : ENVIRONMENT AND FORESTRY

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
<th>Practical-Internal Assessment Marks</th>
<th>Total marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>65</td>
<td>10</td>
<td>25</td>
<td>-</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks and 20 marks will be allotted to laboratory practical.

Instructions for paper setters:
There will be 9 questions in all, two each from Section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from Section I to IV and the first compulsory question.

PAPER : ENVIRONMENT AND FORESTRY

UNIT-I


Ecosystem: Concept of Ecosystem, Biotic & abiotic components, food chain, food web trophic levels, types of ecosystems, terrestrial and aquatic. Biogeochemical cycles - nitrogen, carbon, phosphorous and sulphur cycle.

UNIT-II

Natural Resources: Definition, type of natural resources (Renewable and nonrenewable natural resources) and the policies of their conservation. Energy resources; Fossil fuel, Alternative source of energy (Solar energy, wind power, geothermal energy, dung energy and wood energy.

UNIT-III

UNIT-IV

Indoor Environment: Pollution of the in house environment pollutants in the offices, workplaces (School, Bus stand, College and Kitchens). Environmental problems linked to urban and rural lifestyle, Adulterants; Food adulterants (Wheat flour, milk, red chili powder, mustard oil, desi ghee, sweets, artificial sweetness, dyes, food allergens).

PRACTICAL

(Based on theory paper)

Laboratory work: Tests of food adulterants.

Study the forest products with help of charts and specimens.

Survey reports of indoor environmental pollutants and local forests.

A visit to forest to study different components of these ecosystems.

Books Recommended :


......................
ENVIRONMENT CONSERVATION

SEMESTER – II

PAPER : SOIL AND WATER POLLUTION

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
<th>Practical-Internal Assessment Marks</th>
<th>Total marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>68</td>
<td>7</td>
<td>22</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks, and 20 marks will be allotted to laboratory practical.

Instructions for paper setters:
There will be 9 questions in all, two each from Section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from Section I to IV and the first compulsory question.

PAPER : SOIL AND WATER POLLUTION

UNIT-I

Lithosphere: Meaning of Soil profile, its components, types of soil, physical-chemical properties of soil.

Soil Fertility: Micro-and macro-nutrients, technique of testing soil sample. Methods of increasing soil fertility, merits and demerits of fertilizers, role of soil microorganisms.

UNIT-II

Degradation of soil: Soil erosion (Water and Wind erosion) causes of effect of erosion. Soil pollution: Different types of soil pollutants (Chemicals, Pesticides, Fertilizers & manure, discarded material. Pollution and control measures.

UNIT-III

Hydrosphere: Major sources and uses of water. Overutilization of surface & ground water, floods, drought. Conflicts over water. Potable water, its characteristics. Water cycle (Global and Biological)

UNIT-IV

Water pollution: Definition, Types & Sources of water pollution, its consequences and control measures. Different types of diseases due to water pollution. Treatment of wastewater by green method (Root-zone technology), Marine pollution - a brief account.
PRACTICAL

Determination of soil pH
Use of Portable Kit
Determination of organic matter in soil
Determination of CaCO₃ in soil.
Determination of available Nitrogen in soil.
Identification of different fertilizers.
Determination of pH of water.
Determination of organic carbon.
Determination of microbial carbon.
Determination of available Nitrogen.
Determination of dissolved Oxygen, BOD.
Determination of hardness and alkalinity of water.
Survey reports of different water samples in local and adjoining areas and interpretation of water test report.

Books Recommended

5. Mahajan, S.P. : Air Pollution, Control, TERI Press, Delhi, India, 2009
6. Kudesheia, V.P. : Water Pollution, Pragati Parkashan, New Delhi, India, 2009

-----------------------
MATHEMATICS

SEMESTER – I

Paper-I : PLANE GEOMETRY

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Transformation of axes in two dimensions: Shifting of origin, rotation of axes, invariants.

Pair of Straight Lines:
Joint equation of pair of straight lines and angle between them, Condition of parallelism and perpendicularity, Joint equation of the angle bisectors, Joint equation of lines joining origin to the intersection of a line and a curve.

Circle:
General equation of circle, Circle through intersection of two lines, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, angle of intersection and orthogonality, power of a point w.r.t. circle, radical axis, co-axial family of circles, limiting points.

Unit-II

Conic:
General equation of a conic, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, diameter. Conjugate diameters of ellipse and hyperbola, special properties of parabola, ellipse and hyperbola, conjugate hyperbola, asymptotes of hyperbola, rectangular hyperbola. Indentification of conic in general second degree equations.

References:
Paper-II : CALCULUS - I

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Properties of real numbers:
Order property of real numbers, bounds, l.u.b. and g.l.b. order completeness property of real numbers, archimedian property of real numbers.

Limits:
$\varepsilon - \delta$ definition of the limit of a function, basic properties of limits, infinite limits, indeterminate forms.

Continuity:
Continuous functions, types of discontinuities, continuity of composite functions, continuity of $f(x)$, sign of a function in a neighborhood of a point of continuity, intermediate value theorem, maximum and minimum value theorem.

Unit-II

Mean value theorems:
Rolle’s Theorem, Lagrange’s mean value theorem, Cauchy’s mean value theorem, their geometric interpretation and applications, Taylor’s theorem, Maclaurin’s theorem with various form of remainders and their applications.

Hyperbolic, inverse hyperbolic functions of a real variable and their derivatives, successive differentiations, Leibnitz’s theorem.

References:

Paper III: TRIGONOMETRY AND MATRICES

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

D’Moivre’s theorem, application of D’Moivre’s theorem including primitive $n^{th}$ root of unity. Expansions of $\sin n\theta$, $\cos n\theta$, $\sin^n\theta$, $\cos^n\theta$ ($n\in\mathbb{N}$). The exponential, logarithmic, direct and inverse circular and hyperbolic functions of a complex variable. Summation of series including Gregory Series.

Unit-II


References:


MATHEMATICS

SEMESTER – II

Paper-I : SOLID GEOMETRY

Max. Marks : 30
Time : 3 Hours

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Transformation of axes:
Shifting of origin and rotation of axes.

Sphere:
Section of a sphere and a plane, spheres through a given circle, intersection of a line and a sphere, tangent line, tangent plane, angle of intersection of two spheres and condition of orthogonality, power of a point w.r.t. a sphere, radical axis, radical center, co-axial family of spheres, limiting points.

Cylinder:
Cylinder as a surface generated by a line moving parallel to a fixed line and through a fixed curve, different kinds of cylinders such as right circular, elliptic, parabolic and hyperbolic cylinders in standard forms, enveloping cylinders.

Unit-II

Cone:
Cone with a vertex at the origin as the graph of a homogeneous equation of second degree in x,y,z, cone as a surface generated by a line passing through a fixed curve and a fixed point outside the plane of the curve, reciprocal cones, right circular and elliptic cones, right circular cone as a surface of revolution obtained by rotating the curve in a plane about an axis, enveloping cones.

Conicoid:
Equations of ellipsoid, hyperboloid and paraboloid in standard form. Reduction of second degree equation in three variables in standard form.

References:

Paper-II : CALCULUS - II

Max. Marks : 30  
Time : 3 Hours

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Concavity, convexity and points of inflexion, Multiple points, Asymptotes, Tracing of curves (Cartesian and parametric co-ordinates only).

Curvature: 
Curvature of a curve at a point, radius of curvature of cartesian, parametric, polar curves and for implicit functions, evolute and involute, chord of curvature.

Unit-II

Integral calculus: 
Integration of hyperbolic and inverse hyperbolic functions. Reduction Formulae.

Numerical Integration: Trapezoidal, Prismoidal and Simpson Rules.

Application of definite integral: Summation of Series, Quadrature, rectification, volumes and surfaces of solids of revolution (Cartesian co-ordinates only)

References:

Paper III: THEORY OF EQUATIONS

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I


Unit-II

Newton’s method of divisors, Solution of cubic and bi-quadratic equations, Cardan’s method of solving a cubic, discriminant and nature of roots of real cubic, trigonometric solutions of a real cubic with real roots. Descarte’s and Ferrari’s method for a bi-quadratic.

References:


COMPUTER SCIENCE

SEMESTER-I

SCHEME OF EXAMINATION

FIRST SEMESTER

<table>
<thead>
<tr>
<th>Paper</th>
<th>Theory</th>
<th>Course</th>
<th>Exam</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS01</td>
<td>A</td>
<td>Computer Fundamentals</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>CS02</td>
<td>B</td>
<td>PC Software</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>PCS01</td>
<td>C</td>
<td>Practical Based on</td>
<td>3</td>
<td>30</td>
<td>--</td>
<td>30</td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of Lab. Record.

**Paper-CS01 : Computer Fundamentals**

**Objective:** To teach the students the fundamentals of computer related to its hardware & software.

**Note:**
(i) The question paper will consist of Four units.
(ii) Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt **ONE** question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

**UNIT - I**

**Computer Appreciation:** Introduction to computers, characteristics of computer; History of computers; Classification of computers on size: (Micro, Mini, Mainframe and super computers), Working Principles, Generations; Applications of computers; commonly used terms–Hardware, Software, Firmware. Basic Computer Organization: Block diagram of computer system, Input unit, Processing Unit and Output Unit; Description of Computer input devices: Keyboard, Mouse, Trackball, Pen, Touch screens, Scanner, Digital Camera; Output devices: Monitors, Printers, Plotters.

**UNIT –II**

**Computer Memory:** Representation of information: BIT, BYTE, Memory, Memory size; Units of measurement of storage; Main memory: main memory organization, RAM, ROM, PROM, EPROM; Secondary storage devices: Sequential Access Memory, Direct Access Memory Magnetic Tapes, Magnetic disks, Optical disks: CD, DVD; Memory storage devices: Flash Drive, Memory card;
UNIT – III


UNIT – IV


**Suggested Readings**:


**Paper-CS02: PC Software**

**Objective**: To teach the basic functionality of Disk Operating System & Windows. To impart detailed knowledge for creating word processing, spreadsheet & presentation documents.

**Note**:

(i) The question paper will consist of Four units.

(ii) Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering the whole syllabi.

(iii) The students are required to attempt **ONE** question from each unit and the compulsory question.

(iv) All questions carry equal marks unless specified.

UNIT – I

Concept of files and directories; Disk Operating System: DOS, System Files, types of DOS commands: Internal and External commands: Introduction to AUTOEXEC.BAT, Directory commands: XCOPY, DEL, RENAME, ATTRIB, BACKUP, RESTORE, FIND, SYS; General commands: TYPE, DATE, TIME, PROMPT; Batch Files, Wild Cards, Line Editor.
UNIT – II

Introduction to graphical user interface, window operating system, Anatomy of windows, organizing folders and files, recycle bin, my computer, windows explorer, control panel.

UNIT – III

Word Processing: Basics of Word Processing; Opening, Creating, Saving, Printing and Quitting Documents, Using the Interface (Menu Toolbars), Editing Text (Copy, Delete, Move), Finding and Replacing Text, Spell Check, Autocorrect; Auto Text, Character formatting, Page formatting; Document Enhancement; Adding Borders and shading, Adding Headers and Footers, Setting up Multiple columns, Sorting blocks, Adjusting Margins and Hyphenating Documents, Creating Master Documents, Creating Data Source, Merging Documents, Using Mail merge feature for labels and envelopes; Inserting Pictures, Tables, Working with equations.

UNIT – IV

Spread Sheet: Worksheet overview, Row, Column, Cells, Menus, Creating Worksheet, Opening, Saving, Printing Worksheets; Calculations, Auto fill, Working with Formulae, Data Formatting (number formatting, date formatting), Working with Ranges, Establishing Worksheet links; Creating, Sorting and Filtering Data Base; Creating chart, Adding Titles, Legends etc. to charts, Printing Charts, Creating Macros, Record Macros, Running Macros, Assigning Macros to Buttons, Functions (Statistical, Financial, Mathematical, String, Date and Time).

MS-Power Point: Creating, Saving, Printing Presentation; Selecting Design Templates, Animations and Transitions, Auto Content Wizard.

Suggested Readings:

1. Ludd Robbins : *Mastering DOS.*
3. Richard Allen King : *MS-DOS H. B.*

Paper – PCS01 : Practical : Practicals Based on Paper CS02
COMPUTER SCIENCE
SEMESTER-II

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>SECOND SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext. Hrs</th>
<th>Int. Hrs</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – CS03</td>
<td>Theory-A</td>
<td>Operating System Concepts</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Paper – CS04</td>
<td>Theory-B</td>
<td>C Programming</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Paper – PCS02</td>
<td>Practical-C</td>
<td>Practical Based on Paper – CS04</td>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

Paper-CS03: Operating System Concepts

Objective: To teach the students various operating system concepts relating to managing processes, memory and deadlocks.

Note:
(i) The question paper will consist of Four units.
(ii) Examiner will set total of **Nine** questions comprising **Two** questions from each unit and **One** compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt **One** question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

UNIT - I

Operating Systems (OS): Introduction, need of operating system and functions of operating system, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems; Structure of Operating System;

UNIT - II


UNIT - III

UNIT - IV

Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU

Suggested Readings :

Essential :


Further Reading :

2. Brinch, Hansen, Operating System Principles, Prentice Hall of India

Paper-CS04 : C Programming

Objective : To teach the student basic constructs of ‘C’ programming language and enable them to create ‘C’ based applications.

Note :

(i) The question paper will consist of Four units.
(ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt ONE question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

UNIT – I


Fundamentals of C Languages: History of C, Character Set, Identifiers and Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables.

UNIT – II

Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Standard and Formatted Statements, Structure of a C program , Compilation and Execution.
Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IF-Else, The else if Clause.

Loop Control Structure: While and do-while, for loop and Nested for loop,

Case Control Structure: Decision using switch, The goto statement.

UNIT – III

Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C.

Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Memory Map of a 2-Dimensional Array, Passing array elements to a function.

UNIT – IV

String Manipulation in C: Declaring and Initializing string variables, Reading and writing strings, String Handling functions (strlen(), strcpy(), strcmp(), strcat()).

Structures and Unions: Declaration of structures, Structure Initialization, Accessing structure members, Union, Difference between Structure and Union.

Suggested Readings:

Essential:

Further Reading:

STATISTICS

SEMESTER - I

Note:
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. There are two papers code named papers 101 and 102 in the subject of Statistics in B.A./B.Sc. 1st Semester. These are to be taught simultaneously throughout the Semester.
3. 8 lectures (45 minutes each) for theory per week and 4 lectures (45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

Paper- 101: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-I

Max. Marks : 75
Theory : 65
Internal Assessment : 10
Time : 3 Hours

Objective: The objective of the course is to make the students conversant with various techniques used in summarization and analysis of data. The focus will be both on theoretical as well as practical approach. This course will lay the foundation to probability theory of outcomes of real life random experiments. The focus will be on theoretical as well as practical approach.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit-I

Important Concepts in Probability: Random experiment, trial, sample point and sample space, definition of an event, mutually exclusive, exhaustive, independent and equally likely events. Definition of probability – classical and relative frequency approach to probability, their demerits and axiomatic approach to probability. Properties of probability based on axiomatic approach, conditional probability, Bayes’ theorem and its applications (concepts and simple applications).

Random Variables: Definition of discrete random variables, probability mass function, continuous random variable, probability density function, illustrations of random variables and their properties, distribution function and its properties, expectation of a random variable and its properties – moments, (only definition), moment generating function. Two dimensional random variables- joint, marginal and conditional distributions. Distribution of random variables.
Unit-II

Collection of Data: Primary data – designing a questionnaire and a schedule. Secondary data- its major sources including some government publications. Concept of a Statistical Population and samples from a population; qualitative and quantitative data; discrete and continuous data.

Presentation of Data: Diagrammatic representations of data, frequency distribution, graphical representation, histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display, Box and whisker plot.

Analysis of Quantitative Data: univariate data concepts of central tendency, dispersion and relative dispersion, skewness and kurtosis and their measures including those based on quartiles and moments. Sheppard’s correction for moments (without derivation).

Suggested Readings


Additional Readings


Paper-102 : PRACTICAL (SEMESTER-I)

Maximum Marks : 25
Time Allowed : 3 Hours

(Viva voce: 5 marks; record of the semester; 5 marks; Annual Paper: 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.

Viva voce and record of the year will carry 5 marks each.

1. Presentation of data by Frequency tables
2. Diagrams: Bar, Multiple Bar, Stacked Bar, Line and Pie
3. Graphs: histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display
4. Measures of central tendency
5. Measures of dispersion
6. Measures of Skewness
7. Box and Whisker Plot

................
STATISTICS

SEMESTER-II

Note: 1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. There are two papers code named papers 103 and 104 in the subject of Statistics in B.A./B.Sc. 2nd semester. These are to be taught simultaneously throughout the semester.
3. 8 lectures (45 minutes each) for theory per week and 4 lectures (45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

Paper - 103: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-II

Maximum Marks : 75
Theory : 65
Internal Assessment : 10
Time allowed : 3 hours

Objective: This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions.
The objective of the course is to make the students conversant with various techniques used in analysis of data.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit-I

Standard Univariate Distributions and their Properties: Discrete uniform, Binominal, Poisson, Hyper geometric, Geometric and negative binomial distributions, uniform, normal, exponential, gamma, beta distributions.

Bivariate normal distribution and associated marginal and conditional probability distributions (without derivation).

Chebyshev’s inequality and its applications, statements and applications of weak law of large numbers, and Central Limit Theorems (De-moivre’s – Laplace and Lindeberg –Levy).

Unit-II

Bivariate Data: scatter diagram, product moment correlation coefficient, properties and coefficient of determination.
Spearman’s rank correlation coefficient. Simple linear regression and its properties, principle of least square, fitting of linear regression and related results
Multivariate Data: multiple and partial correlation in three variables. (only results no derivations).

Analysis of Categorical Data (using 2x2 contingency table): consistency of categorical data independence and association of attributes. Various measures of association:- Yule coefficient, coefficient of colligiation & coefficient $V_{AB}$.

References:


Additional References:


Paper - 104: PRACTICAL (Semester-II)

Maximum Marks: 25
Time allowed : 3 hours

(Viva voce: 5 marks; record of the semester: 5 marks; Annual Paper: 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.

Viva voce and record of the year will carry 5 marks each.

1. Product Moment Correlation.
2. Spearman’s rank correlation.
3. Linear Regression of two variables.
4. Fitting of Curves (reducible to linear form) by the least square method.
5. Multiple and Partial correlations.
6. Fitting of Binomial, Poisson and Normal distributions.
APPLIED STATISTICS

SEMESTER - I

Note: 1. This course shall not be opted for along with courses in B.A. /B.Sc Mathematics and/ or B.A. / B.Sc. Statistics.
2. The candidate opting for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
3. There is one paper with code 101AS in B.A. /B.Sc. Semester-I having a total of 100 marks.
4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching.

Paper- 101AS: MATHEMATICAL METHODS – I

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of the course is to provide knowledge of the basic concepts in Calculus, Trigonometry, Algebra and Geometry.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

UNIT-I (CALCULUS AND TRIGONOMETRY)

Limits and continuity of functions, derivatives and their geometrical interpretations. Applications of derivatives to maxima and minima, exponential and logarithmic functions, integrals of functions of one variable, geometrical interpretation of integral as area, integration of standard functions, integration by substitution and parts.

Trigonometry: Definition of an angle, its various measures and relations between them, graphs circular functions.

UNIT-II (ALGEBRA AND GEOMETRY)

The solution of linear and quadratic equations in one variable, arithmetic, geometric and harmonic progressions, permutations and combinations, principle of induction, Binomial theorem for positive integral index.

Elementary Analytical Geometry: Equations of straight line, parabola, and hyperbola.
Books Recommended

1. Allen, R.G.D (2006) : Mathematical Analysis for Economists, Chapter-II (Units 2.1, 2.2, 2.8), Chapter-III (Units 3.1, 3.6), Chapter – IV (Units 4.1, 4.7), Chapter VI (Units 6.1 – 6.8), Chapter VII, Chapter VIII (Unit 8.2), Chapter IX (Units 9.1 – 9.4), Macmillan Delhi.


Additional references:

APPLIED STATISTICS

SEMESTER – II

Note: 1. This course shall not be opted for along with courses in B.A. /B.Sc Mathematics and/or B.A. / B.Sc. Statistics.
2. The candidate opted for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
3. There is one paper with code 102AS in B.A./B.Sc. Semester-II having a total of 100 marks.
4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching.

Paper- 102AS: PROBABILITY

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculators are allowed.
3. Statistical tables and log tables will be provided on request.

UNIT-I

Random experiments, sample space, events probability, Finite sample spaces, equally likely outcomes, conditional probability, Bayes theorem, independent events, random variables, discrete and continuous probability density functions.

UNIT –II

Expectation and variance of random variable.
Binomial, Poisson, geometric, hypergeometric, uniform, exponential and normal distribution

Books Prescribed


Additional References:


........................
PHYSICS

B.Sc. (GENERAL) FIRST YEAR (1st and 2nd Semester) EXAMINATION, 2017-18

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the theory papers is allocated 25 marks including 3 (three) marks for the Internal assessment. The Practical examination is of 50 marks including 5 (Five) marks for the Internal assessment and will be held along with the second semester examination.

2. The number of lectures per week will be three for each theory paper and six for practicals.

3. The examination time for each theory paper as well as practical paper will be three hours.

4. Each theory paper will consist of seven questions comprising of three sections. First two sections will comprise of three questions from each of Units I and II of syllabus, and the third section will comprise of one compulsory question of ten short answer type parts covering whole syllabus. The question paper will be set for 44 marks - All the questions in first and second sections will carry 9 (nine) marks each and the compulsory question will carry 8 marks. Student will attempt two questions from each of the first two sections and any eight parts of the compulsory question.

   After evaluation of the answer books out of 44 marks, the marks will be given out of 22 marks.

5. The numerical problems/exercises in the question paper should be 25-30%.

6. Student will attempt two questions from each Unit (I-II) and any six parts of question seven.

7. The use of Non-programmable calculators will be allowed (paper setter should explicitly mention this in the question paper) in the examination centre but these will not be provided by the University/College. Mobile phones and pagers are not allowed in the examination hall.

Papers, marks and teaching hours allocation:

| Paper A : | Mechanics | Total Teaching hrs. 30 |
| Paper B : | Vibrations, Waves and EM Theory | Total Teaching hrs. 30 |
| Paper C : | Electricity and Magnetism | Total Teaching hrs. 30 |

Physics Practicals
Total Teaching hrs. 45

* marks allotted for internal assessment.
PHYSICS

SEMESTER – I

Paper A: MECHANICS-I  (30 Hrs.)

UNIT-I

Cartesian and spherical polar co-ordinate systems, Two- and three-dimensional coordinate systems, area, volume, displacement, velocity, and acceleration in these systems, solid angle. Centre of mass, linear momentum, angular momentum, torque, potential energy and kinetic energy of a system of particles. Relationship of conservation laws of linear momentum, angular momentum and energy, and symmetries of space and time.

UNIT-II

Various forces in nature, relative strengths and spatial dependence, Motion under force obeying inverse square law, equivalent one body problem. Motion under central forces, equation of motion under central force, equation of orbit and turning points, Kepler’s Laws. Elastic collision in Lab. and C.M. systems, relationships of velocities, angles, and kinetic energies in these two systems, cross section of elastic scattering, Rutherford scattering.

Books Suggested:

Essential Readings:


Further Readings:

1. An Introduction to Machines, Daniel Kleppner & Robert J. Kolenkow (TMH).

Paper B: VIBRATIONS, WAVES & E.M. THEORY-I  (30 Hrs.)

UNIT-I

Simple harmonic motion, energy of a SHM, Compound Pendulum, Torsional Pendulum, Electrical Oscillations, Transverse Vibrations of a mass on a string, composition of two perpendicular SHM of same period and of period in ratio 1: 2. Decay of free vibrations due to damping, differential equation of motion, types of damping, determination of damping co-efficient; Logarithmic decrement, relaxation time and Q-Factor. Electromagnetic damping (Electrical oscillator).

UNIT-II

Differential equation for forced mechanical and electrical oscillators, Transient and steady state behaviour. Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance. Power supplied to an oscillator and its variation with frequency. Q-value and band width. Q-value as an amplification factor. Stiffness, coupled oscillators, Normal co-ordinates and normal modes of vibration, Inductance coupling of electrical oscillators.
Books Suggested :

**Essential Readings :**

1. *Text Book of Vibrations and Waves* by S.P. Puri (Macmillan India Ltd.).

**Further Readings :**


**Paper–C : ELECTRICITY AND MAGNETISM-I**

(30 Hrs.)

**UNIT-I**

Basic ideas of Vector Calculus, Gradient, Divergence, curl in Cartesian coordinates and their useful relations, physical significance and applications, Conservative field, Greens’s theorem in a plane, Laplacian in Rectangular coordinates. Stoke’s theorem, Gauss’s divergence theorem, Coulomb’s Law for point charges and continuous distribution of charges, electric field due to dipole, line charge, charged ring, circular disc and sheet of charge, Gauss’s Law and its differential form.

**UNIT-II**

Work and potential difference, Potential difference as line integral of field, Electric potential due to dipole and quadrupole and its applications in Electrostatic field, Electric field as gradient of scalar potential, curl \( \mathbf{E} = 0 \). Calculation of \( \mathbf{E} \) due to a point charge and dipole from potential. Poisson and Laplace’s equation, Concept of electrical images. Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet.

Polarisation of matter, atomic and molecular dipoles, induced dipole moment and atomic polarizability. Electric susceptibility and polarization vector. Relation \( K = 1 + \chi \), Gauss’s law for dielectrics. Displacement vector, Div. \( \mathbf{D} = 0 \), Energy stored in dielectric medium.

Books Suggested :

**Essential Readings :**

4. *Introduction to Classical Electrodynamics* by David Griffith, Prentice Hall.

**Further Readings :**

PHYSICS PRACTICALS

The activities given in the section “Analysis of Experimental Data” are compulsory for all the students in the First semester.

The students are required to perform all the Nine experiments from each of the Units I and Unit II. The Practical examination will be held along with the second semester examinations.

The aim of project work is to develop the scientific and technical temper in the students and as such it may consist of development of a laboratory experiment, fabrication of a device or electronic circuit etc. The student will prepare a project report of about 10 pages. Assessment of the project work will be done on the basis of effort put in the execution of the project, report prepared, and viva-voce.

General Guidelines for Physics Practical Examinations:

Total: 50 marks

1. The distribution of marks is as follows:
   (i) One full experiment out of section–A requiring the student to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error). 20
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 7
   (iii) Viva-Voce and Record (Practical file) 10
   (iv) Project 8
   (v) Internal Assessment 5

Note for Examiners:

2. The marks scored under each head must be clearly written on the answer sheet.

3. There will be one session of 3 hours duration. The paper will have two sections. Section-A will consist of 4 experiments from each of Unit I and Unit II, out of which an examinee will mark 3 experiments from either of units and one of these is to be allotted by the external examiner.

4. Section–B will consist of exercises which will be set by the external examiner on the spot. The length of the exercises should be such that any of these could be completed in one hour.

5. The examiner should take care that the experiment allotted to an examinee from section–A and exercise allotted from section–B are not directly related to each other.

6. Number of candidates in a group for practical examination should not exceed 12.

7. In a single group, no experiment to be allotted to more than three examinees in the group.

Analysis of Experimental Data (Compulsory for all students in first semester):

Objectives:

(i) Knowledge of propagation of errors.
(ii) Knowledge of significant figures, Determination of standard deviation and probable error and their use in interpretation of the experimental result.
(iii) Familiarity with the method of least square fitting of experimental data to a curve.
LIST OF EXPERIMENTS:

MECHANICS

UNIT-I

I. Measurements:

Objectives:
(i) Measurements of time, length, thickness and curvature, pressure, humidity
(ii) Concepts of least count, horizontal, vertical and angular alignments

Activities:
(i) To measure internal/external diameter of a hollow cylinder using Vernier calipers
(ii) To measure thickness of wire
(iii) To measure curvature of a lens
(iv) To measure pressure using Barometer
(v) To measure humidity using dry and wet thermometer

II. Rotation:

Objectives:
(i) Study of rotational motion.
(ii) Establishing relationship between different quantities.

Activities:
(i) To study the dependence of moment of inertia on distribution of mass (by noting time periods of oscillations using objects of various geometrical shapes but of same mass).
(ii) To establish relationship between torque and angular acceleration using fly wheel.

III. One-Dimensional Collisions:

Objectives:
(i) Conservation of linear momentum and kinetic energy in elastic collisions.
(ii) Dependence of fraction of kinetic energy transferred on the masses of colliding bodies.
(iii) Idea of coefficient of restitution.

Activities:
To determine energy transfer, coefficient of restitution and verify laws of conservation of linear momentum and kinetic energy in elastic collisions using one dimensional collisions of hanging spheres.

IV. Compound Pendulum:

Objectives:
(i) Idea of equivalent simple pendulum.
(ii) Concepts of centre of suspension and oscillation.
(iii) Dependence of time period on moment of Inertia.
(iv) Radius of gyration.
(v) Determination of g.

Activities:
(i) Measure time period as a function of distance of centre of suspension (oscillation) from centre of mass, plot relevant graphs, determine radius of gyration and acceleration due to gravity.
(ii) Find the value of g by Katers' or Bar pendulum.
V. Torsion Pendulum:

Objectives:

(i) Idea of torsional vibration, dependence of time period on M.O.I. and restoring torque.
(ii) Modulus of rigidity.

Activity:

Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.

VI. Damped Oscillator:

Objectives:

(i) Study damped oscillations.
(ii) Coefficient of damping, quality factor etc.

Activities:

To measure/obtain logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

VII. Elasticity:

Objective:

Knowledge of elastic constants and related quantities.

Activities:

(i) Study of bending of beams and determination of Young’s Modulus.
(ii) Determination of Poisson’s ratio for rubber/plastic.

VIII. Standing waves:

Objective:

Standing waves on a string and in air.

Activities:

(i) Melde’s experiment.
(ii) Kundt’s tube.

IX. Viscosity:

Objective:

Knowledge of viscosity of liquids.

Activity:

Determination of coefficient of viscosity of a given liquid by Stoke's method and study its temperature dependence.

Computer based activities: Elementary C language programs, flowcharts and their interpretation.
1. To print out all natural even/odd numbers from a given series of natural numbers.
3. To calculate first ten prime numbers.

UNIT-II

ELECTRICITY AND MAGNETISM

I. Objective:
Measurement of resistance, voltage, current and electric energy.

Activities:
(i) To use a multimeter for measuring AC and DC voltage and resistance.
(ii) Measurement of resistance of LDR - To study inverse-square law (concept of solid angle and inverse square law) using linear LDR and light source.
(iii) Observations and measurements using an Electric energy meter. To find wattage of given bulb or heater.
(iv) To study the efficiency of an electric kettle or heater element with varying input voltage.

II. Low Resistance Measurements:
Objectives:
(i) Inadequacy of Wheatstone bridge to measure low resistances.
(ii) Acquaintance with a method of measuring low resistances.

Activity:
To determine low resistance with Carey Fosters Bridge.

III. Magnetic Field:
Objectives:
(i) Familiarity with the magnetic field produced by a solenoid.
(ii) Dependence of solenoidal field on number of turns and current.
(iii) Permeability of air.

Activities:
To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.

IV. Electromagnetic Induction:
Objective:
Verification of laws of electromagnetic induction.

Activity:
To study the induced e.m.f. as function of the velocity of the magnet.
V. Magnetism and current:
   Objectives and Activities:
   Force on a conductor carrying current in a magnetic field.

VI. LCR Circuits:
   Objective:
   Study of phase relationship between currents and voltages in ac circuits.
   Activity:
   Study of phase relationships using impedance triangle for LCR circuit and calculate impedance.

VII. Resonant Circuits:
   Objective:
   Concepts of resonance and Q-value.
   Activities:
   (i) Resonance in a series LCR circuits for different R-value and calculate Q-value.
   (ii) Resonance in a parallel LCR circuits for different R-value and calculate Q-value.
   (iii) To determine the dielectric constant of a solid by resonance method.

VIII. Capacitance:
   Objectives:
   (i) Measurement of capacitance, dielectric constant.
   (ii) Concept of time constant and time base circuit.
   (iii) Knowledge of a-c Bridges.
   Activities:
   (i) Capacitance by flashing and quenching of a neon lamp.
   (ii) Measurement of capacitance, determination of permittivity of a medium, air and relative permittivity by De-Sauty’s bridge.

IX. Self Inductance:
   Objectives:
   (i) Knowledge of a-c bridges.
   (ii) Concept of self-inductance.
   Activities:
   (i) To determine L using Anderson Bridge.
**Computer based activities:** Elementary C language programs, flowchart and their interpretation.

1. To rearrange a list of numbers in ascending and descending orders.
2. To compile a frequency distribution and evaluate moments such as mean; standard deviation etc.
3. To evaluate sum of finite series and the area under a curve.

**Texts and Reference Books :**

3. “Programming with C, Schaum series” by Byron Gottfried & Jitender Chhabra

........................................

........................................
PHYSICS
SEMESTER–II

Paper A: MECHANICS – II

UNIT-I

Rigid Body motion; Rotational motion, principal moments and Axes, Euler’s equations, precession and elementary gyroscope.
Galilean transformations and Invariance, Transformation equations for inertial frames inclined to each other, Non-Inertial frames. Fictitious forces in a rotating frames of reference, Centrifugal and Coriolis forces due to rotation of earth, Foucault’s pendulum.
Concept of stationery universal frame of reference and ether, Michelson-Morley experiment and its results.

UNIT-II

Postulates of special theory of relativity, Lorentz transformations, Kinematical consequences of Lorentz transformations – length contraction and time dilation, Twin paradox, Transformation of velocities, Simultaneity of relativity, Velocity of light in moving fluid, Relativistic Doppler effect.
Variation of mass with velocity, mass-energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Minkowski space, four vector formulation.

Books Suggested:

Essential Readings:

Further Readings:
1. Mechanics & Relativity (3rd Edition), Vidwan Singh Soni (PHI Learning, New Delhi, 2013)
4. Basic Concepts of Relativity, R.H. Good (East-West Press, New Delhi, 1974).

Paper B: VIBRATIONS, WAVES & E.M. THEORY-II (30 Hrs.)

UNIT-I

Waves in physical media, Wave equation and its solution, Types of waves, particle velocity, acceleration and energy in progressive waves. Longitudinal waves on a rod.
Transverse waves on a string, characteristic impedance of a string, Waves in absorbing media.
Reflection and Transmission of transverse waves on a string at discontinuity, Reflection and transmission of energy.
Reflection and transmission of longitudinal waves at a boundary.
Standing wave ratio, Impedance matching, Energy of vibrating string. Wave and group velocity.
UNIT-II

Physical interpretation of Maxwell’s equations, E.M. waves and wave equation in a medium having finite permeability, permittivity and conductivity. Energy flow due to EM wave - Poynting vector, Impedance of a dielectric to EM waves, EM waves in a conducting medium and skin depth. Impedance and Refractive index of a dielectric and a conductor.
Reflection and transmission of EM waves at a boundary of two dielectric media for normal and oblique incidence.
Reflection of EM waves from the surface of a conductor at normal incidence.

Essential Readings:

Books Suggested:
1. *Text Book of Vibrations and Waves* by S.P. Puri (Macmillan India Ltd.).

Further Readings:

Paper-C: ELECTRICITY AND MAGNETISM-II (30 Hrs.)

UNIT-I

Current and current density, equation of continuity. Microscopic form of Ohm’s Law \( J = \sigma E \) and conductivity. Failure of Ohm’s Law. Invariance of charge. \( E \) in different frames of reference. Field of a point charge moving with constant velocity. Force between parallel currents.
Behaviour of various substances in magnetic field. Definition of \( M \) and \( H \) and their relation to free and bound currents. Permeability and susceptibility and their interrelationship. B-H curve and energy loss in hysteresis, Langevin theory of diamagnetism.

UNIT-II


Books Suggested:

Essential Readings:
4. *Introduction to Classical Electrodynamics* by David Griffith, Prentice Hall.
Further Readings:


**PHYSICS PRACTICALS**

The Practical examination will be held along with the second semester examinations. General Guidelines for Physics Practical Examinations and syllabus is given in syllabus for Semester I.
CHEMISTRY
SEMESTER – I

Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Inorganic Chemistry-A</td>
<td>30 Hrs. per week</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>II</td>
<td>Organic Chemistry-A</td>
<td>30 Hrs. per week</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>III</td>
<td>Physical Chemistry-A</td>
<td>30 Hrs. per week</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>IV</td>
<td>Laboratory Practicals</td>
<td>6 Hrs. per week</td>
<td>22 + 3 internal assessment</td>
</tr>
</tbody>
</table>

Total: 15 periods/week 100

Paper 1 – INORGANIC CHEMISTRY-A

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I

(8 Hrs.)

Atomic Structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, significance of $\Psi$ and $\Psi^2$, quantum numbers, radial and angular wave functions and probability distribution curves, shapes of $s$, $p$, $d$ orbitals. Aufbau and Pauli exclusion principles, Hund’s multiplicity rule. Electronic configurations of the elements and ions.

UNIT-II

(7 Hrs.)

Periodic Properties

Position of elements in the periodic table; effective nuclear charge and its Calculations Atomic and ionic radii, ionization energy, electron affinity and electronegativity – definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour.
UNIT-III
(7 Hrs.)

Chemistry of Noble Gases and s-Block Elements
Chemical properties of the noble gases, chemistry of xenon, structure and bonding in xenon compounds. Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies including their function in biosystems, an introduction to alkyls and aryls.

UNIT-IV
(8 Hrs.)

Chemical Bonding-I
Covalent Bond – Valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions. BeF$_2$, BF$_3$, CH$_4$, PF$_3$, SF$_4$, IF$_7$, SnCl$_2$, XeF$_4$, BF$_4^-$, PF$_6^-$, SnCl$_6^{2-}$. Valence shell electron pair repulsion (VSEPR) theory to NH$_3$, H$_2$O$,^+$, SF$_6$, ClF$_3$, IC$_2^-$ and H$_2$O. MO theory, homonuclear (elements and ions of 1$^{st}$ and 2$^{nd}$row), and heteronuclear (BO, CN, CO$^+$, NO$^+$, CO, CN$^-$), diatomic molecules. Percentage ionic character from dipole moment and electronegativity difference.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-II: ORGANIC CHEMISTRY-A

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)
Structure and Bonding:
Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, Van der Waals interactions, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding.

Mechanism of Organic Reactions:
Curved arrow notation, drawing electron movements with arrows, half-headed and double-headed arrows, homolytic and heterolytic bond breaking. Types of reagents-electrophiles and nucleophiles. Types of organic reactions. Energy considerations.

Reactive intermediates-Carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species.

Methods of determination of reaction mechanism (product analysis, intermediates, isotope effects, kinetic and stereochemical studies).

UNIT –II (7 Hrs.)
Alkanes and Cycloalkanes:
Isomerism in alkanes, sources, methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids), physical properties and chemical reactions of alkanes
Mechanism of free radical halogenation of alkanes: Orientation, reactivity and selectivity. Cycloalkanes – nomenclature, methods of formation, chemical reactions, Baeyer’s strain theory and its limitation. Ring strain in small rings (cyclopropane and cyclobutane), theory of strainless rings. The case of cyclopropane ring: banana bonds

UNIT-III (8 Hrs.)
Stereochemistry of Organic Compounds I:
Concept of isomerism, Types of isomerism.
Optical isomerism – Elements of symmetry, molecular chirality, enantiomers, stereogenic center, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centers, diastereomers, three and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization.

Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.
UNIT-IV (7 Hrs.)

Stereochemistry of Organic Compounds II:
Geometric isomerism: Determination of configuration of geometric isomers. E & Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds.


Instructions for paper setters and candidates:

i. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt **FIVE** questions in all, **ONE** question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-III: PHYSICAL CHEMISTRY-A

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Physical Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

UNIT-I
Mathematical Concepts and Evaluation of Analytical Data:
Logarithmic relations, curve sketching, linear graphs and calculation of slopes, differentiation and integration of functions like \(e^x\), \(x^n\), \(\sin x\), \(\log x\); maxima and minima, partial differentiation and reciprocity relations. Terms of mean and median, precision and accuracy in chemical analysis, determining accuracy of methods, improving accuracy of analysis, data treatment for series involving relatively few measurements, linear least squares curve fitting, types of errors, standard deviation.

UNIT-II
Gaseous States:
Postulates of kinetic theory of gases, deviation from ideal behavior, Van der Waal’s equation of state.

Critical Phenomena:
PV isotherms of real gases, continuity of states, the isotherms of Van der Waal’s equation, relationship between critical constants and Van der Waal’s constants, the law of corresponding states, reduced equation of state.

Molecular Velocities:
Root mean square, average and most probable velocities. Qualitative discussion of the Maxwell’s distribution of molecular velocities, collision number, mean free path and collision diameter. Liquification of gases (based on Joule-Thomson effect).

UNIT-III
Chemical Kinetics-I
Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction- concentration, temperature, pressure, solvent, light, catalyst. Concentration dependence of rates, mathematical characteristics of simple chemical reactions – zero order, first order, second order, pseudo order, half life and mean life. Determination of the order of reaction – differential method, method of integration, method of half life period and isolation method.

Radioactive decay as a first order phenomenon.
UNIT-IV    (7 Hrs.)

Chemical Kinetics-II

Theories of Chemical Kinetics: Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects.

Catalysis and general characteristics of catalytic reactions, Homogeneous catalysis, acid-base catalysis and enzyme catalysis including their mechanisms, Michaelis Menten equation for enzyme catalysis and its mechanism.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-IV: LABORATORY PRACTICALS

INORGANIC CHEMISTRY

(a) QUALITATIVE ANALYSIS:
Semimicro Analysis, cation analysis, separation and identification of ions from groups I, II, III, IV, V and VI. Anion analysis (4 ions).
Instruction to Examiners: Four ions with no interference (anions such as $PO_{4}^{3-}$, $BO_{3}^{3-}$ and similar anions like Cl$^{-}$, Br$^{-}$, I$^{-}$ etc. and cations from the same group) may not be given.

(b) QUANTITATIVE ANALYSIS:
Volumetric titrations involving acid-base, $KMnO_{4}$ and $K_{2}Cr_{2}O_{7}$.
There are three experiments - one involving acid-base titrations, one involving $KMnO_{4}$ and one involving $K_{2}Cr_{2}O_{7}$.

1. Determination of strength of $Na_{2}Co_{3}$ solution by titrating it against a standard solution of HCl.
2. Determination of molarity of $KMnO_{4}$ solution by titrating it against a standard solution of Oxalic acid.
3. Standarise the given $K_{2}Cr_{2}O_{7}$ solution by titrating it against a standard solution of Mohr’s Salt.

General Instruction to the Examiners:
Note: Practical examination will be of four hours duration & shall consist of the following questions:

Q.No. I. Qualitative Analysis : 10 marks
Q.No. II. Quantitative Analysis : 06 marks
Q.No. III. Viva-Voce : 03 marks
Ask three questions (1 marks each) related to chemistry practicals. : 03 marks
Q.No. IV. Note Book

Books Suggested (Laboratory Courses)


-------
### CHEMISTRY
### SEMESTER –II

#### Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Inorganic Chemistry-B</td>
<td>30</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>VI</td>
<td>Organic Chemistry-B</td>
<td>30</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>VII</td>
<td>Physical Chemistry-B</td>
<td>30</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td>VIII</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22 + 3 internal assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total :</strong> 15 periods/week</td>
<td>100</td>
</tr>
</tbody>
</table>


Paper V – INORGANIC CHEMISTRY –B

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

**OBJECTIVE OF THE COURSE**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

**UNIT-I**

(7 Hrs.)

Chemical Bonding-II

Ionic Solids – Concept of close packing., Ionic structures, (NaCl type, Zinc blende, Wurtzite, CaF$_2$ and antifluorite), radius ratio rule and coordination number, limitation of radius ratio rule, lattice defects, semiconductors.

**UNIT-II**

(8 Hrs.)

Chemical Bonding-III

Lattice energy and Born-Haber cycle, solvation energy and solubility of ionic solids, polarizing power and polarisability of ions, Fajan’s rule. Metallic bond-free electron, valence bond and band theories. Weak Interactions – Hydrogen bonding, Van der Waals forces.

**UNIT-III**

(7 Hrs.)

$p$-Block Elements-I

Comparative study (including diagonal relationship) of groups 13-14 elements, compounds like hydrides, oxides, oxyacids and halides of groups 13-14, hydrides of boron-diborane and higher boranes, borazine, borohydrides, fullerenes, carbides, fluorocarbons.

**UNIT-IV**

(8 Hrs.)

$p$-Block Elements-II

Comparative study of groups 15-17 elements, compounds like hydrides, oxides, oxyacids and halides of groups 15-17, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

**Instructions for paper setters and candidates:**

i. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

ii. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

iii. **Compulsory question carries six marks and remaining all questions carry four marks each.**
Books suggested

Paper-VI: ORGANIC CHEMISTRY-B

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)
Alkenes, Cycloalkenes
Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydration. The Saytzeff’s Rule, Hofmann elimination, physical properties and relative stabilities of alkenes.


UNIT-II (7 Hrs.)
Dienes and Alkynes
Methods of formation, conformation and chemical reactions of cycloalkenes.
Nomenclature and classification of dienes : Isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization. Chemical reactions – 1,2 and 1,4 additions, Diels-Alder reaction.


UNIT-III (8 Hrs.)
Arenes and Aromaticity:

Aromaticity: The Huckel rule, aromatic ions.

UNIT-IV

(7 Hrs.)

Alkyl and Aryl Halides

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms of nucleophilic substitution reactions of alkyl halides, $S_N2$ and $S_N1$ reactions with energy profile diagrams.

Polyhalogen compounds: chloroform, carbon tetrachloride.

Methods of formation of aryl halides, nuclear and side chain reactions. The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.

Relative relativities of alkyl halides vs. allyl, vinyl and aryl halides.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


--------
OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Physical Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)
Thermodynamics-I:
Definition of Thermodynamic Terms: System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.


UNIT-II (7 Hrs.)
Thermochemistry:

UNIT-III (7 Hrs.)
Colloidal State:

UNIT-IV (8 Hrs.)
Solutions, Dilute Solutions and Colligative Properties:

Abnormal molar mass, degree of dissociation and association of solutes.
Instructions for paper setters and candidates:

i. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt **FIVE** questions in all, **ONE** question from each unit and the **Compulsory question**.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-VIII: LABORATORY PRACTICALS

ORGANIC CHEMISTRY AND GREEN CHEMISTRY PRACTICALS
Crystallization and determination of melting points

1. Phthalic acid from hot water (using fluted filter paper and stemless funnel).
2. Acetanilide from boiling water.
3. Benzoic acid from water

PHYSICAL CHEMISTRY

1. Refractive indices
   Determine the Refractive indices of given liquids (water, acetone, methanol, ethylacetate, cyclohexane) by Abbe’s refractometer & calculate their specific refractions.
2. Viscosity
   To determine the viscosity of Brine Solution (20%), n-Butyl alcohol, cyclohexane
3. Surface Tension
   To determine the surface tension of Brine Solution (20%), n-Butyl alcohol, cyclohexane

General Instruction to the Examiners:

Note: Practical examination will be of four hours duration & shall consist of the following questions:
Q.No. I. Physical Chemistry : 10 marks
Q.No. II. Organic Chemistry : 06 marks
Q.No. III. Viva-Voce : 03 marks
Ask three questions (1 marks each) related to chemistry practicals.

Q.No. IV. Note Book : 03 marks

Books Suggested (Laboratory Courses)

B.A./B.Sc.(General) First Year (Semester System) Syllabus

**BOTANY**

**Semester-I**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper- A Plant Diversity-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B Cell Biology</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs.</td>
<td>18</td>
<td>02</td>
<td>20</td>
</tr>
</tbody>
</table>

**Second Semester**

| Theory Paper –A Plant Diversity-II  | 3hrs  | 36     | 04          | 40        |
| Theory Paper-B Genetics             | 3hrs  | 36     | 04          | 40        |
| One practical pertaining to entire syllabus included in both theory papers | 3hrs. | 18     | 02          | 20        |

**Total** 200

**Note:** 1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.

2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.

**Paper-A: PLANT DIVERSITY-I**

**Objective:** The basic objective of this paper is to make students aware about the diversity in various life forms of plant kingdom. It gives an idea about the most simple group of plants. A systematic study of algae and fungi included in this group would familiarize students not only with structural differentiation but also provide an insight about the heterotrophic and autotrophic modes of nutrition in the plant kingdom. This paper in fact forms the basis of any advance study in Botany.

**Teaching Methodology:** Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.
UNIT – I

Bacteria: Salient features, types and cell structure.

Algae: General Characters; systematic position, structure and life history of Oscillatoria (Cyanophyceae) Volvox, Cladophora (Chlorophyceae); Vaucheria (Xanthophyceae).

UNIT-II

Systematic position, structure and life history of Dictyota (Phaeophyceae); Batrachospermum (Rhodophyceae) and economic importance of algae.

UNIT-III

Fungi: General characters; systematic position, structure and life history of Albugo (White rust of crucifers: Albugo candida), Rhizopus and Saccharomyces.

UNIT-IV

Systematic position, structure and life history of Agaricus, Ustilago (Loose smut of wheat: Ustilago tritici), Puccinia (Black rust of wheat: Puccinia graminis tritici), Colletotrichum (Red rot of sugarcane: Colletotrichum falcatum); general account of Lichens and their economic importance.

Suggested Readings:

Paper-B: Cell Biology

Objective: This paper deals with the basic structural unit of life i.e. Cell & its organelles. It provides an insight into structural and cytological basis of functional differentiation in plants. Coupled with the study of prokaryotic and eukaryotic diversity of life forms included in Paper-A, the course material of this paper gives an idea about cellular, molecular and biochemical basis of such differentiation.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Ultrastructure and functions of a typical plant cell and its organelles: Nucleus, Mitochondrion, Plastids, Ribosome, Endoplasmic reticulum, Golgi apparatus, Lysosomes; Structure and functions of cell wall and plasma membrane: fluid mosaic model only.

UNIT-II

Physical structure of chromosome; Giant chromosomes: Polytene and Lampbrush chromosomes; Chromosomal alterations (deletion, duplication, inversion, translocation) and their importance; Variations in chromosome number, (aneuploidy and polyploidy) introduction and their importance.

UNIT-III

Cell divisions: Mitosis and Meiosis in plants and their significance, Synaptonemal complex, DNA: Structure (Watson and Crick model), Nucleosome, types of DNA and role of DNA, Replication of DNA.

UNIT-IV

Structure and concept of gene: One gene-one enzyme hypothesis; Genetic Code: Characteristics, exceptions, Wobble hypothesis; RNA: Structure and types; Transcription and translation; Regulation of gene expression in prokaryotes (Lac operon and Tryptophan operon) and in eukaryotes (a brief account).

Suggested Readings:

Suggested laboratory exercises for First Semester:

1. Study of morphology of various genera included in algae and fungi.
2. Study of Crustose, Foliose and Fructicose types of Lichen thalli.
3. Histopathological study of White rust of crucifers, Loose smut of wheat, Black rust of wheat and Red rot of sugarcane.
4. To study cell structure from onion leaf peels; demonstration of staining and mounting method.
5. Preparation of temporary slides to show different stages of mitosis from root tips of *Allium cepa* and *A. sativum*.
6. Preparation of temporary slides to show different stages of meiosis from floral buds of *Allium/Brassica*.

Guidelines for Botany Practical Examination:

<table>
<thead>
<tr>
<th></th>
<th>Max. Marks</th>
<th>Practical</th>
<th>Internal Assessment</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Identify and write illustrated morphological note on specimens A and B. 05
2. Prepare a squash mount of specimen C to show the stage of cell division visible in the slide and show it to the examiner. Identify it giving at least one reason. Draw the stage of cell division and show it to the examiner. 05
3. Identify and the slides D and E giving at least two reasons for each. 04

1. Practical Note-book 02
2. Viva-voce 02

........................
BOTANY

SEMESTER – II

Paper-A: Plant Diversity-II

Objective: The basic objective of this paper is to make the students aware about the diversity in various life forms of plant kingdom. It gives an idea about how different life forms have evolved from simpler to complex ones. A sequential study ranging from Bryophytes (the amphibians of plant kingdom) and then to Pteridophytes - the first vascular land plants, would enable students to have a broad prospective of evolutionary trends in plant kingdom.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Bryophyta: General characters; systematic position, structure, reproduction and life cycle of Marchantia and Riccia (Hepaticopsida) excluding developmental stages.

UNIT-II

Systematic position, structure, reproduction and life cycle of Anthoceros (Anthocerotopsida) and Funaria (Bryopsida) excluding developmental stages.

UNIT–III

Pteridophyta: General characters; systematic position, structure, reproduction and life cycle of Rhynia (Psilophytopsida) and Selaginella (Lycopsida) excluding developmental stages.

UNIT-IV

Systematic position, structure, reproduction and life cycle of Equisetum (Sphenopsida) and Pteris (Pteropsida) excluding developmental stages.

Suggested Readings

Paper-B : Genetics

Objective: This paper deals with various aspects of hereditary trends observed in successive generations. It provides an insight into genetic basis of such evolutionary trends in plants. Coupled with the study of variations in life forms included in Paper A, the course material of Paper B provides an idea about the important role that genetics plays in structural and functional differentiation of plants.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I
Mendelism: Mendel’s experiments and results, Mendel’s Laws of Dominance, Segregation and Independent assortment; Linkage: complete and incomplete linkage, linkage groups, linkage maps, importance of linkage, cytological interpretation of Mendelism.

UNIT-II
Non-allelic Gene Interactions: Dominant and recessive epistasis, supplementary genes, complementary genes, quantitative or polygenic inheritance, duplicate genes. Allelic gene interactions: Incomplete dominance, codominance, multiple alleles, pleiotropic genes.

UNIT-III
Chromosome theory of heredity, parallelism between chromosome and Mendelian factors, Sex linked inheritance; Characteristics and examples (Haemophilia, colour-blindness); Cytoplasmic or extranuclear inheritance: mitochondrial and plastid DNA; plastid inheritance in Mirabilis, mitochondrial inheritance in Yeast.

UNIT-IV
Genetic variations: Continuous and Discontinuous; Mutations: characteristics, types, importance, factors affecting mutations; Mutagens: Physical and chemical, mechanism of gene mutations; DNA damage and repair: Types of damage (Single base change and structural distortion), types of repair system in prokaryotes and eukaryotes.

Suggested Readings:
Suggested laboratory exercises for Second Semester:

1. Study of morphology of various genera mentioned in Bryophyta and Pteridophyta.

2. I. Preparation of permanent stained slides of:
   - *Marchantia* (V.S. Thallus)
   - *Selaginella* (T.S. Stem)
   - *Riccia* (V.S. Thallus)
   - *Anthoceros* (V.S. Thallus)
   - *Equisetum* (T.S. Aerial stem passing through internode)
   - *Funaria* (T.S. Stem)
   - *Pteris* (T.S. Petiole and leaflet)

II. Study through permanent slides:

   *Marchantia*
   i) L.S. Antheridiophore  
   ii) L.S. Archegoniophore  
   iii) L.S. Mature sporogonium

   *Riccia*
   L.S. Mature sporogonium

   *Anthoceros*
   i) T.S. Thallus passing through antheridia  
   ii) T.S. Thallus passing through archegonia  
   iii) L.S. Mature sporogonium.

   *Funaria*
   i) L.S. Male receptacle  
   ii) L.S. Female receptacle  
   iii) L.S. Capsule  
   iv) Primary protonema

   *Selaginella*
   L.S. Sporangiferous spike

   *Equisetum*
   i) L.S. Strobilus  
   ii) T.S. Strobilus

   *Pteris*
   Mature prothallus

Guidelines for Botany Practical Examination:

Max. Marks : 20
Practical : 18
Internal Assessment : 02
Time : 3 hrs

1. Cut T.S., stain and make a permanent mount of specimen A. Identify, draw its labelled diagram and show the slide to the examiner.

2. Problem related to Mendalism or gene interaction (to be announced by the examiner).

3. Identify the slides B and C giving at least two reasons for each.

ZOOLOGY

FIRST SEMESTER

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-I: Biodiversity &amp; Cell Biology – I</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Paper-II: Biodiversity &amp; Cell Biology – II</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Practical: One paper covering entire syllabus of both the papers.</td>
<td>4 hrs.</td>
<td>18</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total marks:</strong></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

SECOND SEMESTER

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-I: Biodiversity &amp; Ecology - I</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Paper-II: Biodiversity &amp; Ecology - II</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Practical: One paper covering entire syllabus of both the papers.</td>
<td>4 hrs.</td>
<td>18</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total marks:</strong></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** The number of hours for Theory and Practical per week shall be 6 and 4 hours, respectively.

**OBJECTIVES OF THE COURSE**

The syllabus pertaining to B.Sc. (General) Semester-I and Semester-II in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Sea-shores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.
ZOOLOGY

FIRST SEMESTER

PAPER–I : BIODIVERSITY & CELL BIOLOGY-I (ZOO. 101)

Max. Marks : 40 marks
Theory : 36 marks
Internal Assessment : 4 marks
Time : 3 Hrs.

Note : Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT – I

Detailed study of the following protozoan types :
Amoeba, Paramecium and Plasmodium.

Classification up to orders with ecological notes and economic importance (if any) of the following :
Entamoeba, Trypanosoma, Giardia, Noctiluca, Eimeria, Opalina, Vorticella, Balantidium and Nyctotherus.

UNIT – II

Detailed study of the following animal types :
Parazoa (Porifera) : Sycon (Scypha)
Cnidaria (Coelenterata) : Obelia

Classification upto orders with brief ecological note and economic importance (if any) of the following:
Parazoa (Porifera) : Grantia, Euplectella, Hyalonema and Spongilla
Cnidaria (Coelenterata) : Hydra, Sertularia, Plumularia, Obelia, Tubularia, Bougainvillea, Porpita, Velella, Physalia, Rhizostoma Millipora, Aurelia, Alcyonium, Tubipora, Zoanthus, Metridium, Madrepora, Favia, Fungia and Astrangia.

UNIT – III

Methods in Cell Biology : Principles and applications of light (simple, compound & phase contrast) and electron (SEM & TEM) microscopes
Fixation & fixatives, staining techniques. (simple and double staining)

Organisation of Cell : Concept of Prokaryotic and Eukaryotic cell, extra nuclear and nuclear organization of cell.

Plasma membrane : Structure with particular references to Fluid Mosaic Model, Osmosis, active and passive transport, endocytosis and exocytosis.
UNIT – IV

Endoplasmic reticulum : Structure, types, associated enzymes and functions.
Mitochondria : Structure, mitochondrial enzymes and the role of mitochondria in respiration. Mitochondrial DNA.
Golgi complex : Structure, associated enzymes and functions.

Books Recommended :

UNIT – I

Detailed study of the following animal types:
Platyhelminthes: Fasciola, Taenia
Aschelminthes: Ascaris

Parasitic adaptations in Helminths

Classification upto orders with brief ecological note and economic importance (if any) of the following:
Platyhelminthes: Dugesia, Schistosoma and Echinococcus.
Aschelminthes: Ascaris, Oxyuris, Wuchereria.

UNIT – II

Detailed study of the following animal type:
Annelida: Pheretima

Classification upto orders with brief ecological note and economic importance (if any) of the following:
Annelida: Nereis, Polynoe, Eunice, Arenicola, Aphrodite, Amphitrite, Chaetopterus, Tubifex and Pontobdella.

UNIT – III

Lysosomes: Lysosomal enzymes, Polymorphism and functions.
Ribosomes: Types of ribosomes, their structure and functions.
Centrosome: Structure and functions.

UNIT-IV

Nucleus: Structure and functions of nuclear membrane, nucleolus and chromosomes. Euchromatin & Heterochromatin

An elementary idea of cell transformation in Cancer: Introduction, difference between normal and Cancer cells, types of cancer, basic idea of transformation.

An elementary idea of cellular basis of immunity: Cellular & Humoral immunity. Elementary idea of cells & organs of immune system.
Books Recommended:


PRACTICALS: Practical based on Theory Papers ZOO-101 & ZOO-102 (ZOO-151)

1. Examination of cultures of Euglena and Paramecium.
2. Classification up to orders with ecological notes and economic importance, if any, of the following animals:
   - Slides: Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramoecium (Binary fission and conjugation), Opalina, Vorticella, Balantidiium, Nyctotherus & Polystomella.
   - Cnidaria (Coelenterata) (a) Specimens: Porpita, Vellela, Physalia, Aurelia, Rhizostoma Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia and Astrangia.
   - Aschelminthes: Ascaris (male and female), Trichinella, Ancylostoma.
   - Platyhelminthes (a) Specimens: Dugesia, Fasciola, Taenia, Echinococcus.
   - (b) Slides: Miracidium, Sporocyst, Redia, Cercaria of Fasciola, Scolex and Proglottids of Taenia (mature and gravid).
3. Study of the following permanent stained preparations:
   • L.S. and T.S. Sycon, gemmules, spicules and spongins fibres of a sponge.
   • T.S. Hydra (Testis and ovary region).
   • T.S. Pheretima (Pharyngeal and typhlosolar regions); setae, septal nephridia, spermathecae and ovary of Pheretima
   • T.S. Fasciola (Different regions).
   • T.S. Ascaris (Male & female).

4. Preparation of the following slides:
   • Temporary preparation of Paramecium, Euglena and vorticella.

5. Demonstration of dissection of earthworm through video clipping/models/charts etc.

6. Make a preparation of sex-chromatin from buccal smear.

7. Introduction to the following through photographs/lab. visits:
   • Gel electrophoresis, TEM & SEM, ultrastructure of cell organelles.

8. Study of slide of striated muscle fibre and Animal cell.

Note: Candidates will be required to submit their original note books containing record of their laboratory work (Drawing etc.) initialed and dated by their teachers at the time of practical examination.

Guidelines for the conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks
Time : 3 hours

1. Draw a labelled sketch of the any given system and show to examiner/Spot any four parts of anatomy in given models/charts. 2 marks

2. Make a temporary mount of the material “A”. Identify and draw its labelled sketch and show it to the examiner. 1 marks

3. Identify the slides (B-C) and give two important reasons for each identification. 3 marks

4. Identify and classify the specimens (D-G) up to orders. Write a short note on the habitat, special features, feeding habit and economic importance. 6 marks

5. Identify the cell organelle through photograph and give two important reasons for Identification/Buccal smear/striated muscle fibre/paper chromatography. 2 marks

6. Viva voce 2 marks

7. Practical records and chart 2 marks

.................................
ZOOLOGY
SECOND SEMESTER

Paper- I : BIODIVERSITY & ECOLOGY - I (ZOO-201)

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type Questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT -I

Detailed study of the following animal types:

Arthropoda : *Periplaneata*
Social organizations in insects (honey bee and termite).

Classification upto orders with brief ecological note and economic importance (if any) of the following:


UNIT –II

Detailed study of the following animal types:

Arthropoda : *Prawn (Palaemon)*
Life cycle of *Anopheles* and *Culex*.

Classification upto orders with brief ecological note and economic importance (if any) of the following:

*Peripatus*, Prawn, Lobster, *Cancer* (Crab), *Sacculina, Eupagurus* (Hermit crab), *Lepas, Balanus, Julus* (Millipede), *Scolopendra* (Centipede), *Palamnaeus* (Scorpion), *Aranea* (Spider) and *Limulus* (King crab).
UNIT – III

Ecology : Subdivisions and Scope of ecology.

Ecosystem : Components, ecological energetics, food web, introduction to major ecosystems of the world.

Ecological factors : Temperature, light and soil as ecological factors.

UNIT – IV

Nutrients : Biogeochemical cycles & concept of limiting factors.

Ecological Adaptations : Morphological, physiological and behavioural adaptations in animals in different habitats.

Population : Characteristics and regulation of population.

Books Recommended:

Paper-II BIODIVERSITY & ECOLOGY - II (ZOO-202)

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT – I

Detailed study of the following animal type:

Mollusca : *Pila*

Classification up to orders with ecological notes and economic importance (if any)

Mollusca : *Chiton*, *Anodonta*, *Mytilus*, *Ostrea*, *Cardium*, *Pholas*, *Solen* (Razor Fish), *Pecten*, *Haliotis*, *Patella*, *Aplysia*, *Doris*, *Limax*, *Loligo*, *Sepia*, *Octopus*, *Nautilus* and *Dentalium*

UNIT – II

Detailed study of the following animal types:

Echinodermata : *Asterias*, Echinoderm Larvae.
Hemichordata : *Balanoglossus*, External characters and affinities.

Classification up to orders with ecological notes and economic importance (if any)

Echinodermata : *Echinus*, *Cucumaria*, *Ophiothrix*, *Antedon* and *Asterias*.
Hemichordata : *Balanoglossus*.

UNIT – III

Inter and intra ecological relationships: Competition, predation, parasitism, commensalism, ammensalism & mutualism

Biotic community: Characteristics, ecological succession, ecological niche.

UNIT – IV

Natural resources: Renewable and nonrenewable natural resources and their conservations.

Environmental Degradation: Causes, impact and control of environmental pollution.
(Air, Water, Land, Noise)

Wildlife conservation: Basic concepts
Books Recommended:


PRACTICALS : Practical based on Theory Papers  ZOO-201 & ZOO-202 (ZOO 152)

1. Classification upto orders with ecological notes and economic importance, if any, of the following animals:
   Arthropoda: Peripatus, Palaemon, Lobster, Cancer (Crab), Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Apis, Lepisma (Silver Fish), Schistocerca (Locust), Poecilocerus (Ak Grasshopper), Gryllus (Cricket), Mantis (Praying Mantis) Cicada, Forficula (Earwig), Scarabaeus (Dung beetle), Agrian (Dragon fly), Odontotermes (Termite queen), Cicex (bed bug), Cicindela (Tiger beetle), Polistes (Wasp), Bombyx (Silk moth), Julus (Millipede), Scolopendra (Centipede), Palamnaeus (Scorpion), Aranea (Spider) and Limulus (King crab).

   Mollusca: Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen (Razorfish) Pecten, Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus shell (Complete and T.S.), Chiton and Dentalium.

   Echinodermata: Asterias, Echinus, Ophiothrix and Antedon Cucumaria

   Hemicordata: Balanoglossus.

2. Study of the following permanent stained preparations:
   Trachea, mouth parts of Periplana
   Radula and osphradium of Pila.
   T.S. Star fish (Arm).
3. Demonstration of dissection of the following animals through video clippings/charts/models:
   *Periplaneta*: Digestive and nervous systems; mouth parts and trachea.
   *Pila*: Pallial complex, digestive and nervous systems, Radula.

4. Study of animal adaptations with the help of specimens, charts and models.

5. Study of Zoogeographical regions and their fauna.


7. Study of different types of nests in birds.

8. Study & preparation of zoogeographical charts/maps.

Note: Candidates will be required to submit their original note books containing record of their laboratory work (Drawing etc.) initialed and dated by their teachers at the time of practical examination.

**Guidelines for the conduct of Practical Examination**

<table>
<thead>
<tr>
<th></th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Practical Exam.</strong></td>
<td>18 marks</td>
</tr>
<tr>
<td><strong>Internal Assessment</strong></td>
<td>2 marks</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Draw a labeled diagram of any given system of an animal and explain it to the examiner Sketch and demonstrate it to the examiner. 2 marks

2. Identify the slides (A-C) and give two important reasons for each identification. 3 marks

3. Identify and classify the specimens (D-G) up to orders. Write a short note on the habitat, special features, feeding habit and economic importance. 6 marks

4. Identify the type of adaptation/type of nest/biotic components with a short note. 1 marks

5. Mark Zoogeographical region on the given physical map along with endemic fauna and climate. 2 marks

6. Viva voce 2 marks

7. Practical record, charts/maps and project report of excursion to a place of zoological interest 2 marks
BIOCHEMISTRY

Semester I

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper-A: Carbohydrates and Lipids
Marks: 45+5
(Three periods per week)

Objective: To learn about biomolecules, their structure and functional significance.

SECTION-I
(Lectures: 6)
Introduction to biochemistry and its scope. Water: physical properties, as a biological solvent and structure of water, dissociation of water. pH and pOH, buffer solution. Henderson Hasselbalch equation, acid-base indicators, buffers and physiologically important buffers, dialysis and osmosis.

SECTION-II
(Lectures: 8)

SECTION-III
(Lectures: 8)

SECTION-IV
(Lectures: 6)
Suggested Books:

PRACTICALS: Marks: 25
One practical of 3 hours per week
1. Qualitative tests for carbohydrates.
2. Estimation of carbohydrate by anthrone method.
3. Estimation of ascorbic acid by dye method.
4. Verification of Beer-Lambert law for nitrophenol or cobalt chloride.
5. Qualitative tests for cholesterol and lipids.
6. Determination of saponification value of fats.
7. Determination of iodine value of fats.
8. Estimation of phospholipids by vanillin method.

Paper-B: Nitrogen containing Biomolecules Marks: 45+5
SECTION–I
(Lectures: 7)

SECTION–II
(Lectures: 8)

SECTION-III
(Lectures: 8)

SECTION-IV
(Lectures: 6)
Suggested Books:


PRACTICALS: Marks: 25
One practical of 3 hours per week

1. Qualitative tests for Amino acids and proteins
2. Titration curve for amino acids and determination of pKa value.
3. Estimation of:
   (a) Amino acids by ninhydrin method.
   (b) Protein by biuret and Lowery method
   (c) DNA by diphenylamine method
   (d) RNA by orcinol method
4. Spectrophotometric measurements of DNA and RNA solutions
BIOCHEMISTRY
Semester II

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper- A: Biochemical Techniques
Marks: 45+5

Credit: 3+0+0
Objective: To learn various biochemical techniques

Section-I
(Lectures: 7)
Beer-Lambert’s law. Light absorption and its transmittance. Determination and application of extinction coefficient. Applications of following spectroscopic techniques in elucidating structure of Biomolecules:- visible, U.V., Infra-red and fluorescence spectroscopy

Section-II
(Lectures: 8)
Chromatography: general principles, distribution coefficient, partition chromatography-normal phase and reverse phase liquid chromatography. Modes of chromatography-column, thin layer and paper chromatography. Principles, matrices and applications of gel permeation, adsorption, ion exchange and affinity chromatography. Gas chromatography (GC) and High Performance Liquid Chromatography (HPLC).

Section-III
(Lectures: 7)

Section-IV
(Lectures: 8)

SUGGESTED BOOKS
3. Fundamentals of analytical chemistry by Skoog /West/Holter/Crouch Thompson/Brooks/Cole
PRACTICALS: Marks: 25
One practical of 3 hours per week
I. Estimation of proteins using UV absorbance and biuret method.
II. Estimation of proteins using Lowry/Bradford method.
III. Isoelectric pH of casein.
IV. Ammonium sulphate fractionation of serum proteins.
V. Separation of albumin from serum using anion-exchange chromatography.
VI. SDS-PAGE analysis of proteins.

Paper-B: Enzymes and Bioenergetics Marks: 45+5

Objective: To learn principles of thermodynamics, nature of enzymes, their mode of action and enzyme kinetics

SECTION-I
(Lecture: 7)

SECTION-II
(Lectures: 8)
Enzymes as catalysts. Theories of enzymes catalysis: proximity and orientation effects, acid base catalysis, covalent catalysis. Role of metals in enzyme catalysis.

SECTION-III
(Lectures: 8)

SECTION-IV
(Lectures: 8)

Books Recommended:

PRACTICALS:

Marks: 25
One practical of 3 hours per week

I. Preparation of casein from milk
II. Determination of achromatic point of saliva
III. (a) Assay of serum alkaline phosphatase activity.
    (b) Effect of pH on enzyme activity.
    (c) Effect of temperature on enzyme activity and determination of energy of
        activation.
    (d) Effect of substrate concentration on enzyme activity and determination of
        Km.
IV. Inhibition of alkaline phosphatase by EDTA.
V. Demonstration of potato polyphenoloxidase activity.
INTRODUCTION TO COMPUTER SCIENCE
(Additional Optional Subject)

Note: The students with no background of Computer knowledge will opt for Module I while those familiar with the use of Computer system at the operating system level and application level, may opt either Module II or Module III.

Course Duration for each semester: 60 hours for Theory and 60 hours for Practical

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Name of Paper</th>
<th>Lecturers per week</th>
<th>Max. Marks</th>
<th>Exam Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Semester</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>Fundamentals of Information Technology</td>
<td>6</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Practical on Paper – A</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Second Semester</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>Computer Programming Using C</td>
<td>6</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>Practical on Paper – B</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

SEMESTER I

Paper A
Paper Title: Fundamentals Of Information Technology
Max. Marks : 25

Time : 3 Hrs.

Theory : Ext. 25 + Int. 5 = 30
Practical : Ext. 20 -- = 20

Total Periods (6 Periods/week): 60

Objective: To familiarize students with basic concepts of Computer and Information Technology, Students will get understanding of concepts related to operating systems and application softwares.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I

1. Basics of Computers: Characteristics of computer; History of computers; classification of computers based on size, architecture, and chronology; Applications of computers; Hardware, Software, and Firmware. Types of software: System and Application software; Input, Process and Output, Block diagram of a computer.

2. Representation of information: BIT, BYTE, Memory, Memory size; RAM, ROM, PROM, EPROM, Magnetic tapes, Disks, Organization of data on disks: Tracks, sectors, cylinders, heads, access time, seek time and latency time.
   ASCII and EBCDIC Codes, Binary, Octal, Decimal and Hexadecimal Number Systems and their Conversion, Integer and Floating Point Representation. Input/Output devices.
UNIT-II

3. **Disk Operating System:** Booting sequence; Warm and Cold Booting; Concept of File and directory, Types of DOS commands: Internal and External; Internal Commands: DIR, MD, CD, CLS, COPY, DATE, DEL, PATH, PROMPT, REN, RD, TIME, TYPE, VER, VOL; External Commands: XCOPY, ATTRIB, BACKUP, RESTORE, FORMAT, DISKCOPY, Introduction to CONFIG.SYS and AUTOEXEC.BAT files.

4. **Windows:** GUI, Icons, Toolbar, Control panel, Files and folder management under windows, Accessories, Network Neighborhood, System Tools, Recycle Bin

5. **LINUX:** Overview of LINUX structure, Basic Linux commands such as date, echo, cal, bc, passwd, File and Directory commands such as ls, mkdir, pwd, cd, rmdir, cat, cp, mv, rm Using chmod, chown, chgrp.
Comparison of main features of DOS, LINUX and Windows Operating Systems.

UNIT-III

6. **Word Processing Software:**
   **Basics of Word Processing:** creating, opening, saving, and printing document, Menu Toolbars.

   **Editing Text:** Copy, Paste, Delete, Move etc., Finding and Replacing Text, Spell Check, Autocorrect feature, language setting and thesaurus

   **Formatting:** Character, Paragraph and Page formatting, working with indents, Bulleted and numbered lists, adding Headers and Footers, setting up Multiple Columns

   **Working with tables:** Inserting/creating table using toolbar and drawing, formatting table, adding/deleting rows/columns, Applying borders to tables

   **Clipart:** Using clip art, Creating Word Art

   **Mail merge:** Creating merged envelopes, creating merged mailing labels

UNIT-IV

7. **Spreadsheet Software:**
   **Worksheet overview:** Row, Column, Cells, Menus, creating, opening, saving, and printing worksheet; working with Range

   **Editing information:** Entering text, numbers and formulae, AutoSum, AutoFill, spell checking

   **Working with Functions:** Statistical, Mathematical and String functions, date and Time functions, Trigonometric functions

   **Working with charts:** Line graphs, Pie charts, Bar graphs, adding Titles, Legends etc. to charts, Printing Charts

8. **Presentation Software:**
Basic features, selecting design templates, creating, saving and printing a simple presentation, various views, Adding pictures, shapes, clipart, audio and movie.

References:

<table>
<thead>
<tr>
<th></th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Rajaraman, V.</td>
<td>Fundamentals of Computers, PHI, New Delhi</td>
</tr>
<tr>
<td>6.</td>
<td>Curtin</td>
<td>Information Technology TMH, New Delhi</td>
</tr>
<tr>
<td>8.</td>
<td>Norton, P.</td>
<td>Complete guide to LINUX, Techmedia</td>
</tr>
</tbody>
</table>
Paper – C : Practical on Paper - A

Total Periods (6 Periods/week): 60  Max Marks: 20  Exam Hours: 4
Note for the Paper setter: Paper will be set at the time of examination. Due weightage may be given to practical note-book and assignments.

******
INTRODUCTION TO COMPUTER SCIENCE

SEMESTER II

Paper B
Paper Title: Computer Programming Using C

Max. Marks : 25  Time : 3 Hrs
Theory: Ext. 25 + Int. 5 = 30
Practical : Ext. 20 = 20

Total Periods (6 Periods/week): 60
Objective : To make student understand programming concepts of ‘C’ language including functions, arrays, input/output etc.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I

2. C Language Fundamentals: ‘C’ Language: History, Structure of a C program, Data types, Constants and variables, Operators and Expressions, Type casting, Type conversion, Scope Rules: Local and Global variables, I/O functions, Input/Output, Control constructs( Sequencing, alteration and iteration)
3. Header files: stdio.h, ctype.h, string.h, math.h, stdlib.h, time.h
4. Storage classes: automatic, external, static, register
5. Preprocessor: #define, #include, #undef, #conditional compilation directives (#if, #else, #elif, #endif, #ifdef and #ifndef)

UNIT-II

6. Functions: library functions, user defined functions, scope rule of functions, Parameter passing: call by value and call by reference, Recursion
7. Arrays: One dimensional and two dimensional arrays, declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to functions

UNIT-III

8. Strings: Declaring String, built-in string functions-strlen(), strcpy(), strcat(), strcmp(), array of strings, two dimensional array of characters, Array of Pointers to Strings
9. Structure: Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, array of structures, Array in Structures, Difference between array and structure, nested structures

UNIT-IV

10. Console Input/Output: Console I/O Functions, Formatted Console I/O Functions, sprintf( ) and sscanf( ) Functions, Unformatted Console I/O Functions, gets(), puts()
11. File Input/Output: File Operations, Opening a File, File Opening Modes, Reading from a File, Trouble in Opening a File, Writing to a File, Closing the File, Text Files and Binary Files.
References:

<table>
<thead>
<tr>
<th></th>
<th>Author</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Gottfried, B.</td>
<td>Theory and problems of Programming in C, Schaum Series, N.D., TMH</td>
<td></td>
</tr>
</tbody>
</table>


Total Periods (6 Periods/week): 60 Max Marks: 20 Exam Hours: 4

Note for the Paper setter: Paper will be set at the time of examination. Due weightage may be given to practical note-book and assignments.
MICROBIOLOGY

B.Sc. (GENERAL) FIRST YEAR (SEMESTER SYSTEM ) EXAMINATION, 2017-18

Note: 1. A student who has passed the +2 examination under 10+2+3 system of education of a recognized University/Board/Council or any other examination recognized by the Panjab University as equivalent thereto shall be eligible to offer the subject of Microbiology at the B.Sc. level, if he/she has passed the +2 examination with Physics, Chemistry, Mathematics, Biology as his/her subjects.

2. Only such colleges which have all necessary infrastructure or equipment and staff shall admit students to the subject of Microbiology. The infrastructure must be approved by the University as per usual practice.

Semester-I

<table>
<thead>
<tr>
<th>Scheme of Examination</th>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIC 101 : Fundamentals of Microbiology-I</td>
<td>3 hrs.</td>
<td>37.5</td>
</tr>
<tr>
<td>MIC 102 : Microbial Physiology—Metabolism-I</td>
<td>3 hrs.</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**Practical**

One Practical pertaining to the entire syllabus included in Theory Papers MIC 101 and MIC 102

6 hrs. 25 (20+5*)

Semester-II

<table>
<thead>
<tr>
<th>Scheme of Examination</th>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIC 201 : Fundamentals of Microbiology-II</td>
<td>3 hrs.</td>
<td>37.5</td>
</tr>
<tr>
<td>MIC 202 : Microbial Physiology—Metabolism-II</td>
<td>3 hrs.</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**Practical**

One Practical pertaining to the entire syllabus included in Theory Papers MIC 201 and MIC 202

6 hrs. 25 (20+5*)

Note: * Denotes marks for the Internal Assessment.
MICROBIOLOGY
SEMESTER-I

OUTLINES OF TESTS AND SYLLABI

MIC 101 : FUNDAMENTALS OF MICROBIOLOGY-I

MAX. MARKS : 37.5 MARKS
THEORY : 30 MARKS
INTERNAL ASSESSMENT : 7.5 MARKS
TIME : 3 HOURS

Note: The question paper will consist of four sections (A-D). There will be nine questions, out of which five questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be four questions from each of the two sections and two is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

Objective:
To provide basic knowledge about the fundamental concepts of Microbiology including history of Microbiology, Microscopic examination of microbes and providing information in frontier areas of genetic engineering, environmental science and agriculture.

SECTION-A

1. History, development, scope and applications of Microbiology.

SECTION-B

1. Morphology and fine structure of bacteria, fungi, actinomycetes and algae.
2. Organization of cell wall, cell membrane, flagella and capsules in bacteria.
3. Morphogenesis in bacteria, formation of spores and cysts.

SECTION-C

2. Strategies of genetic engineering: Restriction enzymes, vectors and plasmids.

SECTION-D

1. Microorganism Association with Vascular Plants : Rhizosphere and Rhizoplane microorganisms and Mycorrhizae.
Recommended Books:


MIC 102 : MICROBIAL PHYSIOLOGY—METABOLISM-I

MAX. MARKS : 37.5 MARKS
THEORY : 30 MARKS
INTERNAL ASSESSMENT : 7.5 MARKS
TIME : 3 HOURS

Note: The question paper will consist of four sections (A-D). There will be nine questions, out of which five questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be four questions from each of the two sections and two is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

Objectives:

The paper provides basic information on complex integrated network of biochemical reactions that make up the metabolism of the micro-organisms including nutrition, growth and enzymes.

SECTION-A

2. Culture Media : Chemically defined media, complex media, anaerobic growth media, selective & differential media, and enrichment culture. Cultivation of Aerobes and Anaerobes.

SECTION-B

1. Enzymes : Chemical and physical properties of enzymes.
2. Classification and nomenclature of Enzymes.
3. Factors affecting enzyme activity.

SECTION-C

Microbial Metabolism :

1. Respiration and fermentation.
2. Glycolysis.
3. Pentose Phosphate pathway
4. The Entner Doudoroff pathway.
5. Tricarboxylic acid cycle.
SECTION-D

Bacterial Genetics:
1. Conjugation.
2. Transformation.
3. Transduction (generalized transduction, specialized transduction).
4. The Regulation of Gene Expression: Lac operon, tryptophan operon. Recommended

Recommended Books:

PRACTICALS

<table>
<thead>
<tr>
<th>MAX. MARKS</th>
<th>THEORY</th>
<th>INTERNAL ASSESSMENT</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>:25 MARKS</td>
<td>:20 MARKS</td>
<td>: 5 MARKS</td>
<td>: 3 HOURS</td>
</tr>
</tbody>
</table>

1. Preparation of culture media, spread plates, pour plates, selective media, differential media.
2. Separation of pure cultures and study the effect of selective nutrients on prokaryotes.
3. Isolation of Soil Bacteria, Soil Fungi, Soil Actinomycetes.
4. Selective media for Soil microflora and use of growth factors, Study of Rhizosphere interactions, Quantitative measurements of Soil nutrients and Rhizosphere microflora and preparation of starter cultures of Rhizobium, Azotobacter.
6. Use of ultraviolet light for its germicidal effect.
7. The replica plating technique.
8. Effect of temperature, Osmotic pressure, energy source etc. on growth of prokaryotes.

..................
MICROBIOLOGY

SEMESTER-II

<table>
<thead>
<tr>
<th>MAX. MARKS</th>
<th>37.5 MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td>30 MARKS</td>
</tr>
<tr>
<td>INTERNAL ASSESSMENT</td>
<td>7.5 MARKS</td>
</tr>
<tr>
<td>TIME</td>
<td>3 HOURS</td>
</tr>
</tbody>
</table>

MIC 201 : FUNDAMENTALS OF MICROBIOLOGY-II

Note: The question paper will consist of four sections (A-D). There will be nine questions, out of which five questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be four questions from each of the two sections and two is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

Objectives:
To provide basic knowledge about the fundamental concepts of Microbiology including history of Microbiology, Microscopic examination of microbes and providing information in frontier areas of genetic engineering, environmental science and agriculture.

SECTION-A

1. Microscopic examination of micro-organism, bright field microscopy, dark field microscopy, phase contrast microscopy and electron microscopy.
2. Staining of microbes, theory of Gram staining.

SECTION-B

1. Animal Viruses: Morphology, cultivation and viral disease cycle.
2. Bacteriophages: Morphology, multiplication, detection and enumeration.
3. Biotransformation of
   (a) D-Sorbitol to L-Sorbose. (b) Antibiotics. (c) Steroids.

SECTION-C

Genetic engineering for human welfare:

1. Production of pharmaceuticals.
2. Insect pest control.
3. Use of Genetically Engineered Microorganisms (GEMs) for control of pollution.

SECTION-D

1. Biogeochemical Cycling—Carbon cycle, Nitrogen cycle, Phosphorus and Sulphur cycle with role of microorganisms.
2. Sewage (waste-water) treatment, chemical characteristics, microbiological characteristics, waste water treatment processes.
Recommended Books:


MIC 202 : MICROBIAL PHYSIOLOGY—METABOLISM-II

MAX. MARKS : 37.5
THEORY : 30 MARKS
INTERNAL ASSESSMENT : 7.5 MARKS
TIME : 3 HOURS

Note : The question paper will consist of four sections (A-D). There will be nine questions, out of which five questions have to be attempted. Question I will span the complete syllabus and will be compulsory. Rest of the eight questions will be from different sections of the syllabus. There will be four questions from each of the two sections and two is to be attempted from each section. Each question should be sub-divided into 2-4 sub parts.

Objective:
The paper provides basic information on complex integrated network of biochemical reactions that make up the metabolism of the micro-organisms including nutrition, growth and enzymes.

SECTION-A

1. Microbial Growth : Growth in population, bacterial growth curve, mathematical nature and expression.
2. Factors affecting growth in microorganisms.

SECTION-B

2. Inhibition, control and regulation of enzyme activity.

SECTION-C

1. Catabolism of lipids and proteins.
2. Beta oxidation.
4. Biochemical mechanisms of generation of ATP.
SECTION-D

Microbial Utilization of Energy & Biosynthesis:
1. Transport of nutrient by bacteria.
3. Structures and biosynthesis of cell wall peptidoglycan.
4. Biosynthesis of Carbohydrates (gluconeogenesis) & Phospholipids.
   Replication of DNA molecules, Transcription & Translation (process of protein synthesis).

Recommended Books:

PRACTICALS

| MAX. MARKS | 25 MARKS |
| THEORY | 20 MARKS |
| INTERNAL ASSESSMENT | 5 MARKS |
| TIME | 3 HOURS |

1. Use of microscope in examination of unstained bacteria, fungi, algae, parasites and stained cell preparations including simple staining, Gram’s staining, acid fast staining, capsule staining, spore staining using prokaryotic and eukaryotic cells, hanging drop preparation.
2. Presumptive, confirmed and completed tests for safety of water supplies.
3. Relation of free oxygen to microbial growth, monitoring of dissolved oxygen in various effluents.
4. Determination of COD in Industrial effluents.
5. Effects of antimetabolites on Microbial culture (Inhibition by Sulfanilamide).
6. Determination of Water Activity of various substrates and assay of surface active agents.
8. Efficiency of photosynthesis in photoautotrophs.

ELECTRONICS

(KEPT IN ABEYANCE FOR THE EXAMINATION, 2017-18)

..................
SYLLABI

FOR

B.A. & B.Sc. (GENERAL) SECOND YEAR
(SEMESTER SYSTEM)
EXAMINATIONS, 2017-2018
(SEMESTER : THIRD AND FOURTH)

i.e

Third Semester : November/December, 2017
Fourth Semester : April/May, 2018

© The Registrar, Panjab University, Chandigarh.
All Rights Reserved.
## CONTENTS

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>English (Compulsory) (for B.A. Candidates only)</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>English (Compulsory) (for B.Sc. Candidates only)</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Panjabi (Compulsory) (for B.A. Candidates only)</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>History and Culture of Punjab (for B.A. Candidates only)</td>
<td>11</td>
</tr>
<tr>
<td>5.</td>
<td>English (Elective)</td>
<td>15</td>
</tr>
<tr>
<td>6.</td>
<td>Hindi (Elective)</td>
<td>19</td>
</tr>
<tr>
<td>7.</td>
<td>Panjabi (Elective)</td>
<td>28</td>
</tr>
<tr>
<td>8.</td>
<td>Sanskrit (Elective)</td>
<td>30</td>
</tr>
<tr>
<td>9.</td>
<td>Urdu (Elective)</td>
<td>34</td>
</tr>
<tr>
<td>10.</td>
<td>Persian (Elective)</td>
<td>36</td>
</tr>
<tr>
<td>11.</td>
<td>French (Elective)</td>
<td>38</td>
</tr>
<tr>
<td>12.</td>
<td>German (Elective)</td>
<td>42</td>
</tr>
<tr>
<td>13.</td>
<td>Russian (Elective)</td>
<td>44</td>
</tr>
<tr>
<td>14.</td>
<td>Arabic (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Bengali (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Tamil (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Kannada (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Malayalam (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Telugu (Elective)</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>(KEPT IN ABEYANCE)</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Physical Education</td>
<td>47</td>
</tr>
<tr>
<td>21.</td>
<td>Education</td>
<td>57</td>
</tr>
<tr>
<td>22.</td>
<td>Adult Education</td>
<td>61</td>
</tr>
<tr>
<td>23.</td>
<td>Music (Vocal)</td>
<td>65</td>
</tr>
<tr>
<td>24.</td>
<td>Music (Instrumental )</td>
<td>71</td>
</tr>
<tr>
<td>25.</td>
<td>Tabla (Instrumental Music)</td>
<td>77</td>
</tr>
<tr>
<td>26.</td>
<td>Indian Classical Dance</td>
<td>81</td>
</tr>
<tr>
<td>27.</td>
<td>Fine Arts</td>
<td>85</td>
</tr>
<tr>
<td>28.</td>
<td>History of Art</td>
<td>91</td>
</tr>
<tr>
<td>29.</td>
<td>Ancient Indian History, Culture &amp; Archaeology</td>
<td>95</td>
</tr>
<tr>
<td>30.</td>
<td>Defence and Strategic Studies</td>
<td>99</td>
</tr>
<tr>
<td>31.</td>
<td>History</td>
<td>104</td>
</tr>
<tr>
<td>32.</td>
<td>Political Science</td>
<td>108</td>
</tr>
<tr>
<td>33.</td>
<td>Economics</td>
<td>113</td>
</tr>
<tr>
<td>34.</td>
<td>Sociology</td>
<td>117</td>
</tr>
<tr>
<td>35.</td>
<td>Public Administration</td>
<td>121</td>
</tr>
<tr>
<td>36.</td>
<td>Philosophy</td>
<td>125</td>
</tr>
<tr>
<td>37.</td>
<td>Psychology</td>
<td>129</td>
</tr>
<tr>
<td>38.</td>
<td>Geography</td>
<td>133</td>
</tr>
<tr>
<td>39.</td>
<td>Gandhian Studies</td>
<td>143</td>
</tr>
<tr>
<td>40.</td>
<td>Journalism &amp; Mass Communication</td>
<td>149</td>
</tr>
<tr>
<td>41.</td>
<td>Police Administration</td>
<td>155</td>
</tr>
<tr>
<td>42.</td>
<td>Women’s Studies</td>
<td>159</td>
</tr>
<tr>
<td>43.</td>
<td>Human Rights and Duties</td>
<td>165</td>
</tr>
<tr>
<td>44.</td>
<td>Religious &amp; Sikh Studies</td>
<td>169</td>
</tr>
<tr>
<td>45.</td>
<td>Environment Conservation</td>
<td>173</td>
</tr>
<tr>
<td>46.</td>
<td>Home Science</td>
<td>177</td>
</tr>
<tr>
<td>47.</td>
<td>Agriculture (Elective)</td>
<td>183</td>
</tr>
<tr>
<td>48.</td>
<td>Mathematics</td>
<td>187</td>
</tr>
<tr>
<td>49.</td>
<td>Computer Science</td>
<td>193</td>
</tr>
<tr>
<td>50.</td>
<td>Statistics</td>
<td>200</td>
</tr>
<tr>
<td>51.</td>
<td>Applied Statistics</td>
<td>204</td>
</tr>
<tr>
<td>52.</td>
<td>Physics</td>
<td>208</td>
</tr>
<tr>
<td>53.</td>
<td>Chemistry</td>
<td>218</td>
</tr>
<tr>
<td>54.</td>
<td>Botany</td>
<td>232</td>
</tr>
<tr>
<td>55.</td>
<td>Zoology</td>
<td>242</td>
</tr>
<tr>
<td>56.</td>
<td>Bio-Chemistry</td>
<td>251</td>
</tr>
<tr>
<td>57.</td>
<td>Microbiology</td>
<td>255</td>
</tr>
<tr>
<td>58.</td>
<td>Electronics</td>
<td>(KEPT IN ABEYANCE)</td>
</tr>
</tbody>
</table>
ENGLISH (Compulsory)

SEMESTER – III

(FOR B.A. CANDIDATES ONLY)

Max. Marks : 50
Theory : 45 marks
Internal Assessment : 05 marks
Time : 03 Hours

Objective:

➢ To teach finer nuances of language through an integrated approach.
➢ To acquire extensive knowledge of English as a language in its various textual forms and to become thoughtful, imaginative and effective communicators in a diverse and changing society.
➢ To write an effective business document (such as notice, advertisement etc.) which enable them to think analytically.
➢ To enhance their writing skill
➢ To acquire knowledge about various literary aspects through the text which capacitates them to enrich their literary and cultural values.
➢ To empower an average student in such a way that English learning becomes a pleasurable endeavour.

TEXT PRESCRIBED:


Poetry Section:

i. Ode to Autumn

ii. The Road Not Taken

iii. Money Madness

iv. I, Too

Prose Section:

i. Mr. Know All

ii. Film Making

iii. Not Just Oranges

iv. A Tale on Advertising
TESTING SCHEME:

Section – A

Q.1. Reference to the context from Poetry. One out of two passages to be attempted. 5 marks

Q.2. Short answer type question from Poetry (in about 50-60 words). Five out of eight are to be attempted. 10 marks

Q.3. Long answer type questions from Prose (in about 100-120 words). Two out of Four are to be attempted. 6 marks

Section-B

Q.4. Note making (one out of two is to be attempted) 4 marks
(The examiner will set two paragraphs based on the prescribed text for note making. The students be asked to attempt any one of the two).

Q.5. Grammar:
   i. Non finite verbs 5 marks
   ii. Punctuation (A short paragraph) 5 marks
   iii. Do as directed (based on transformation of sentences) 10 marks
(The examiner will set three different grammar exercises for every section of Q.5 based on the prescribed text in such a way that most of the activities, students have done in the class are adequately covered.)

---------------------
ENGLISH (Compulsory)

SEMESTER – IV

(FOR B.A. CANDIDATES ONLY)

Max. Marks : 50
Theory     : 45 marks
Internal Assessment : 05 marks
Time       : 3 Hours

Objective:

➢ To Teach Finer nuances of language through an integrated approach.
➢ To acquire extensive knowledge of English as a language in its various textual forms and to become thoughtful, imaginative and effective communicators in a diverse and changing society.
➢ To write an effective business document (such as notice, advertisement etc.) which enable them to think analytically.
➢ To enhance their writing skill.
➢ To acquire knowledge about various literary aspects through the text which capacitates them to enrich their literary and cultural values.
➢ To empower an average student in such a way that English learning becomes a pleasurable endeavour.

TEXT PRESCRIBED:


Poetry Section:

i. Goodbye Party for Miss Pushpa T.S.
ii. I Will Embrace Only the Sun
iii. Refugee Mother and Child
iv. This is a Photograph of Me

Prose Section:

i. On Shaking Hands
ii. No Man is an Island
iii. Freedom of the Press
iv. An Except From Decolonizing the Mind
TESTING SCHEME:

Section – A

Q.1. Reference to the context from Poetry. **One out of two** passages to be attempted. 5 marks

Q.2. Short answer type question from Poetry (in about 50-60 words). **Five out of eight** are to be attempted. 10 marks

Q.3. Long answer type questions from Prose (in about 100-120 words). **Two out of Four** are to be attempted. 6 marks

Section – B

Q.4. Paragraph writing (based on post-reading activities suggested in the prescribed texts)
   **One out of three** is to attempted. 5 marks
   (The examiner will set **three** topics for paragraphs writing from the post reading activities suggested in the prescribed texts. While selecting this question, special care must be taken to borrow ideas from the text or suitably modify them so as to identify viable topics that the students of B.A.(compulsory)can easily handle.)

Q.5. Report writing (with internal choice) 4 marks
   (The examiner will give information about some social issue, an event/incident, some topic of current affairs etc. and will ask the students to write a report in about 100 words on the given topic. The information can also be given in form of a dialogue on some issue of general interest. The examiner will set this question with an internal choice).

Q.6. Grammer:
   i. Using nouns as verbs or vice-versa 5 marks
   ii. Combining pairs of sentences using words given in the brackets 5 marks
   iii. Text-based Idioms and Phrases 5 marks
   (The examiner will set **four** different grammar exercises for every section of Q.5 based on the prescribed text in such a way that most of the activities students have done in the class are adequately covered.)

****************

***************
ENGLISH (Compulsory)
(For B.Sc. Candidates Only)

SEMESTER-III

Note:

(i) There will be one paper of 40 marks, 5 marks are reserved for the Internal Assessment and 5 for the Practical Work. Total is 50.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of Communication and Language skills.

(iii) For Unit I, the prescribed text is Varieties of Expression, Ed. A. H. Tak, Foundation Books. Only four prose chapters and two dramas have been recommended for the study. The relevant sections, however, are as follows:

Unit I

Prose: Chapters 1-4
Drama: Dramas 1-2

Unit II

Note (iv) No text book is recommended for Unit II, but a few books that may be used for this Unit are listed towards the end. Unit II shall consist of the following:

Business Communication: It shall focus on different aspects of communication in general and business communication in particular, communication within organizations, types of communication and significance of positive attitude in improving communication.

Writing Skills: This section shall focus on letters of all kinds, tender notices, auction notices, public notices; and memos.

Practical work:-

Teacher should assign some project or practical work to the students. This should be in the nature of guided activity, which the students shall have to complete under the direct supervision of the teacher. The students may be given projects on a variety of subjects relating to their discipline i.e. business, commerce, accounts etc. Preferably, they should be given minor projects (to be completed within less than two weeks, and length not exceeding 20 pages) in consultation with teachers of commerce. However, the evaluation of the projects should be done only by the Language Teachers, who must keep all the basic criteria of good writing in mind while doing so.

(Note: In case of private candidates and students of University School of Open Learning, the marks obtained by them out of 40 will be proportionately increased out of 50).
Testing Scheme:

The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Unit I shall be as follows:

Section I (It is text-based and corresponds to Unit I in the syllabus)

Q.1. It shall consist of six short questions. Three from Prose and three from drama (not exceeding 50-60 words) out of which a student will be expected to attempt any two from Prose and two from Drama. This question shall be based upon the prescribed text Varieties of Expression and cover a wide range of issues, topics and problems.

10 marks

Q.2. It shall consist of four long questions – Two from Prose and two from Drama (not exceeding 100-150 words) out of which a student will be expected to attempt two- one from Prose and one from Drama.

5 marks

Note: The question 1 & 2 should be so designed as to cover all the chapters prescribed (Prose & Drama)

Q.3. It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given five words in one column and asked to match them with words/meanings in the next column.

5 marks

Unit II

Q.4. This question shall test a student’s ability to write letter of various kinds (not more than 200 words). Again, there will be internal choice here.

5 marks


10 marks

Q.6. One short question to test the students’ understanding of various aspects of Business Communication.

5 marks

..........................
ENGLISH (Compulsory)
(FOR B.Sc. CANDIDATES ONLY)

SEMESTER-IV

Note:

(i) There will be one paper of 40 marks, 5 marks are reserved for the Internal Assessment and 5 for the Practical Work. Total is 50.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of Communications and Language skills.

(iii) For Unit I, the prescribed text is Varieties of Expression, Ed. A. H. Tak, Foundation Books. Only four prose chapters and two dramas have been recommended for the study. The relevant sections, however, are as follows:

Unit I

Prose: Chapters 5-8
Drama: Dramas 3-4

Unit II

Note (iv) No text book is recommended for Unit II, but a few books that may be used for this Unit are listed towards the end. Unit II shall consist of the following:

Writing Skills: This section shall focus on précis-writing, curriculum vitae, short, formal reports (not exceeding 200 words) and advertisements relating to product promotion etc.

Modern Forms of Communication: Here special emphasis shall be given to teaching the format of E-mails, Fax Messages, Audio-Visual Aids and Power-Point Presentations. Apart from this, the students shall also be given basic lessons in Effective Listening, Non-Verbal Communication. How to Prepare for an Interview & Group Discussion etc.

Practical Work:

Teacher should assign some project or practical work to the students. This should be in the nature of guided activity, which the students shall have to complete under the direct supervision of the teacher. The students may be given projects on a variety of subjects relating to their discipline i.e. business, commerce, accounts etc. Preferably, they should be given minor projects (to be completed within less than two weeks, and length not exceeding 20 pages) in consultation with teachers of commerce. However, the evaluation of the projects should be done only by the Language Teachers, who must keep all the basic criteria of good writing in mind while doing so.

(Note: In case of private candidates and students of University School of Open Learning, the marks obtained by them out of 40 will be proportionately increased out of 50).
Testing Scheme:

The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:

**Unit I** (It is text-based and corresponds to Unit I in the syllabus)

Q.1. It shall consist of six short questions. Three from Prose and three from drama (not exceeding 50-60 words) out of which a student will be expected to attempt any four, **Two from Prose and two from Drama**. This question shall be based upon the prescribed text *Varieties of Expression* and cover a wide range of issues, topics and problems.

10 marks

Q.2. It shall consist of four long questions – **Two from Prose and two from Drama** (not exceeding 100-150 words) out of which a student will be expected to attempt **two**- one from Prose and **one** from Drama.

5 marks

**Note:** The question 1 & 2 should be so designed as to cover all the chapters prescribed (Prose & Drama)

Q.3. It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given **five** words in one column and asked to match them with words/meanings in the next column.

5 marks

**Unit II**


5 marks

Q.5. Precis of 200 words.

10 marks

Q.6. Definition/Format of modern forms of communication to be tested.
   (e-mail, fax, videoconferencing)

5 marks

***************
पंपाढी (माध्यम)
( मिउड औपचारिक समीक्षक से इंटरनल व्यक्ति की सहायता)

स्कोलिक विभाग

<table>
<thead>
<tr>
<th>पाठ्यकृत</th>
<th>पाठ्यकृत महत्वपूर्ण विषयों का विवरण</th>
</tr>
</thead>
<tbody>
<tr>
<td>हिंदी</td>
<td>हिंदी में लिखित पत्र, निबंध, संगीत, शास्त्रीय संगीत, हिंदी पत्रिकाएँ, चंडीगढ़।</td>
</tr>
</tbody>
</table>

पाठ्यकृत में वीडीovie

<table>
<thead>
<tr>
<th>पाठ्यकृत</th>
<th>पाठ्यकृत में वीडीovie की संख्या</th>
</tr>
</thead>
<tbody>
<tr>
<td>(डी)</td>
<td>'पुनृ-अव' प्रमुख दिनों तिथियों की संख्या का निर्णय देखते हुए प्रमुख (तिथि दिन के मूल लाइन) 4+6=10 मौजूद</td>
</tr>
<tr>
<td>(डी)</td>
<td>'पुनृ-अव' प्रमुख दिनों में दिनों का मूल्यांकन के हुए प्रमुख (तिथि दिन के मूल लाइन) 1 x 5= 5 मौजूद</td>
</tr>
<tr>
<td>हिंदी लिख, लघुवाच, मधुमेल के महत्वपूर्ण महत्वपूर्ण विषयों के मूल लाइन खाली</td>
<td>8 मौजूद</td>
</tr>
<tr>
<td>हिंदी लिख, शिक्षा के विषय</td>
<td>6 मौजूद</td>
</tr>
<tr>
<td>भेंटी का सामग्री, शिक्षा के विषय</td>
<td>7 मौजूद</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>पाठ्यकृत</th>
<th>पाठ्यकृत में वीडीovie की संख्या</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td>समय के मूल लाइन, प्रत्येक के विषय</td>
</tr>
<tr>
<td>(ii)</td>
<td>समय के मूल लाइन, प्रत्येक के विषय</td>
</tr>
</tbody>
</table>

हेट: 1. टेस्टस्ट के तहत में से पाँच संग्रह।
2. सीजनल स्ट्रटी 25-30 इंटरनल/वर्गीय से गानें अवधि उड़े से डिली तेल पार्श्व।
3. उड़े से 6+3 = 9 पार्श्व।
कविता (गणनी)
(सिद्ध सी.के. दे भिन्नभाविक हटी)

समेतत वेद

कुल वेद: 50
भिन्नी: 45
प्रियतम भिन्नभावित: 5
संख्या: 3 अंक

पाठभुम

1. दिव्यांजनी दे वर्तमान
2. इंद्र एवं राजरक्षक (अंग्रेजी दे पाठभुमी)
3. पाठभुमी चीमु हुद्रामणी
4. विभववृति: सिद्धवेद दे विभव

वेदना

1. देवलु (मंगल, देवमानसी कहिं, भागवतेन्द्री भिन्न, पाठ बुद्धीवादिता, चंडीगढ़।
2. वेदना, महाविद्या, लंबी बुद्धिमत्ता, चंडीगढ़।

यूजिट अभ्यास

1. (i) ‘दे इल’ दिव्यांजनी भंगुरी दे ‘वर्तमान’ वर्तमान विचार विचार कर बिहार रंगे दे मान सिद्धांत (दित दिचें दिवर) 4+6 =10 अंक
   (ii) ‘दे इल’ दे ‘वर्तमान’ वर्तमान विचार विचार कर बिहार रंगे (दित दिचें दिवर) 5 अंक
2. दिव्यांजनी भंगुरी दे वर्तमान विचार विचार युद्ध युद्ध युद्ध भाग्य (युद्ध दित दिचें मान दे 5 संख्या दे वर्तमान दे 
3. अंग्रेजी दे पाठभुमी दिच महत्त्व (लंबदः 100 सवर्ण दिच) 8 अंक
4. पाठभुमी चीमु हुद्रामणी 7 अंक

वेदना: हुद्रामणी हुद्रामणी हुद्रामणी हुद्रामणी (भागी, भागी, 
5. विभववृति: सिद्धवेद दे विभववृति 6 अंक
   (i) विभववृति: साहित्य भक्तिविद्या साहित्य, दिव्यांजनी भक्तिविद्या, साहित्य, साहित्य, साहित्य, हुद्रामणी हुद्रामणी हुद्रामणी (भागी, भागी, 
   बुद्धीवादिता दे पाठभुमी दे आपात दरा दे अनुभव दरा) (दे दिचें दिवर)
(ii) विभववृति: साहित्य 2+2 = 4 अंक

वेदना: हुद्रामणी हुद्रामणी हुद्रामणी हुद्रामणी (भागी, भागी, 

मानक पुस्तकें:
1. दिव्यांजनी संस्कृत पैनाला बाह्यगत, भाषागत संस्कृत भूलीविद्यालाली टेस्टमंट खंड बेंड, चंडीगढ़।
2. भारतीयज्ञ, राज, परिसंहित्र कवि विभाग, दीवर वीसित्राण, दीवर, 1981.
3. मुख्यदेव विषय संस्कृत भाषा देव भाषा, दिव्यांजनी भाषा विभाग, कवि-पारिशिक, दुश्मन दे अग्नि, दिव्यांजनी भाषा भाववाद, दीवर, 1997.
4. वायालु विषय (कवि), वर्तमान दिव्यांजनी विभाग , भाषागत संस्कृत भूलीविद्यालाली टेस्टमंट खंड बेंड, चंडीगढ़, 1999
5. वायालु विषय (कवि) निमार्क प्रामाण्य विभाग, भाषागत संस्कृत भूलीविद्यालाली टेस्टमंट खंड बेंड, 2002.
6. गद्य, निमार्क प्रामाण्य (कवि), पाठभुमी विभागवृति, निमार्क अंतर्दित, चंडीगढ़ भूलीविद्यालाली, 2008.
7. संस्कृत वायालु, दिव्यांजनी विभागवृति दे वायालु, दिव्यांजनी वायालु, दिव्यांजनी वायालु, दिव्यांजनी वायालु, 2012.
8. भाषागत वेदना, पाठभुमी कवि: लंबदः 3 घटक, देववाली भूलीविद्यालाली, चंडीगढ़।

केट: 1. टेस्टमंट लंबदः दे दे भोलीविद्यालाली।
2. दिव्यांजनी लंबदः 25-30 सवर्ण भाषागतयास कर आपात दरा दे दिचें दे भोलीविद्यालाली।
3. दरादः 6+3=9 भोलीविद्यालाली।
INSTRUCTIONS FOR THE PAPER–SETTER AND CANDIDATES: (FOR PAPER IN SEMESTER 3 AND 4)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark for each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   Map : 6 Marks
   Explanatory Note : 4 Marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 mark each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

Paper: HISTORY AND CULTURE OF PUNJAB 1200-C- 1700 A.D
Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the region during medieval times.
Pedagogy: Lectures, library work and discussions.
Unit-I

1. Society and Culture in Punjab during the Turko-Afghan rule
2. The Punjab under the Great Mughals
3. Guru Nanak: His teachings, concept of Langar and Sangat

Unit-II

4. Salient features of the Bhakti movement
5. Main Features of Sufism in Punjab

Unit III

7. Transformation of Sikhism: Compilation of Adi-Granth; Martyrdom of Guru Arjan Dev
8. Guru Hargobind’s New policy
9. Martyrdom of Guru Tegh Bahadur

Unit IV

10. Foundation of the Khalsa
11. Post Khalsa activities of Guru Gobind Singh
12. MAP: Important Historical Places Delhi; Lahore; Sarhind; Multan; Kartarpur; Amritsar; Kiratpur; Tarn Taran; Anandpur Sahib; Fatehgarh Sahib; Paonta Sahib; Machhiwara; Muktsar

Suggested Readings:

1. Singh, Kirpal: History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala, 1990 (3rd edn.).
   N.B.: The required detail and depth would conform to the treatment of the subject in the above survey. (This book will also form the basis of the short answer questions).


HISTORY AND CULTURE OF PUNJAB
(For B.A. candidates only)

SEMESTER-IV

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES: (FOR PAPER IN SEMESTER 3 AND 4)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark for each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

4. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

5. The distribution of marks for the map question would be as under:

Map : 6 Marks
Explanatory Note : 4 Marks

In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

6. The paper-setter would avoid repetition between different types of question within one question paper.

Paper: HISTORY AND CULTURE OF PUNJAB 18TH AND EARLY 19TH CENTURIES
Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the region in the later medieval period.
Pedagogy: Lectures, library work and discussions.

Unit I

1. Banda Bahadur and his achievements
2. Sikh Struggle for Sovereignty from 1716-1765
3. Role of Dal Khalsa, Rakhi, Gurmata and Misls
Unit II

4. Ranjit Singh’s rise to Power
5. Civil and Military administration
6. Relations with the British

Unit-III

7. Political Developments 1839-1845
8. Anglo-Sikh Wars
9. Annexation of the Punjab

Unit-IV

10. New Developments in literature, art and architecture in the Punjab region
11. Social life with special reference to the position of women, fairs, festivals, folk music, dance and games in the Punjab.
12. MAP Important Historical Places Lohgarh; Sarhind; Gujranwala; Lahore; Amritsar; Multan; Peshawar; Sialkot; Ferozepore; Ambala; Gujrat; Mudki; Ludhiana.

Suggested Readings:

1. Singh, Kirpal : History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala, 1990 (3rd edn.).
   N.B. : The required detail and depth would conform to the treatment of the subject in the above survey. (This book will also form the basis of the short answer questions).
ENGLISH (Elective)

SEMESTER-III

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10
Time Allowed : 3 hrs

Objectives:

➢ To provide critically sensitive and analytical understanding of literary terms, concepts and genres to the students to develop their ability to appreciate and analyze different literary texts.
➢ To empower the students to read, analyze and write about a text in an independent manner.
➢ To enhance students ability to use grammatical conventions appropriately.
➢ To sharpen their writing skills to write clearly, coherently and cohesively.
➢ To enable the students to explore, discuss and express their views on various topics.
➢ To motivate the students to develop basic tools of analyzing a variety of literary texts.
➢ To enable them to have a comprehensive knowledge of English language and literature.
➢ To empower an average student in such a way that English learning becomes a pleasurable endeavour.

TEXT PRESCRIBED:

William Shakespeare: The Merchant of Venice

LITERARY TERMS:


TESTING SCHEME:

Section-A

1. Five literary terms out of eight are to be attempted in about 50-60 words. 15 marks
2. Reference to the Context from the prescribed play. 15 marks
   (The examiner will set three passages/stanzas from the prescribed play. The students will attempt any two out of these three.)
3. Long answer type question in about 300-350 words form the prescribed text. One out of two is to be attempted. 15 marks
Section - B

4. Dialogue writing
   *(The examiner will set one descriptive passage of about 300-400 words and ask the students to re-write the same in dialogue form. The examiner, however, must ensure that the passage can easily be converted into dialogue form.)*
   10 marks

5. Identifying figures of speech in sentences (unseen):
   Simile, Metaphor, Alliteration, Assonance.
   *(The examiner will set ten different lines with an instruction to identify the figure(s) of speech in each sentence. The sentences should be examples of different figures of speech as mentioned above. The students are required to answer all. There will be no choice.)*
   10 marks

6. Grammar:
   i. Idioms and Phrases
   ii. Complete the incomplete sentences
   iii. One word substitution
   5 marks
   5 marks
   5 marks

7. Comprehension (Unseen passage of about 1000 words)
   *(The examiner will set an unseen passage of about 1000 word for comprehension. The passage will be followed by 5 questions to be answered in not more than 20-30 words each.)*
   10 marks

--------------------------
ENGLISH (Elective)

SEMESTER IV

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10
Time Allowed : 3 hrs

Objectives:

➢ To provide critically sensitive and analytical understanding of literary terms, concepts and genres to the students to develop their ability to appreciate and analyze different literary texts.
➢ To empower the students to read, analyze and write about a text in an independent manner.
➢ To enhance students ability to use grammatical conventions appropriately.
➢ To sharpen their writing skills to write clearly, coherently and cohesively.
➢ To enable the students to explore, discuss and express their views on various topics.
➢ To motivate the students to develop basic tools of analyzing a variety of literary texts.
➢ To enable them to have a comprehensive knowledge of English language and literature.
➢ To empower average student in such a way that English learning becomes a pleasurable endeavour.

TEXT PRESCRIBED:

An Anthology of English Verse
Ed. Department of English, Deen Dayal Upadhayaya, Gorakhpur University. New Delhi: OUP, 2004

Prescribed poems:

i. John Donne: The Sun Rising
ii. Alexander Pope: From Essay on Man
iii. Thomas Gray: Elegy Written in the Country Churchyard
iv. William Blake: The Tiger
v. William Wordsworth: Tintern Abbey
vi. John Keats: Ode to a Nightingale
vii. Tennyson: Ulysses
viii. Browning: My Last Duchess
ix. Matthew Arnold: To Marguerite
x. Hopkins: Pied Beauty
xi. A. K. Ramanujan: History
xii. W.B. Yeats: A Prayer for my Daughter
xiii. T.S. Eliot: Journey of the Magi
xiv. Thomas Hardy: The Darkling Thrush
xv. Philip Larkin: The Trees

LITERARY TERMS:

Allegory, Allusion, Antithesis, Epic, Epithet, Hyperbole, Internal Rhyme, Rhyme Royal, Terza Rima
Metaphor, Metonymy, Medias Res, Oxymoron, Mood, Tone, Personification, Stanza, Spenserian Stanza,
Satire, Free paragraph
TESTING SCHEME:

Section-A

1. Five literary terms out of eight are to be attempted in about 50-60 words. 15 marks

2. Short answer type question in about 50-60 words from the prescribed text. Five out of seven are to be attempted. 15 marks

3. Long answer type of questions in about 100-120 words from the prescribed text. Three out of five are to be attempted. 15 marks

Section – B

4. Precis Writing 10 marks

5. Identifying figures of speech in sentences (unseen)
   Metonymy, Epithet, Oxymoron, Epigram, Metonymy 10 marks
   (The examiner will set ten different lines with an instruction to identify the figure(s) of speech in each sentence. The sentences should be examples of different figures of speech as mentioned above. The students are required to answer all. There will be no choice.)

6. Grammar:
   i. Choose the correct meaning of the word 5 marks
   ii. Complete the incomplete sentences 5 marks
   iii. One word substitution 5 marks

7. Comprehension (Unseen passage of about 1000 words) 10 marks
   (The examiner will set an unseen passage of about 1000 word for comprehension. The passage will be followed by 5 questions to be answered in not more than 20-30 words each.)
हिंदी (ऐतिहासिक द्वितीय वर्ष)
सेमेस्टर-3

पूर्णांक : 99+10=100
समय : 3 घण्टे

1. तरंगिणी- मनोहर लाल आनंद, पंजाब विश्व विद्यालय पब्लिकेशन ब्यूरो, चण्डीगढ।
बिन्दुरिकित कवि पाठ्यक्रम में निम्न रित है:-
मैथिलीशृंग गुप्त, जयशंकर प्रसाद, सूर्यकान्त त्रिपाठी निराला, सुभंग्रान्नन्द फर्त
क) 5-5 अंकों की दो संदर्भ-सहित व्याख्याएँ करनी होगी। कुल चार अंक-10
व्याख्याएँ पूरी जाएँगी।
ख) कवि-परिचय, सार और उद्देश्य संबंधी कुल दो प्रश्न पूछे जायेंगे। अंक-08
8 अंकों का एक ही प्रश्न करना होगा। प्रत्येक उत्तर की शब्द सीमा 200 होगी।

2. एक सत्य हरिषंचन- श्रीमल कल्याण लाल, राजपुत एंड सनज, नई दिल्ली।
क) संदर्भ सहित व्याख्या के लिए दो प्रश्न पूछे जाएँगे;
उत्तर एक का ही देना होगा। अंक-05
ख) पाठों के चरित्र-विचारण, तत्वों के आधार पर नाटक की समीक्षा तथा समस्त संबंधी दो प्रश्न पूछे जायेंगे।
8 अंकों का एक ही प्रश्न करना होगा। (शब्द-सीमा 200)

3. इस खण्ड में 3-3 अंकों के तीन लघुतरी प्रश्नों के उत्तर
dेने होंगे। कुल 6 प्रश्न पूछे जायेंगे। ये प्रश्न इस पत्र के
पूर्वकल्त दो खण्डों (तरंगिणी व एक सत्य हरिषंचन) पर
आधारित होंगे। (शब्द-सीमा 50)

4. हिंदी साहित्य का इतिहास- रीतिकाल : (केवल काव्य-खंड)
रीतिकाल की परिक्षणितियां, नामकरण, सीमा-नियामक, प्रवृत्तियाँ
रीतितत्त्व और रीतिमुक्त काव्य की प्रमुख विशेषताएँ, प्रमुख कवि-
केशव, बिहारी, घनानंद, के संबंध में 8 अंकों का एक प्रश्न करना
होगा। कुल दो प्रश्न पूछे जाएँगे। (शब्द-सीमा 200-250)
5. वर्तुनिष्ठ प्रश्न
इस पत्र के पूर्वोत्तम तीन हिस्सों के आधार पर 1-1 अंक के 
दस वर्तुनिष्ठ प्रश्नों के उत्तर देने होंगे। कुल पद्धत प्रश्न पूछे 
जाएँगे।

6. समीक्षा सिद्धांत- केवल ‘नाटक’
परिभाषा, तत्व और वर्णकरण पर आधारित नाटक से 
संबंधित दो प्रश्न पूछे जायेंगे। जिनमें से 7 अंकों का 
एक प्रश्न करना होगा। (शब्द सीमा 200)

7. व्यावहारिक व्याकरण–
क) समाकृति, भिन्नार्थक शब्द-युग्म 3) (चार में से तीन)
ख) स्वर-संस्थि एवं व्यंजन-संधि 3)
ग) सिद्धि-विधेय(केवल व्यावहारिक) 3) (चार में से तीन)
घ) वाक्य-शोधन 3) (चार में से तीन)
ड) विराम-चिह्न 3)

8. तकनीकी शब्दावली (केवल प्रशासनकीय शब्दावली)
(सलग्न शब्दावली)
15 में से 10 का उत्तर देना होगा।
आंतरिक मूल्यांकन–
निर्देश :- छह लेखर Text के और तीन लेखर व्यकरण के अनिवार्य होंगे।
प्रशासनिक शब्दावली
1. Acceptance
2. Account
3. Accuse
4. Acknowledge (fact etc.)
5. Acknowledgement due
6. Addresssee
7. Adjournment
8. Administration
9. Admissible

अंक-10
अंक-07
अंक-15
अंक-10
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Affidavit</td>
<td>शपथ लेना, हलफनामा</td>
</tr>
<tr>
<td>11</td>
<td>Agent</td>
<td>अभिकार, एजेंट</td>
</tr>
<tr>
<td>12</td>
<td>Agitation</td>
<td>आन्दोलन</td>
</tr>
<tr>
<td>13</td>
<td>Agreement</td>
<td>करार, अनुबंध, सहमति</td>
</tr>
<tr>
<td>14</td>
<td>Allowance</td>
<td>भत्ता</td>
</tr>
<tr>
<td>15</td>
<td>Amenity</td>
<td>सुख-सुविधा</td>
</tr>
<tr>
<td>16</td>
<td>Anti-Corruption Officer</td>
<td>भ्रष्टाचार निरोध अधिकारी</td>
</tr>
<tr>
<td>17</td>
<td>Appeal</td>
<td>अपील, अपील करना</td>
</tr>
<tr>
<td>18</td>
<td>Appointment</td>
<td>नियुक्ति</td>
</tr>
<tr>
<td>19</td>
<td>Appoint</td>
<td>नियुक्ति करना</td>
</tr>
<tr>
<td>20</td>
<td>Approval</td>
<td>अनुमोदन</td>
</tr>
<tr>
<td>21</td>
<td>Article</td>
<td>अनुच्छेद, नियम, वस्तु</td>
</tr>
<tr>
<td>22</td>
<td>Association</td>
<td>संघ, समाज, संगम</td>
</tr>
<tr>
<td>23</td>
<td>At Par</td>
<td>समानुसार पर</td>
</tr>
<tr>
<td>24</td>
<td>Attendant</td>
<td>परिचर</td>
</tr>
<tr>
<td>25</td>
<td>Attestation</td>
<td>साक्ष्यांकन, अनुमुणागन</td>
</tr>
<tr>
<td>26</td>
<td>Audit</td>
<td>लेखा परीक्षा</td>
</tr>
<tr>
<td>27</td>
<td>Ballot Paper</td>
<td>मतपत्र, मतपत्री</td>
</tr>
<tr>
<td>28</td>
<td>Ban</td>
<td>प्रतिबंध, रोक, पाकंबंदी</td>
</tr>
<tr>
<td>29</td>
<td>Bonafide</td>
<td>सद्भावी, वास्तविक, असली</td>
</tr>
<tr>
<td>30</td>
<td>Book –Fair</td>
<td>पुस्तक मेला</td>
</tr>
<tr>
<td>31</td>
<td>Bureau</td>
<td>कार्यालय, ब्यूरो</td>
</tr>
<tr>
<td>32</td>
<td>Cabinet</td>
<td>मंत्री मंडल</td>
</tr>
<tr>
<td>33</td>
<td>Candidate</td>
<td>अभ्य एवं, प्राथ्मी, उपन्मीदवार</td>
</tr>
<tr>
<td>34</td>
<td>Care-taker</td>
<td>रखवाला, अवधायक</td>
</tr>
<tr>
<td>35</td>
<td>Cashier</td>
<td>रोक़बिया</td>
</tr>
<tr>
<td>36</td>
<td>Censure</td>
<td>सिंह दस्तावेज, परिनिंदा</td>
</tr>
<tr>
<td>37</td>
<td>Certificate of Medical Fitness</td>
<td>आरोग्य प्रमाण-पत्र</td>
</tr>
<tr>
<td>38</td>
<td>Character Certificate</td>
<td>चरित्र प्रमाण-पत्र</td>
</tr>
<tr>
<td>39</td>
<td>Charge Sheet</td>
<td>आरोप पत्र, फर्ड, जुर्म</td>
</tr>
<tr>
<td>40</td>
<td>Circular</td>
<td>परिपत्र, गश्ती-चिठ्ठी</td>
</tr>
<tr>
<td>41</td>
<td>Circulation of Traffic</td>
<td>यातायात परिचालन</td>
</tr>
<tr>
<td>42</td>
<td>Circus</td>
<td>क्रीडा रंग, रंगमंडप</td>
</tr>
<tr>
<td>43</td>
<td>Citation</td>
<td>प्रशासित, उद्दीपन, अनुलेखन</td>
</tr>
<tr>
<td>44</td>
<td>City Booking Office</td>
<td>नगर टिकट घर, नगर बुकिंग-कार्यालय</td>
</tr>
</tbody>
</table>
45. City Compensatory Allowance  नगर भत्ता
46. Civil नागरिक
47. Civil Pole नगर निर्वाचन
48. Civil Sense नागरिक भावना
49. Civil-air-craft असेंबल वायुयान
50. Claimant दावेदार, दावी
51. Collector समाहरण, संचारक, संकलनकर्ता, कलेक्टर
52. Colony बस्ती, उपनिवेश
53. Colosal विशाल, बुड़काय
54. Colour Blindness वर्णमालता
55. Communique विज्ञप्ति
56. Complaint शिकायत
57. Complementary पूरक
58. Completion Report समापन रिपोर्ट
59. Certified Copy प्रमाणित प्रतिलिपि
60. Complementary Copy उपहार प्रति, मानार्थ प्रति
61. Composite मिला जुला, समन्वयन संशोध
62. Comprehension व्यापक कार्य बोध
63. Contingencies आकर्षित व्यय
64. Contractor तेकदार, संविदाकार
65. Confiscate जब्त करना, अधिहरण करना
66. Corporation बिगम
67. Custody अभिरक्षा
68. Decorum शिश्नता, शालीनता
69. Defacto वस्तुतः
70. Defaulter त्रुटिकारी, चूक करने वाला, वाकीदार
71. Defendant प्रतिवादी
72. Depreciation Charge मूल्यपात्र प्रभाव, अवकाश प्रभाव
73. Design अभिकल्प, अभिकल्पना, रुपांकन, डिजाइन
74. Dispatch प्रेरणा, रवाजी, प्रेषित करना, रवाना करना
75. Dignitary उच्च पदधारी, महिमाविभिन्न
76. Director विदेशक
77. Disbursement संविदारण
78. Discipline अनुशासन
79. Discrepancy विसंगति, गलती
80. Discretion विवेक, विवेकाधिकार
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>Dissent</td>
<td>विस्मति, असहमति</td>
</tr>
<tr>
<td>82</td>
<td>Disqualified</td>
<td>अयोग्य</td>
</tr>
<tr>
<td>83</td>
<td>Division</td>
<td>विभाजन, मंडता, श्रेणी, प्रभाग, दिव्यजन</td>
</tr>
<tr>
<td>84</td>
<td>Eligible</td>
<td>पात्रता, प्राप्तता पात्र</td>
</tr>
<tr>
<td>85</td>
<td>Emergency</td>
<td>आपात, आपात्-रिथिति, आपत्ति</td>
</tr>
<tr>
<td>86</td>
<td>Emigrant</td>
<td>उपस्थापी</td>
</tr>
<tr>
<td>87</td>
<td>Employment</td>
<td>रोजगार, नैकरी, नियोजन</td>
</tr>
<tr>
<td>88</td>
<td>Employment Exchange</td>
<td>रोजगार कार्यालय, रोजगार दफ्तर</td>
</tr>
<tr>
<td>89</td>
<td>Employment Officer</td>
<td>रोजगार अधि कारी</td>
</tr>
<tr>
<td>90</td>
<td>Enquiry</td>
<td>पूछताछ, जाँच</td>
</tr>
<tr>
<td>91</td>
<td>Enrolment Number</td>
<td>नामांकन संख्या</td>
</tr>
<tr>
<td>92</td>
<td>Enrolled</td>
<td>नामांकित</td>
</tr>
<tr>
<td>93</td>
<td>Evacuee</td>
<td>विप्रकाल</td>
</tr>
<tr>
<td>94</td>
<td>Executive Engineer</td>
<td>कार्यपालक अभियंता, कार्यपाल इंजीनियर</td>
</tr>
<tr>
<td>95</td>
<td>Faculty</td>
<td>संकाय</td>
</tr>
<tr>
<td>96</td>
<td>Finance</td>
<td>वित्त, रूपया लगाना</td>
</tr>
<tr>
<td>97</td>
<td>Gazetted Officer</td>
<td>राजपत्रि अधिकारी</td>
</tr>
<tr>
<td>98</td>
<td>Gazetteer</td>
<td>राजविवरणिका</td>
</tr>
<tr>
<td>99</td>
<td>Gazetted post</td>
<td>राजपत्रि पद</td>
</tr>
<tr>
<td>100</td>
<td>Grant</td>
<td>अनुदान, स्थिकार करना</td>
</tr>
<tr>
<td>101</td>
<td>Incentive</td>
<td>प्रोत्साहन</td>
</tr>
<tr>
<td>102</td>
<td>Index</td>
<td>सूचक, अनुक्रमणी</td>
</tr>
<tr>
<td>103</td>
<td>Initials</td>
<td>आदेश</td>
</tr>
<tr>
<td>104</td>
<td>Insured Letter</td>
<td>बीमा किया हुआ पत्रा</td>
</tr>
<tr>
<td>105</td>
<td>Interim</td>
<td>अन्तरिम</td>
</tr>
<tr>
<td>106</td>
<td>Intelligence</td>
<td>गुप्तवार्ता, आसुत्सना</td>
</tr>
<tr>
<td>107</td>
<td>Intelligientia</td>
<td>प्रबुद्ध वर्ग, दुहितीजीवी वर्ग</td>
</tr>
<tr>
<td>108</td>
<td>Intensive reading</td>
<td>गहन पढन</td>
</tr>
<tr>
<td>109</td>
<td>Intention</td>
<td>अभिप्राय, आशय</td>
</tr>
<tr>
<td>110</td>
<td>Judgment</td>
<td>किर्णय</td>
</tr>
<tr>
<td>111</td>
<td>Jurisdiction</td>
<td>अधिकार- क्षेत्र</td>
</tr>
<tr>
<td>112</td>
<td>Ledger</td>
<td>खाता</td>
</tr>
<tr>
<td>113</td>
<td>Lessee</td>
<td>पदटेदार</td>
</tr>
<tr>
<td>114</td>
<td>Liaison Officer</td>
<td>संपर्क अधिकारी</td>
</tr>
<tr>
<td>115</td>
<td>Maintenance</td>
<td>अनुरक्षण, भरण-पोषण, रख-रखाव</td>
</tr>
<tr>
<td>116</td>
<td>Major</td>
<td>व्यस्क, बालिग, मेजर, प्रापत्त्व</td>
</tr>
<tr>
<td>117.</td>
<td>Manager</td>
<td>प्रबंधक, व्यवस्थापक, मैनेजर</td>
</tr>
<tr>
<td>118.</td>
<td>Minor</td>
<td>अध्यक्ष, नाबालिग, अप्राप्तव्य</td>
</tr>
<tr>
<td>119.</td>
<td>Monopoly</td>
<td>एकाधिकारी, एकाधिपत्य</td>
</tr>
<tr>
<td>120.</td>
<td>Motion</td>
<td>प्रस्ताव</td>
</tr>
<tr>
<td>121.</td>
<td>Nationalization</td>
<td>राष्ट्रीयकरण</td>
</tr>
<tr>
<td>122.</td>
<td>Negotiation</td>
<td>संधिवाला, समझौते की बातचीत</td>
</tr>
<tr>
<td>123.</td>
<td>Note of Dissent</td>
<td>विस्मरणी लेख, असहमति लेख</td>
</tr>
<tr>
<td>124.</td>
<td>Notification</td>
<td>अधिसूचना</td>
</tr>
<tr>
<td>125.</td>
<td>Oath Commissioner</td>
<td>शपथ आयूक्त</td>
</tr>
<tr>
<td>126.</td>
<td>Offender</td>
<td>अपराधी</td>
</tr>
<tr>
<td>127.</td>
<td>Permissible</td>
<td>अनुमोद्य, अनुमोद्य, क्षम्य</td>
</tr>
<tr>
<td>128.</td>
<td>Planning Commission</td>
<td>योजना आयोग</td>
</tr>
<tr>
<td>129.</td>
<td>Precedence</td>
<td>पूर्वता, अग्रता</td>
</tr>
<tr>
<td>130.</td>
<td>Procedure</td>
<td>कार्यविधि</td>
</tr>
<tr>
<td>131.</td>
<td>Public</td>
<td>सार्वजनिक, आम, सरकारी, लोक</td>
</tr>
<tr>
<td>132.</td>
<td>Quorum</td>
<td>गणपूर्ति, कोरम</td>
</tr>
<tr>
<td>133.</td>
<td>Receipt</td>
<td>पावती, प्राप्ति रसीद</td>
</tr>
<tr>
<td>134.</td>
<td>Recruitment</td>
<td>भर्ती</td>
</tr>
<tr>
<td>135.</td>
<td>Receiver</td>
<td>पावेताला</td>
</tr>
<tr>
<td>136.</td>
<td>Reminder</td>
<td>स्मरण-पत्र</td>
</tr>
<tr>
<td>137.</td>
<td>Representative</td>
<td>प्रतिनिधि</td>
</tr>
<tr>
<td>138.</td>
<td>Senior</td>
<td>वरिष्ठ, ज्येष्ठ</td>
</tr>
<tr>
<td>139.</td>
<td>Sine die</td>
<td>अभिलिखित काल के लिए</td>
</tr>
<tr>
<td>140.</td>
<td>Statutory</td>
<td>कानूनी, विधिक, संविधान</td>
</tr>
<tr>
<td>141.</td>
<td>Stenographer</td>
<td>आधुनिक, व्यवस्थापिक</td>
</tr>
<tr>
<td>142.</td>
<td>Subordinate</td>
<td>अधीन, अधीनस्त</td>
</tr>
<tr>
<td>143.</td>
<td>Tender</td>
<td>निविदा, टेंडर</td>
</tr>
<tr>
<td>144.</td>
<td>Transfer</td>
<td>बदली, स्थानांतरण, अंतरण</td>
</tr>
<tr>
<td>145.</td>
<td>Treasurer</td>
<td>कोषपाल</td>
</tr>
<tr>
<td>146.</td>
<td>Unofficial</td>
<td>अशासकीय</td>
</tr>
<tr>
<td>147.</td>
<td>Vacancy</td>
<td>रिक्त</td>
</tr>
<tr>
<td>148.</td>
<td>Vigilance Officer</td>
<td>सत्तकंता अधिकारी, निगरानी अधिकारी</td>
</tr>
<tr>
<td>149.</td>
<td>Warrant</td>
<td>अधिपत्र, वारंट</td>
</tr>
</tbody>
</table>
हिन्दी (ऐतिहासिक द्वितीय वर्ष)
सेमेस्टर-4

पूर्णांक : 90+10-100
समय : 3 घंटे

1. तरंगनी-मनोहर लाल आनंद, पंजाब विश्व विद्यालय, पब्लिकेशन व्यूरो, चंदीगढ़ से प्रकाशित जिन्हें कवि पादयक्रम में नियुक्त हैं--
महादेवी वर्मा, अंजेय, धर्मवीर भारती।
क) 5-5 अंकों की दो संदर्भ सहित व्याख्याएँ करनी होगी। अंक-10
कुल चार व्याख्याएँ पूरी जाएँगी।
ख) कवि परिचय, सार और उद्देश्य संबंधी कुल दो प्रश्न पूछे जाएंगे। 8 अंकों का एक प्रश्न करना होगा। उत्तर सीमा 200 शब्दों की होगी।

2. आदर्श एकांकी संग्रह – सं. डी० संसार चन्द्र, पंजाब विश्व विद्यालय पब्लिकेशन व्यूरो चंदीगढ़ द्वारा प्रकाशित
क) एकांकी के तत्त्वों के आधार पर समीक्षात्मक प्रश्न
(सार-लेखन, चरित्र-विवरण, उद्देश्य संबंधी) दो प्रश्न पूछे जाएंगे। 8 अंकों का एक प्रश्न करना होगा।
ख) संदर्भ सहित व्याख्या नहीं पूरी जाएँगी।

3. हिन्दी साहित्य का इतिहास : आधुनिक काल (केवल काव्य-खण्ड)
आधुनिक काल के भारतेन्दु-युग, द्वितीय युग, छायावाद, प्रगतिवाद, प्रयोगवाद और नई कविता की केवल प्रमुख प्रौद्योगिकियों से संबंधित 10 अंकों का एक प्रश्न करना होगा। कुल दो प्रश्न पूछे जाएँगे।
(शब्द सीमा-सीमा 250)

4. वस्तुनिष्ठ प्रश्न
इस पत्र के पूर्वोक्त तीन खण्डों के आधार पर एक-एक अंक के दस वस्तुनिष्ठ प्रश्न करने होंगे। कुल पंद्रह प्रश्न पूछे जाएँगे।
5. संलग्न 50 टिप्पणियों का अभ्यास : 
पूरी गई दस टिप्पणियों में से पाँच का उत्तर देना होगा। अंक-10

6. समीक्षा सिद्धांत : केवल 'एकांकी' 
एकांकी के तत्व, परिभाषा और वर्गीकरण से संबंधित दो प्रश्न पूछे जाएँगे। 10 अंको का केवल एक प्रश्न करना होगा। 
शब्द-सीमा 250) अंक-10

7. सार लेखन अंक-8

8. शासकीय पत्र लेखन (दो में से एक) अंक-8

9. विस्तारण अंक-8

आंतरिक मूल्यांकन अंक-10

निर्देश : 6 लेख टेक्स्ट के और 3 लेख व्यक्तरण के अनुसार होने।

50 टिप्पणियाँ

1. A brief note is placed below
2. Acknowledge receipt of this
3. Action as proposed may be taken
4. Agenda of the meeting is put up
5. Application may be rejected
6. Approved as proposed
7. Administrative approval may be obtained
8. Await reply
9. Await further report
10. Ascertain this position please
11. Amended draft is submitted for approval
12. Brief resume of the case is given below
13. Call for explanation
14. Call for report
15. Comply with the orders
16. Clarify the position please
17. Copy enclosed for ready reference
18. Copy is enclosed
19. Copy forwarded for information and Necessary action
20. Case may be kept pending
21. Delay should be avoided
22. Disciplinary proceedings may be initiated
23. Draft reply is put up
24. Enquiry may be conducted
25. Expedite action
26. Explanation may be called for
27. Facts for the case may be put up
28. For perusal and return
29. For comments please
30. For sympathetic consideration
31. Forwarded and recommended
32. I concur with the proposal
33. I have no remarks to offer
34. Inform all concerned
35. Issue a circular
36. Keep pending
37. Kindly accord sanction
38. Kindly confirm
39. Matter is under consideration
40. No action is necessary
41. Needful has been done
42. Order may be issued
43. Please see the proceeding notes
44. Put up the relevant papers
45. Reminder may be sent
46. Report compliance immediately
47. Specific reason may be given
48. Submitted for information
49. This may be treated as confident
50. Verified and found correct

***************
भूमिका (तेजेन्द्र)
श्री. (नवरूत्त डा.) दुमा चम्पाब 2017 के दिनांक नहीं लिखी
समीक्षा दीवान

पाठवहुँ

1. भन्डारण ली चर्चादर्शन 25 मंजर
2. मदवा कर आध्यात्मिक 25 मंजर
3. पंजाबी विभाग दर टिडिग्रास (1701 ईं 1900 ईं) 20 मंजर
4. ब्रजवीद लिखि ज्ञान 10 मंजर
5. भारत सिखियां 10 मंजर

वेतन

1. किसी का लिखि मातीपीड़ा (मंजर) डू. यथा सिख, धरीशिल्मा ठिकित, धनुष तुलसिविनिता, चंद्रीबाद।
(तिलितवर वारीः बासा बसी, भगी शैव, संग्रह गुंडे मार्ग, रंगवाल रायम नाम, सातवां सों गीत मुनि)
2. मंच संग, भारतीय रा मदवरण, तेनसंग सिख भवुर, उर्जीव धरारह, चंद्रीबाद।

पुस्तिका अनुसार वीभत

1. (क) ‘भन्डारण ली चर्चादर्शन’ प्रमुख लिखि पूर्ण गति शिक्षक शिक्षित (दे दिवास दिवास) 10 मंजर
   (स) बांड प्रमुख लिखि (स) लिखि -समुद्र धारावत बांड (दे दिवास दिवास) 10 मंजर
2. (क) ‘मंच संग’ भारतीय रा मदवरण प्रमुख दे अपात दूरे पृथ्वी घास हे खटट हा दे खटट हा
   दे खटट हा संघीय पृथ्वी (दे दिवास दिवास) 10 मंजर
   (स) मदवरण ली साराजव अध्याय (दे पृथ्वी दिवास दिवास) 10 मंजर
3. बांड इतिहास के मदवरण लिखि द्वारे दूरे पृथ्वी (अष्ठ पृथ्वी दिवास दिवास) 2 x 5 = 10 मंजर
   (पृथ्वी दे दूरे दिवास-चयन मदवरण डे दूरे देखे)
4. पंजाबी निरुद्ध दर टिडिग्रास (1701 ईं 1900 ईं) डूं मुही बंड़िया-याता के लिंगा - 5 x 4 = 20 मंजर
   बांड याता (वांरुर दूरे राहु पृथ्वी) (दे दिवास दिवास - दूरे पृथ्वी 50 मदवरण डे दूरे देखे)
5. ब्रजवीद लिखि-संगम: पृथ्वी नाम पहाड़, रम मंघुराहि, ब्रजवीद संघुराहि (दे पृथ्वी
   दिवास दि दर पृथ्वी दर दर)
6. भारत ईंटीविड़ा: बिलाबी डामा, बिलाबी डामा, अध्यात्म, गुण वामा, बिनमालह, विनियम 10 मंजर
   दे दिवासिु (बांड हे दिवास दे)

उपयोग के नियम : मार्च पाठवहुँ लीजी उच्चे दिवास 6 + 6 = 12 मंजरीकर।
पंजीकृत (विलेयटिव)

पी.ई. (जनरल) दूसरा वर्ष (अक्सर्स्टेम) सिलेबस

क्षेत्रः (तत्वज्ञान वनश) चूना अध्यापक / महत्त 2018 एत निर्देशित व्यक्त

मानक रेखा 25 अंक

खंड:- 90

प्रकाशन अनुसंधान: 10

संख्या: 3 पंटी

पाठ्यक्रम

1. \(B.A./B.Sc. \text{ (गेनरल) सेमेस्टर सिस्टम) सिलेबस} \)

2. \(B.A./B.Sc. \text{ (गेनरल) सेमेस्टर सिस्टम) सिलेबस} \)

3. \(1701-1900 \text{ उनक} \)

4. \(1701-1900 \text{ उनक} \)

5. \(1701-1900 \text{ उनक} \)

6. \(1701-1900 \text{ उनक} \)

7. \(1701-1900 \text{ उनक} \)

8. \(1701-1900 \text{ उनक} \)

9. \(1701-1900 \text{ उनक} \)

10. \(1701-1900 \text{ उनक} \)

***************
Paper - Sanskrit :

श्रीमद्भगवद्गीता एवं ब्यक्तरण
(आन्तरिक परीक्षा- 10, लिखित परीक्षा- 90)

पूर्णक: 90+10=100
समय-3 घण्टे

निदेश तथा उद्देश्य:

• प्रश्नपत्र का माध्यम हिन्दी होगा। उत्तरों का माध्यम संक्रत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
• विद्यार्थियों को भारतीय दर्शन के अहिंसेन घन्य रचना श्रीमद्भगवद्गीता (चतुर्वेद अनुवाद) में प्रतिपादित निष्कासन कर्मों, समल्लोक योग में स्थित योगी पुस्तकों का आचरण एवं उनकी महिमा, विभिन्न प्रकार के ज्ञानज्ञता तथा ज्ञान का महत्व इत्यादि विषयों का अध्ययन करवाना।
• इसके अतिरिक्त व्याख्यातिक धार्मिकली द्वारा विद्यार्थियों की संक्रमण के रूप से आर्थिक करना।
• संक्रमण पूर्ण वैज्ञानिक एवं व्यक्तरणादित्य भाषा हे। अतः विद्यार्थियों को संक्रमण व्यक्तरण के प्रमुख नियमों का योग करना।
• पद का अध्ययन समय नीं पीरियत (अनुवाद) प्रतिसाल होगा, जिसमें तीन पीरियत कर्मों जिज्ञासान के होंगे।
• सभी प्रश्नों में शास्त्राधिकार अथवा निर्देश विकल्प आवश्यक है।

UNIT-I

(क) गीता (चतुर्वेद - अनुवाद) (तीन सूत्रत/सौं: स्पष्टसंग अनुवाद पदमू व्यास्या)

2x10= 20 अंक

(ख) गीता (चतुर्वेद अनुवाद) पर आधारित समाचारात्मक लघुप्रकाश

05 अंक

UNIT-II

(ग) व्याख्यातिक संक्रमण शास्त्रावली : वक्त, आभूषण एवं शैक्षिकपरक (15 में से 10 शब्दों की संक्रमण)

10x 1= 10 अंक

1. केंद्र-कल्पित:
2. कुरुता-कल्पित:
3. कोट-प्राप्त:
4. चादर-अखूद,
5. जून-उपाय,
6. तकिया-उपथानम,
7. दरी-आस्तरणम्
8. दुता-उत्तरीयम्
9. धोती-अधोस्थम,
10. पुंजी-प्रकारम्
11. परदा-प्रकारिका
12. पापजामा-पादालम:
13. पैंट-आपचनीम्
14. रुमाल-करस्थम्
15. ढहरगानी-प्राचरमुः
16. साढी-साढिका
17. स्वेट-उपास्वरमृ
18. कपड़ा-कल्पम,
19. आंसूमित्र-आंसूपकारम्,
20. कुंजना-कल्पित:
21. कान की वाली-कुंडलामृ
22. महनाल-अल्लाहार,
23. खुंशा--किकिशी
24. चुकी-कापलारमृ,
25. नथ-छिलका
26. पार्जन-पुरुष,
27. वाजुदन (ब्रज लेल) केसुमम
28. हार-हार,
29. सोने का कड़ा-कटक:
30. आयपा (शीता) -दर्पणा,
31. आदि:
UNIT-III

(घ) व्यक्ति सभा
(ङ) व्यक्ति समाज
(च) व्यक्ति प्रत्ययः अण, मतुप, तरप, तमप - केवल उदाहरण ही प्रवचन हैं)

UNIT-IV

(छ) शब्दरूपः तत्, पतत्, यत् (तीनों लिंगों में) रजन् तथा चन्द्रमसः
(ज) पात्रतृपः अस्, दा, कुप, शक, प्रस्च, मित्र (केवल लट, लोट, लुट, लड़, विपिनिज्ञ व्यक्त में)
(झ) छन्दः अनुरुप, वैवाचर, इन्द्रवाजा, उपेन्द्रवाजा, उपजाति (दो के ही सोदाहरण लक्षण प्रवचन हैं)

UNIT-V

(ञ) हिन्दी से संस्कृत में अनुवाद (10 में से 5 वाक्य)
सहायक पुस्तकः शीघ्रको, चौखंड़ा प्रकाशन, याराणसी

-------------------
संस्कृत (इलेक्ट्रिक)
बी.ए.(जनरल) द्वितीय वर्ष, 2018

SEMESTER-IV

Paper - Sanskrit : नाटक एवं व्याकरण
(आंतरिक परीक्षा- 10, लघित परीक्षा- 90)

पूरकांक: 90+10=100
समय-3 घण्टे

निदेश तथा उद्देश्यः

• प्रश्नपत्र का माध्यम हिन्दी होगा। उत्तरों का माध्यम संस्कृत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
• संस्कृत नाटकविध्या के स्वरूप और प्रवृत्तियों से परिचित कराना।
• इसके अतिरिक्त, व्याकरण शास्त्रीय श्लोकों द्वारा विधापिकाओं की संस्कृत के प्रति रूचि जागृत करना।
• संस्कृत पूर्ण वैदिक एवं व्याकरणानि माना है। अतः विधापिकाओं की संस्कृत व्याकरण के प्रमुख नियमों का बोध कराना।
• पत्र का अध्ययन समय नी पौरियवल(प्रतिच्छ) प्रतिसाध होगा, जिसमें तीन पौरियवल कम्पोजिशन के होंगे।
• सभी पश्चिम में शालातितित अथवा निदित्त्व विकल्प आवश्यक हैं।

UNIT-I

(क) दूतवाक्यम् - भाषा (तीन सूक्तिययः/श्रोकः : समस्तगं अनुवाद प्रथम व्याख्या) 3x10=30 अंक

(ख) समीक्षात्मक लघु प्रश्न, पान चरित्र चित्रण, लेखक परिशय, रचनाएँ व दूतवाक्यम् की विषयवस्तु 5 अंक

UNIT-II

(ग) व्याकरण संस्कृत शब्दावली : अश्रु, भोजन एवं तत्समव्य चात्र (15 में से 10 शब्दों की संस्कृत) 10x1=10 अंक

UNIT-III

(१) तत्त्वुपत्र - समास

(२) कृद्वन्त प्रत्ययः: क, चवन्त, तवा तथा तुमुन प्रत्ययः

(३) धौतक रूपः: किम् व सर्व (तीनों हिंगां में), महत्व व कल्पन (पुड़िज़ में) पद्म काति

UNIT-IV

(४) धातुरूपः: कु, की, त्रु, झा, श्रु तथा कथा (केवल लघु, लघु, लघु, विपिन लघु लक्षार में)

(५) कारक (केवल सामान्य नियम-अशुद्ध वाक्य के शुद्ध करना)

UNIT-V

(६) छन्दः: शिलारिणी, मन्दकावता, मातिनी, वस्तितितका तथा भूतंग-प्रयात (दो से ही संदर्भार्थ लक्षण प्रदत्त हैं)

सहायक पुस्तकः - श्रीगद्रोध, छोलुच्चन प्रकाशन, वाराणसी
URDU (Elective)

SEMESTER-III

Prose and Poetry

Theory : 90 marks
Internal Assessment : (5+3+2) 10 marks
Time: 3 Hrs.

Unit-I

i. Explanation of Verses(Ghazaliat):
   Mir Taqi Mir, Khwaja Mir Dard, Ibrahim Zauq, Mirza Asadullah Khan Ghalib, Momin Khan Momin, Hasrat Mohani, Raghupati Sahay Firaq Gorakhpuri.
   20 marks

ii. Explanation of Nazms:
    Search Results
    Allama Iqbal - Chand aur Tare, Mulla aur Bahisht
    Nazir Akbrabadi - Mele ki Sair
    Brij Narayan Chakbast - Ramayan ka ek Scene
    10 marks

Unit-II

Explanation of prose:
Mir Amman - Sair Pehle Darvesh Ki
Sir Syed Ahmed Khan - Sarab-e-hayat
Farahatullah Baig - Murda Badast Zinda Ast
Munshi Prem Chand - Roshni
Rashid-ul-Kheri - Toonfan-e-Hayat Ka Ek warq
30 marks

Unit-III

Central idea of a lesson or nazm (from Unit I & II above)
15 marks

Unit-IV

Introduction and literary contribution of the poets & prose writers
Poets: Mir Taqi Mir, Mirza Asadullah Khan Ghalib, Nazir Akbarabadi
Prose writers: Sir Syed Ahmed Khan, Altaf Hussain Hali, Munshi Prem Chand
15 marks

Books Prescribed:

URDU (Elective)  
SEMESTER-IV

Novel: Ek Chadar Maili Si

Theory : 90 marks
Internal Assessment : (5+3+2) 10 marks
Time: 3 Hrs.

Unit-I

Novel - One question each on its Plot and Characters 30 marks

Unit-II

Explanation of Paragraph from Novel 30 marks

Unit-III

Rajinder Singh Bedi Ki Novel Nigari Ki Khususiyat
Or
Novel Ke Ajza-e-Tarkibi 15 marks

Unit-IV

Unseen paragraph (candidate will be asked three questions from it) 15 marks

Books Prescribed :

1. Ek Chadar Maili Si, by Rajinder Singh Bedi.
PERSIAN (Elective)
SEMESTER-III

Instructions to the paper setter/examiner:

There will be one paper in each Semester i.e. 3rd and 4th Semester of 90 marks each and Internal Assessment of 10 marks for the session of 2017-18.

Paper-A: Prose

Marks: 90
Internal Assessment: 10
Time: 3 hours

1. Translation of text pieces into English, Hindi, Urdu, Panjabi or Persian. 20 marks
2. Explanation of text pieces into English, Hindi, Urdu, Panjabi or Persian. 20 marks
3. Summary or central idea of the text prescribed as in Dastanha-ye-Kutah. 20 marks
4. Simple direct questions on the life and works of the authors. 30 marks

Books prescribed

Nisabe Jadide Farsi
(Published By Jayyad Press Ballimaran Delhi)
Only following portions from Prose Section.

ii. Dastan-e-Kutah by Mohammad Hejazi.
PERSIAN (Elective)

SEMESTER-IV

Instructions to the paper setter/examiner:

There will be one paper in each Semester i.e. 3rd and 4th Semester of 90 marks each and Internal Assessment of 10 marks for the session of 2017-18.

Paper-B: Poetry

Marks: 90
Internal Assessment: 10
Time: 3 hours

Distribution of marks:

1. Translation of text pieces into English, Hindi, Urdu, Panjabi or Persian. 20 marks
2. Explanation of text pieces into English, Hindi, Urdu, Panjabi or Persian. 20 marks
3. Central idea of the poem. 20 marks
4. Simple direct questions on the life and works of the poets as prescribed in the text. 30 marks

Books prescribed

Nisab-e-Jadeed-e-Farsi(Published by Jayyad Press Ballimaran, Delhi). Only following portions from Prose Section.

Az Gzalliyat-e-Hafiz

Agar Aan Turke Shirazi Be Dast Aarad Dile Maara.
Saaqi Benur Badah Bar Afrooz Jam-e- Maa.
Doosh deedam Keh Malayek Dare Maiykhaneh Zadand.

Gazalliyat-e-Khdsrow:

Jan Ze Tan Burdi-o- Dar Jaani Hunooz.
Madeh Pandam Ke Man Dar Seeneh Saudayee Digar Daram.

***************
FRENCH(ELECTIVE)

SEMESTER-III

WRITTEN COMPREHENSION AND EXPRESSION, GRAMMAR IN CONTEXT AND CREATIVE WRITING

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

I Selected Readings in Poetry:
Questions, explanation of stanzas or of poems, central ideas and summaries of poems to be asked and answered in French. 15 marks

II (a) Questions (including General and based on Civilisation) from the prescribed Text book (of 3 marks each). 15 marks
(b) Questions on applied grammar, including conjugation of verbs in applied form, from the textbook. 20 marks
(c) Composition based on the subject or theme from the text. 10 marks
(d) Comprehension of an unseen text.
Ten questions to be put in French and to be answered in French. 10 marks

III Prose:
Direct simple questions based on the prescribed text to be asked and answered in French,
Questions should be of 5 marks each. 20 marks

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


(a) Livre de l’ élève
(b) Cahier d’ exercices
Poetry:

To be studied: Comprehension, explanation, literary, appreciation and criticism of the poems.

The following 5 poems to be studied:

1. Pierre De RONSARD (1524-1585)
   Sonnet à Marie

2. Alphonse De LAMARTINE 1790-1869- Harmonie poétiques et religieuses
   Au rossignol

3. Alfred De MUSSET (1810-1857)-Poésies nouvelles
   Tristesse

4. Théodore De BANVILLE (1823-1891)
   Le Verger du roi Louis

5. Paul ELUARD (1895-1952)
   Le Sourd et l’aveugle

Prose: Tintin au Tibet, Casterman

Note: 1. Questions on composition and unseen passage to be based on the vocabulary and grammar of the textbook covered by the students in B.A. 3rd Semester.

2. All questions are to be asked and answered in French.

For the information of private candidates:

The theory paper would be proportionately marked out of 100 as there is no internal assessment.
FRENCH(ELECTIVE)
SEMESTER-IV
CREATIVE WRITING AND EXPRESSION, GRAMMAR IN CONTEXT

Max. Marks : 100
Theory : 60 marks
Internal Assessment : 10 marks
Viva : 30 marks
Time : 3 Hours

I Selected Readings in Poetry:
Questions, explanation of stanzas or of poems, central ideas and summaries of poems to be asked and answered in French. 15 marks

II Prose:
Direct simple questions based on the prescribed text to be asked and answered in French, Questions should be of 5 marks each. 15 marks

III (a) Questions (including General and based on Civilisation) from the prescribed Text book (of 3 marks each). 15 marks
(b) Questions on applied grammar, including conjugation of verbs in applied form, from the textbook. 15 marks

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


(a) Livre de l’ élève
(b) Cahier d’ exercices

Poetry:

To be studied: Comprehension, explanation, literary, appreciation of the poems.

The following 5 poems to be studied:

1. Victor Hugo 1802-1885- Les contemplations
   La coccinelle

2. Théophile GAUTIER (1811-1872)- Emaux et camées
   Noël
   Noël
3. Charles BAUDELAIRE (1821-1867) Les fleurs du mal

   La vie antérieure

4. Paul VERLAINE (1844-1896) Sagesse

   D’une prison

5. Georges BRASSENS – (1921-1981)

   Le vent

Prose:- Guy de Maupassant, La Parure

All questions are to be asked and answered in French

Viva: 30 marks

Reading:

   Seen
   10 marks

   Unseen
   10 marks

   Conversation
   10 marks

For the information of private candidates:

1. Viva is compulsory
2. The theory paper would be proportionately marked out of 70 as there is no internal assessment.

***************
GERMAN (Elective)  
SEMESTER-III

Summary
Max. Marks  :  100 marks (Total)
Paper-A(Theory)  :  90 marks
Internal Assessment  :  10 marks

Paper A-Theory: 90 marks
Time: 3 hours
Note: Use of dictionary is allowed

i. Questions in applied grammar (including fill in the blanks) conforming to prescribed text-book “Lagune-2”: Chapters 1-17 upto page 87  
(5 questions)  
50 marks

(4 out of 5 questions to be attempted)  
20 marks

iii. Summary in German of any one short-story from Prescribed book “Texte zum Lesen und Nacherzählen”, from pages 1-12  
20 marks

Internal Assessment  
10 marks (Total)

i. Continuous Evaluation
ii. Attendance

Note:

1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbook:

ii. Texte zum Lesen und Nacherzählen by Hans-Joachim Arndt, Hueber Verlag, upto page 12.

Supplementary book:

i. “Lagune-2” Arbeitsbuch by Hartmut Aufderstraße a.o: Chapters 1-17
GERMAN (Elective)

SEMESTER-IV

Summary

Max. Marks : 100 marks (Total)
End Semester Exam Paper-B (Theory) : 60 marks
Oral (viva-voce) examination : 30 marks
Internal Assessment : 10 marks

Paper B-Theory : 60 marks (Total)

Time : 3 hours

Note: Use of dictionary is allowed

i. Questions in applied grammar (including fill in the blanks) confirming to prescribed text-book “Lagune-2”: Chapters 18-34 30 marks (5 questions)

ii. Questions on “Culture & Civilization” from the prescribed text-book “Lagune-2”: Chapters 18-34 15 marks (4 out of 5 questions to be attempted)

iii. Summary in German of any one short-story from Prescribed book “Texte zum Lesen und Nacherzählen”, from pages 12-21 15 marks

Oral (viva-voce) Examination : 30 marks (Total)

i. Conversation in German

ii. Reading of a simple unseen text and answering questions there-on

Internal Assessment : 10 marks (Total)

i. Continuous Evaluation

ii. Attendance

Note:

1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbook:


Supplementary book:

ii. “Lagune-2” Arbeitsbuch by Hartmut Aufderstraße a.o: Chapters 18-34
RUSSIAN (Elective)

SEMESTER-III

Paper-A (General Translation, Grammar, Composition and Comprehension): Written

Maximum Time : 3 hrs.  Max. Marks : 100

Theory : 90 marks
Internal Assessment : 10 marks
(For regular students)

1. Translation from simple Russian into English/Hindi/Punjabi. (about 120 words)  15 marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words)  15 marks
3. Simple applied grammar: 3 question out of 5 (5 marks each)  15 marks
   (Covered in Lessons 31-37, Wagner)
4. Question on prescribed texts in Russian : 3 questions out of 5 (5 marks each)  15 marks
   (Covered in Lessons 31-37, Wagner)
5. Composition (One out of three) on the following topics:  15 marks
6. Comprehension: 5 questions out of 7 (3 marks each) on the unseen texts to be
   reproduced in the question paper  15 marks

Note: Use of dictionaries is allowed

Book Prescribed
1. V. N. Wagner: Russian, PPH, New Delhi. (Lessons 31-37)

Books recommended for additional reading
2. S Khavronina: Russian in Exercise, 1978
4. Dictionaries: English-Russian dictionary
   Russian-English dictionary

----------------------
RUSSIAN (Elective)
SEMESTER-IV

Paper-B (General Translation, Grammar, Composition and Comprehension): Written

Maximum Time : 3 hrs. 
Max. Marks : 70

Theory : 60 marks
Internal Assessment : 10 marks
(For regular students)

1. Translation from simple Russian into English/Hindi/Punjabi. (about 80 words) 10 marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 75 words) 10 marks
3. Simple applied grammar: 3 questions out of 5 (4 marks each) 12 marks
(Covered in Lessons 38-45, Wagner)
4. Questions on prescribed texts in Russian : 4 questions out of 6 (2 marks each) 08 marks
(Covered in Lessons 38-45, Wagner)
5. Composition (One out of three) on the following topics: 10 marks
6. Comprehension: 5 questions out of 7 (2 marks each) on the unseen texts to be reproduced in the question paper 10 marks

Note: Use of dictionaries is allowed

Book Prescribed
1. V. N. Wagner: Russian, PPH, New Delhi. (Lessons 38-45)

Books recommended for additional reading
2. S Khavronina: Russian in Exercise, 1978
            Russian-English dictionary.

(iii) Oral/Practical Maximum Marks:30

Reading of text(s) and conversation in simple Russian
1. V. N. Wagner: Russian, PPH, New Delhi.(Lessons 31-45)

************
SUBJECT:

ARABIC (Elective)
BENGALI (Elective)
TAMIL (Elective)
TELUGU (Elective)
KANNADA (Elective)
MALAYALAM (Elective)

The above Syllabi for B.A.(GENERAL) SECOND YEAR (SEMESTER SYSTEM) has been **KEPT IN ABEYANCE**
INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS:

(i) There shall be nine questions in all, spread over five units.
(ii) First question/unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.
(iii) Rest of the paper shall contain four units for descriptive questions. Each unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each unit.
(iv) All questions/units will carry equal marks.
(v) Private candidates and the students of the University School of Open Learning (USOL) will not be allowed to take this subject.

UNIT-I

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first question/unit of the question paper which is compulsory.

UNIT-II

Psychological Basis of Physical Education:

- Meaning of Psychology and Sports Psychology.
- Psychological factors effecting physical performance.
- Meaning of Learning.
- Laws of Learning.
- Learning curve, its types, characteristics and implications in Physical Education and Sports.
- Psychological characteristics and problems of an adolescent.
- The role of Physical Education and Sports in solving the problems of an adolescent.

UNIT-III

Motivation:

- Meaning, definitions, types and methods of motivation.
- Importance of motivation in Physical Education and Sports.
Transfer of Training:

- Meaning, definitions, types and factors affecting transfer of training.

**UNIT-IV**

12 Marks

Personality:

- Meaning, definitions, characteristics, dimensions and traits of personality.
- Factors affecting development of personality (Heredity and Environment).
- Role of physical activities in Personality Development.

**Sports and Socialization:**

- Meaning and definitions of socialization, socialization through sports.

**UNIT-V**

12 Marks

Politics, Economy, Media and Sports Performance:

- Role of politics and economy in the promotion of games and sports.
- Role of media in promotion of sports.
- Causes of deterioration and suggestions for the improvement of Sports Performance.

Softball:

- History of the game.
- Basic fundamentals.
- Equipment and specifications.
- Marking/layout of field.
- Rules and regulations (number of players, number of officials required and general rules of play).
- Major tournaments of the game.

**References**: 


PRACTICAL

Max.Marks : 35
Practical : 30
Internal assessment: 5

ATHLETICS
a) History of athletics
b) List of track and field events
c) Marking of standard track, width of lanes and starting points for various races.

LONG JUMP:
(a) Approach run (b) Take off (c) Flight (d) Landing (e) Brief information of various styles and practice of any one style depending upon the facilities available (f) Rules and regulations of the long jump.

PHYSICAL FITNESS TESTS:
More emphasis shall be given on physical fitness with regard to specific physical fitness components (Endurance and Strength).

Test 1 : ENDURANCE : 9/12 min. run and walk test.
Test 2 : STRENGTH : Standing broad jump test.
Division of Practical Marks: Marks for each activity shall be divided as under:

Athletics 10 Marks, Participation and achievement in sports/games 5 marks, Physical fitness 5 marks, viva voce/practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester which will be assessed by the teacher concerned.

Note: 1. Pole vault, Hammer Throw, Hurdles, Relay Races and steeple chase men are not included in the practical syllabus/course due to the fact that these events are highly technical. Moreover in the absence of proper facilities required for the events mentioned above may prove to be injurious/fatal to the students.

2. 12 periods per week (6 periods each for theory and practical) shall be allotted to a class.

3. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.

4. The theory and practical papers shall consist of 65 and 35 marks each.

5. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.

6. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.

7. A student is required to prepare a practical notebook on athletics with complete marking of standard track and starting points for various races and an event (long jump) mentioned in the syllabus.

Mandatory Instructions for the Colleges:

1. Admission Criteria:

   (i) Any student opting to have Physical Education as an Elective Subject irrespective of the background of the students (sports or non-sports students) must appear in the physical fitness test. Ranking should be prepared and the top 60-80 students should be offered this subject.

   (ii) This subject should be offered to the normal students (not to disabled one).

   (iii) To measure Physical Fitness through Cardiovascular Fitness Test, Cooper’s 9 Minutes or 12 Minutes Run-Walk Test should be conducted.

   (iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.

2. Periodical Physical Inspections:

   The University/Authorities with the collaboration of the Department of Physical Education, Panjab University, shall make Periodical Physical inspections of the various colleges to ensure that the teacher student ratio is maintained by all the affiliated colleges for this subject as per the University Guidelines, and for them to ensure that infrastructure (facilities), equipment, books/professional journals and groundmen, a game boy are provided as per the requirements of the subject and directions of the Panjab University, Chandigarh.

3. Strength of Students:

   For imparting effective teaching, the strength of students in a theory class shall be between 60-80 while it shall be 30-40 students in practical class.
4. Infrastructure/facilities and Supporting personnel:

For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements:

(i) A track atleast of 200 mtrs., it should, however, preferable be raised to 400 mtrs. track.

(ii) Bare minimum two Malies-cum-Groundmen for maintenance of the grounds and other infrastructure facilities etc.

(iii) A game boy to supply the sports equipments and water to the students/ teachers on the ground/playfield/arena.

(iv) A store-keeper for the proper maintenance/accountability of sports equipments in the stores.

5. Number of Periods :

The number of periods for theory and practical shall be 12 periods per week (6 periods each for theory and practical) for classes i.e. B.A. First to sixth semester.

Practical period shall be projected in the college time table itself.

6. Teaching Work Load :

(i) As per the Panjab University Calendar Chapter XX (Page 298) Volume-III, 1996, the Maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.

(ii) Teachers who are preparing 6 teams for the Panjab University Inter College Competition, their work load shall be counted by including six periods per week in the teaching load of concerned teachers in Physical Education.

7. Division of Marks ( Theory and Practical) :

65% and 35% weightage shall be given to each theory and practical papers.

Note : STRICT ACTION SHALL BE TAKEN BY THE UNIVERSITY AGAINST THE COLLEGE(S) WHICH VIOLATES THE ABOVE INSTRUCTIONS.

-----------------------
PHYSICAL EDUCATION
B.A. (GENERAL) FOURTH SEMESTER EXAMINATION, 2018

Max. Marks : 65
Theory : 60 marks
Internal Assessment : 05 marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :

(i) There shall be nine questions in all, spread over five units.

(ii) First question/unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.

(iii) Rest of the paper shall contain four units for descriptive questions. Each unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each unit.

(iv) All questions/units will carry equal marks.

(v) Private candidates and the students of the University School of Open Learning (USOL) will not be allowed to take this subject.

UNIT-I 12 Marks

Entire syllabus given in the Units II to V will be covered to set six short answer type questions in first question/unit of the question paper which is compulsory.

UNIT-II 12 Marks

Respiratory System :

• Meaning of Respiration, types of Respiration, Organs of the Respiratory System.
• Functions of the Respiratory System. Vital capacity and its measurement.
• Mechanism and Neural Control of Respiration.

Digestive System :

• Meaning, Importance and Organs of Digestive System.
• Functions, processes, mechanism and nerve regulators of Digestive System.
UNIT-III  

Circulatory System:

- Meaning of the circulatory system.
- Heart, its structure, functions and control of the heart rate.
- Various types of blood vessels and their functions.
- Cardiac Cycle.

Blood:

- Meaning, functions and composition of blood.
- Maintenance of blood supply.
- Blood groups and their importance.
- Blood Clotting.

UNIT-IV  

Communicable Diseases:

Meaning of a communicable disease. Communicable diseases such as HIV/AIDS, Viral Hepatitis—A, B & C and Tetanus, their modes of transmission and methods of prevention.

Yoga:

- Meaning and aim of Yoga.
- Meaning, Principles and Importance of Asanas.
- Meditative poses (Padamasna, Vajrasana, and Sukhasana), their technique, precautions and effects/advantages.
- Cultural poses (Savasna, Halasana, Bhujangasana Sarvangasana, and Dhanurasana), their technique, precautions and effects/advantages.

Basics of Tennis:

- History of the game.
- Basic fundamentals.
- Equipment and specifications.
- Marking / layout of court.
- Rules and regulations (number of players, duration of game, number of officials required and general rules of play).
- Major tournaments and Arjuna awardees of the game.
UNIT-V  12 Marks

Sports Injuries:
- Basis of Sports Injuries.
- Common Sports Injuries, such as sprains, strains, fracture, dislocation, abrasions, contusion, bruise, tennis elbow. Their causes, preventive and remedial measures.
- Treatment and care (RICE) of sports injuries.

Disability and Rehabilitation:
- Meaning, types, causes and preventive measures of disability.
- Problems of the disabled. Physical Activity and health for disabled.
- Meaning and scope of Rehabilitation.

References:
PRACTICAL

Max. Marks : 35
Practical : 30
Internal Assessment : 05

GAMES

Basketball or Ball badminton and any other one game of the choice of the student.

Basketball
(a) Measurements (Basket ball ground).
(b) Number of players and officials.
(c) Rules and Regulations of the game.
(d) Fundamental and basic skills.

Football
(a) Measurements (Field & ball).
(b) Number of players and officials.
(c) Rules and Regulations of the game.
(d) Fundamental Skills.

Division of Practical Marks: Marks for each activity shall be divided as under:
Game 10 marks, participation and achievement in sports/games 5 marks, Physical fitness 5 marks, viva voce/practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester which will be assessed by the teacher concerned.

Note:
1. 12 periods per week (6 periods each for theory and practical) shall be allotted to a class.
2. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
3. The theory and practical papers shall consist of 65 and 35 marks each.
4. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.
5. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.
6. A student is required to prepare a practical notebook of a game given in the syllabus and any one game of choice.

Mandatory Instructions for the Colleges:

1. Admission Criteria:
   (i) Any student opting to have Physical Education as an Elective Subject irrespective of the background of the students (sports or non-sports students) must appear in the physical fitness test. Ranking should be prepared and the top 60-80 students should be offered this subject.
   (ii) This subject should be offered to the normal students (not to disabled one).
   (iii) To measure Physical Fitness through Cardiovascular Fitness Test, Cooper’s 9 Minutes or 12 Minutes Run-Walk Test should be conducted.
   (iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.
2. **Periodical Physical Inspections**:  
The University/Authorities with the collaboration of the Department of Physical Education, Panjab University, shall make Periodical Physical inspections of the various colleges to ensure that the teacher student ratio is maintained by all the affiliated colleges for this subject as per the University Guidelines, and for them to ensure that infrastructure (facilities), equipment, books/professional journals and groundmen, a game boy are provided as per the requirements of the subject and directions of the Panjab University, Chandigarh.

3. **Strength of Students**:  
For imparting effective teaching, the strength of students in a theory class shall be between 60-80 while it shall be 30-40 students in practical class.

4. **Infrastructure/facilities and Supporting personnel**:  
For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements such as:

   (i) A track at least of 200 mtrs., it should, however, preferable be raised to 400 mtrs. track.
   (ii) Bare minimum two Malies-cum-Groundmen for maintenance of the grounds and other infrastructure facilities etc.
   (iii) A game boy to supply the sports equipments and water to the students/Assistant Professors on the ground/playfield/arena.
   (iv) A store-keeper for the proper maintenance/accountability of sports equipments in the stores.

5. **Number of Periods**:  
The number of periods for theory and practical shall be 12 periods per week (6 periods each for theory and practical) for classes i.e. B.A. First to sixth semester. Practical period shall be projected in the college time table itself.

6. **Teaching Work Load**:  
   (i) As per the Panjab University Calendar Chapter XX (Page 298) Volume-III, 1996, the maximum teaching work load for a Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.
   (ii) Teachers who are preparing 6 teams for the Panjab University Inter College Competition, their work load shall be counted by including six periods per week in the teaching load of concerned teacher in Physical Education.

7. **Division of Marks (Theory and Practical)**:  
   65% and 35% weightage shall be given to each theory and practical papers.

**Note**: STRICT ACTION SHALL BE TAKEN BY THE UNIVERSITY AGAINST THE COLLEGE(S) WHICH VIOLATES THE ABOVE INSTRUCTIONS.
EDUCATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper-III : FOUNDATIONS OF EDUCATION

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :
The question paper will consist of five units: I, II, III, IV and V. Unit I, II, III and IV will have two questions from the respective unit of the syllabus and will carry 18 marks each. Unit V will consist of eight short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks. The students are required to attempt 6 short answer type questions out of 8 in unit V which will be compulsory. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit for answer (300-350 words for units I, II, III, IV and 75 words for each short answer type question in Unit V).

INSTRUCTIONS FOR THE CANDIDATE :
The students will be required to attempt one question each from Units I, II, III and IV. Unit V will be compulsory. Students are required to attempt 6 short answer type questions out of 8 in Unit V. The words limit will be 300-350 words for Unit I, II, III and IV; and 75 words for each short answer type in Unit V.

Objectives :
1. To acquaint the students with major foundations underlying Education.
2. To enable the students to understand the concept of Philosophy of Education.
3. To enable the students to understand the concept of Educational Sociology and Educational Technology.
4. To enable the students to understand major Philosophies and their Educational implications.

COURSE CONTENTS :

UNIT-I

Philosophical, Sociological, and Technological Foundations of Education—Concept and their Role in Education.

UNIT-II

Difference between Educational Philosophy and Philosophy of Education.
UNIT-III

Information and Communication Technology—Role in Education.

UNIT-IV

Major Philosophies of the World—Idealism, Naturalism and Pragmatism—Main Features and their Contribution to Education.

Books Recommended :


***************
EDUCATION
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

Paper-IV : PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :
The question paper will consist of five units : I, II, III, IV and V. Unit I, II, III and IV will have two
questions from the respective unit of the syllabus and will carry 18 marks each. Unit V will consist of
eight short answer type questions which will cover the entire syllabus uniformly and will carry 18
marks. The students are required to attempt 6 short answer type questions out of 8 in Unit V which will be
compulsory. The question paper should preferably carry internal division of marks for all the sub-questions
of one main question. Preferably set the words limit for answer (300-350 words for Units I, II, III, IV and
75 words for each short answer question in Unit V).

INSTRUCTIONS FOR THE CANDIDATE :
The students will be required to attempt one question each from units I, II, III and IV. Unit V will be
compulsory. Students are required to attempt 6 short answer type questions out of 8 in Unit V. The words
limit will be 300-350 words for Unit I, II, III and IV and 75 words for short answer type question in Unit V.

Objectives :
1. To enable the students to understand the perspective roles of heredity and environment in
   educational development of a child.
2. To enable the students to understand the concept of personality and its place in Education.
3. To make the students familiar with the concept of Special Education; the special needs of the Gifted,
   Backward and Delinquent Children and their Educational implications.
4. To make the students familiar with the concepts of Emotions, Stress and Stress management among
   adolescents.

COURSE CONTENTS :

UNIT-I
Difference between Psychology and Educational Psychology, Significance of Educational
Psychology.

Heredity and Environment – Concepts and their role in Educational development.

UNIT-II
Personality : Concept, Assessment and its Educational Implications.

UNIT-III
Special Education : Meaning and Concept.

Types of Exceptional Children with special reference to the Gifted, Backward and Delinquents
(Their Characteristics and Educational Implications).
UNIT-IV

Emotions and Stress – Concept, Types of Stress (Physical, Psychological and Social), Stress Management with Special Reference to Adolescents.

Books Recommended:


ADULT EDUCATION
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-2018
Semester –III

Theory | Time | Practical
--- | --- | ---
Marks + Internal Assessment | 3 Hours | Marks + Internal Assessment
45 + 05 | 45 + 05

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER:
The question paper will consist of five units. Unit I, II, III & IV will have 2 questions in each unit from the syllabus out of which students have a choice to attempt 1 question in each unit. Unit V is compulsory. It will consist of 3 questions and will cover the entire syllabus uniformly. Each short question in Unit V will carry 3 marks (3x3=9). All units (I, II, III & IV) are of 9 marks (9x5=45).

GENERAL INSTRUCTIONS FOR THE CANDIDATE:
The students will be required to attempt at least one question from each unit I, II, III and IV. Unit V is compulsory and it will consist of 3 questions and will cover the entire syllabus uniformly. All questions carry equal marks.

OBJECTIVES OF THE COURSE:
The main objective of the paper are:

1. To acquaint students with the psychology of adult learner and the strategies employed to motivate them.
2. To impart knowledge to students on adult characteristics and their psychology.
3. To impart knowledge on suitability of teaching – learning material and audio visual material used by new – literates, preraks and Nodal Prerakes.
4. To acquaint students with various agencies involved in adult education program.
5. To provide knowledge to students regarding concept, need, methods and procedures involved in monitoring process.
6. To impart knowledge to students on the concept, meaning, scope and significance of Adult Education.
7. To acquaint students with the knowledge, how adult education play an important role in social and economic development.
THEORY

UNIT I
(i) Characteristics of Adult and Psychology of Adult Learners involved in Adult Literacy Program.
(ii) Roll of Motivational Strategies in Adult Educational Program.

UNIT II
(i) Suitability of Teaching – Learning and Audio – Visual Material used for Neo-Literates.
(ii) Suitability of Training Material for Preraks and Nodal Preraks.

UNIT III
(i) Agencies of Adult Education: Government, Private.
(ii) Monitoring of Adult Education Program: The Paradigm Content, General Consideration, Need for Monitoring.

UNIT IV
(i) Meaning of Adult Education, its Scope, Aims and Significance.
(ii) Role of Adult Education in Social and Economic Development.

Practical/Field Work:
Max Marks : 50 Marks
External : 45 Marks
Internal : 5 Marks

Participation of the Students in the following:

1. Survey of the Area - A brief report.
2. Planning and Organization of Awareness Generating Activities for Adults.
ADULT EDUCATION
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-2018
Semester –IV

<table>
<thead>
<tr>
<th>Theory</th>
<th>Time</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks</td>
<td>+</td>
<td>Internal Assessment</td>
</tr>
<tr>
<td>45</td>
<td>+</td>
<td>05</td>
</tr>
</tbody>
</table>

GENERAL INSTRUCTIONS FOR THE PAPER SETTER:

The question paper will consist of five units. Unit I, II, III & IV will have 2 questions in each unit from the syllabus out of which students have a choice to attempt 1 question in each unit. Unit V is compulsory. It will consist of 3 questions and will cover the entire syllabus uniformly. Each short question in Unit V will carry 3 marks (3X3=9). All units (I, II, III & IV) are of 9 marks (9X5=45).

GENERAL INSTRUCTIONS FOR THE CANDIDATE:

The students will be required to attempt at least one question from each unit I, II, III and IV. Unit V is compulsory and it will consist of 3 questions and will cover the entire syllabus uniformly. All questions carry equal marks.

OBJECTIVES OF THE COURSE:

The main objective of the paper are:

1. To provide an overview on History of Adult Education in India.
2. To impart knowledge to students on various Target Groups involved Under Adult Literacy Programs.
3. To expose students with the Teaching Learning Methodologies for teaching Adults.
4. To acquaint students with the Role and Responsibilities assumed by Preraks and Nodal Preraks.
5. To expose students with Concepts and Strategies involved under Total Literacy Campaign.
6. To acquaint students with the knowledge of various agencies involved in Adult Education Programs.
7. To expose students with the Preparation and Planning of Continuing Education and Awareness Generating Programs.
8. To impart knowledge to students on Linkage of Adult Education with Development.
THEORY

UNIT-I

(i) History of Adult Education in India.
(ii) Target Groups involved under Adult Education Programs.

UNIT-II

(i) Methodology of Teaching Adults in Adult Literacy Programs
(ii) Role of Preraks and Nodal Preraks in Adult Education.

UNIT-III

(i) Total Literacy Campaign : Its Concept and Strategies.
(ii) Agencies Involved under Adult Education : Government and Non-Government.

UNIT-IV

(i) Preparation and Planning of Adult Education Programs : Continuing Education and Awareness Generating Programs.
(ii) Adult Education and its Linkage with Development.

Practical/Field Work:

Max Marks : 50 Marks
External : 45 Marks
Internal : 5 Marks

Participation of the Students in the following:

1. Visits to the 5 Government and Non-Government Agencies – A brief Report in the form of file to be submitted in the practical exam.

2. Preparation of Teaching – Learning Aids used for Teaching Adults.

***************
MUSIC (Vocal)

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

General Instructions

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be up to ten students in one section in practical class.

3. There should not be more than eight students in a batch for practical examination.

4. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.

5. The candidate can take vocal music along with instrumental music.

6. The candidate can also take instrumental music with tabla.

7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

Paper-A: THEORY (3 Hours duration) : 45 marks

(Duration 45 minutes 06 practical+ 02 Theory periods per week)

Paper-B: Practical (20 minutes duration) : 45 marks

(i) Viva : 35 marks
(ii) Harmonium : 05 marks
(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 +05) : 10 marks

Total : 100 marks

PAPER-A: THEORY (Duration 45 minutes, 02 Theory periods per week)

Unit-I

1. Brief knowledge of Gram.
2. Kanth Sadhana.
3. Gharana: definition and importance
Unit–II
1 Knowledge of Alap, and its various forms.
2 Explain the following: - Upaj, Mukhda, Bol-Baant, Khatka, Murki, Kan.
3 Knowledge of Lakshans of Ragas in Modern Period.

Unit–III
1 Brief life sketches of the great masters of Music and their contributions.
   (i) Ustad Alladiya Khan
   (ii) Pt. Bhimsen Joshi
   (iii) Sh. Krishan Rao Shankar Pandit.

Unit–IV
1 Description and Notations of the prescribed Ragas and Talas :

   (i) To write drut khyal in any one of the prescribed ragas :-Malkauns, Bhairav with Alap and Taans
   (ii) To write prescribed ragas of the syllabus with Alap and Taans
   (iii) To write the notation of Tala :- Jhaptala, Chartala (single & double)
   (iv) To write the description of detailed and non detailed Ragas: Chandrakauns, Kalingda.

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

Unit-V
1.The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PAPER-B  PRACTICAL (Duration 45 Minutes, 06 practical periods per week)
1. One Drut Khayal in each of the following Ragas with Alaps and Tanas:Malkauns, Bhairav.
2. One lakshana geet/ Sargam geet in any prescribed ragas
3. Ability to play Jhaptala on Tabla
4. Ability to recite following talas by hand: Tilwada, Chartala
5. Ability to play on Harmonium at least three alankaras based on Shudh swaras and sing alongwith it.
6. Ability to recognize the prescribed ragas sung by the examiner
7. Knowledge of the following Non-detailed Raga: Ability to sing Aroh, Avroh and Pakad with Tanpura: Chandrakauns, Kalingda.
8. Ability to sing one Drut khayal of your course with harmonium.
Books Recommended:

8. *Sangeet Shastra Vigyan* : Panna Lal Madan
9. *Sangeet Kala ka Itihas* : Panna Lal Madan

---------------------
MUSIC (Vocal)

SEMESTER-IV

General Instructions

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There should not be more than eight students in a batch for practical examination.

3. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.

4. The candidate can take vocal music along with instrumental music.

5. The candidate can also take instrumental music withTabla.

6. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

7. In all, **nine** questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. **The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 02 marks each.**

8. There would be upto ten students in one section in practical class

---

**Paper-A: THEORY (3 Hours duration) : 45 marks**

(Duration 45 minutes 06 practical+ 02 Theory periods per week)

**Paper-B: Practical (20 minutes duration) : 45 marks**

(i) Viva : 35 marks
(ii) Harmonium : 05 marks
(iii)Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 +05) : 10 marks

Total : **100 marks**

---

**PAPER-A: THEORY (Duration 45 minutes, 02 Theory periods per week)**

**Unit-I**

1. Historical development (in brief) of North Indian Music during the Medieval Period.
2. Brief knowledge of Murchhana.
3. Importance of Notation system.
Unit-II

1. Importance of Tanpura and Sahayak Nada
2. Varieties of Gamak
3. Explain the following :- Meend, Bol-Alap, andolan, boltana, Badat.

Unit-III

1. Brief life sketches of great masters of music and their contributions:
   i) Ustad Amir Khan Sahib
   ii) Ustad Faiyaz Khan Sahib
   iii) Pt. Onkar Nath Thakur

Unit-IV

1. Description and Notations of the prescribed Ragas and Talas :-
   i) To write in notation a drut khyal in any one of the prescribed Raga of the syllabus:- Bihag,
      Bageshwari
   ii) To write in notation a vilambit khyal in any prescribed raga of the syllabus.
   iii) To write the notations of Talas: Roopak, Tilwada (Single & Double)
   iv) To write the description of Ragas :- Non detailed: Maru Bihag, Rageshwari

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 02 marks each.

PAPER-B   PRACTICAL (Duration 45 Minutes, 06 practical periods per week)

1. One Drut Khayal in each of the following Ragas with Alaps and Tanas: Bhiplasi and Maru Bihag.

2. One vilambit Khayal in any of the detailed ragas prescribed in the course with extempore alaps and tanas.

3. Ability to play Ek taal on Tabla

4. Ability to recite following talas by hand: Jhaptala, Roopak

5. Ability to play on Harmonium at least three Alankaras based on komal and Teevra Swaras and sing alongwith it.

6. Ability to recognize the prescribed ragas sung by the examiner

7. Knowledge of the following Non-detailed Raga: Ability to sing Aroh, Avroh and Pakad with Tanpura: Maru Bihag, Rageshwari

8. Ability to sing one Drut khayal of your course with harmonium
Books Recommended:

8. *Sangeet Shastra Vigyan* : Panna Lal Madan
9. *Sangeet Kala ka Itihas* : Panna Lal Madan

***************
MUSIC (Instrumental)
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

General Instructions

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be up to ten students in one section in practical class.

3. **There should not be more than eight students in a batch for practical examination.**

4. Harmonium can be used while singing Alankars.

5. In all, *nine* questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The **ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.**

6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.

7. **While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.**

8. The candidate can take vocal music or Tabla along with instrumental music.

**Paper A : THEORY (3 Hours duration) : 45 marks**

**Duration 45 minutes 06 practical + 02 Theory periods per week**

**Paper-B: PRACTICAL (20 minutes duration) : 45 marks**

(i) Viva : 35 marks
(ii) Harmonium : 05 marks
(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 +05) : 10 marks

Total : **100 marks**

**PAPER-A: THEORY (Duration 45 minutes, 02 Theory periods per week)**

**Unit-I**

1. Ghamak and its varieties.
2. Brief knowledge of Gram.
3. Gun and Dosh of Vadak.
Unit–II

1. Gharana (definition and importance)
2. Knowledge of Alap, and its various forms.
3. Knowledge of Avirbhav and Tirobhav, Alaptav- Bahutav

Unit–III

1. Brief life sketches of the great masters of Music and their contributions.
   (i) Ustad Inayat Khan
   (ii) Ustad Allaudin Khan
   (iii) Pt. Vishnu Digambar Pluskar

Unit–IV

Description and Notation of the prescribed Ragas of Syllabus: -
   1. To write one Drut Gat (in any prescribed raga of your course with Toras)
   2. Description and notation of Raga:- Bihag, Bhiplasi with todas
   3. Notation of Ektal and Rupak tala with dugun layakaries

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

Unit–V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PAPER-B   PRACTICAL (Duration 45 Minutes, 06 practical periods per week)

1. One Razakhani (Drut) Gat in each of the following Ragas with Todas and Jhalas : Bihag, Bhiplasi
2. Knowledge of the following Non-detailed Raga: Ability to sing Aroh, Avroh and Pakad : Maru Bihag, Patdeep
3. Use of one swara meend and kan.
4. Ability to play teen tala on Tabla
5. Ability to sing three alankras of Shudh swaras with the help of harmonium.
6. Ability to demonstrate the following talas by hands in Ekgun and Dugun Layakaries: Ektala, Rupak
### Books Recommended:

1. **Sangeet Visharad**  
   : Sangeet Karyalaya, Hathras (U.P.).

2. **Rag Parichaya Part II**  

3. **Sangeet Kaumudi Part IV (Punjabi)**  
   : S.S. Kareer, published by Punjabi University, Patiala.

4. **Hamare Sangeet Ratna**  
   : Sangeet Karyalaya, Hathras (U.P.).

5. **Sangeet Sar Part II**  
   : Mrs. Veena Mankaran, Raj Publishers (Regd.) Adda Tanda, Jalandhar City.

6. **Kramik Pustak Malika Part I to IV**  
   : Pt. V.N. Bhatkhande, Sangeet Karyalaya, Hathras.

7. **Rag–Vigyan Part I to VII**  
   : Pt. V. Patwardhan.

8. **Sangeet Shastra Vigyan**  
   : Panna Lal Madan

9. **Sangeet Kala ka Itihas**  
   : Panna Lal Madan
MUSIC (Instrumental)
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

General Instructions:-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.

2. There would be up to ten students in one section in practical class.

3. There should not be more than eight students in a batch for practical examination.

4. Harmonium can be used while singing Alankars.

5. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.

7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.

8. The candidate can take vocal music or Tabla along with instrumental music.

Paper-A: THEORY (3 Hours duration) : 45 marks
(Duration 45 minutes 06 practical + 02 Theory periods per week)

Paper-B: PRACTICAL (20 minutes duration)
(i) Viva : 35 marks
(ii) Harmonium : 05 marks
(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 + 05) : 10 marks

Total : 100 marks

PAPER-A: THEORY (Duration 45 minutes, 02 Theory periods per week)

Unit-I

1. Historical developments in North Indian Music during Medieval period.
2. Brief knowledge of Murchhana system
3. Classification of Indian Musical Instruments
Unit-II

1. A Study of Shuddh, Chhaya Lag and Sankiran Ragas
2. Time theory of Indian Ragas
3. Definitions and explanations of the musical terms (not more than 100 words):
   - Kampan, Meend, Ghaseet, Zamzama, Krintan

Unit–III

1. Brief life sketches of great masters of music and their contributions:
   i) Ustad Vilayat Khan
   ii) Ustad Abdul Halim Zafar Khan
   iii) Smt. Annapurna Devi Ji

Unit–IV

Description and Notation of the prescribed Raga of syllabus:

i) To write one Maseetkhani Gat (in any prescribed raga of your course).
ii) To write the notation of Razakhani Gat of with Todas: Raga Madhuwanti, Hamir
iii) To write the notation of Tivra and Dhamar with dugun

NOTE: - Both the questions from this part must contain one notation of Raga along with the notation of Talas/description of Ragas.

Unit-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carrying 01 marks each.

PAPER-B PRACTICAL (Duration 45 Minutes, 06 practical periods per week)

1. One Maseetkhani Gat in any raga from your course
2. One Razakhani (Drut) Gat in each of the following Ragas with Todas and Jhalas: Hamir, Madhuwanti.
3. One Madhya laya gat with alap and todas in any prescribed raga other than teentala.
4. Knowledge of the following Non-detailed Raga: Aroh, Avroh and Pakad: Multani, Kedar
5. Use of two swara meend and kan.
6. Ability to play Jhaptala on Tabla
7. Ability to sing three alankars of komal and teevra swaras with the help of harmonium.
8. Ability to demonstrate the following talas by hands in Ekgun and Dugun Layakaries: Tivra, Dhamar
Books Recommended:

8. *Sangeet Shastra Vigyan* : Panna Lal Madan
9. *Sangeet Kala ka Itihas* : Panna Lal Madan

***************
TABLA (Instrumental Music)

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

General Instructions

1. In the case of private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. The candidate can take vocal music along with instrumental music or Tabla.
3. The candidate can also take instrumental music with tabla.
4. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
5. In all, eight questions will be set. The question paper will be divided into three units (I, II & III). Unit 1\textsuperscript{st} and 2\textsuperscript{nd} will contain three questions each. Candidates are required to attempt three questions selecting at least one from each unit. Unit III will consist of two compulsory questions, in which question no. 7 will be based on notation and question no. 8 will be based on objective type questions. Objective type will consist of ten short answer type questions covering entire syllabus uniformly. Candidates are required to attempt nine questions. All questions carry equal marks.
3. There should not be more than eight students in a batch for practical examination.
4. There would be upto ten students in one section in practical class.

Paper-A : THEORY (3 Hours duration) : 45 marks

Paper-B : PRACTICAL (20 minutes duration) : 45 marks

(i) Viva : 30 marks
(ii) Harmonium : 05 marks
(iii) Tabla : 05 marks
(iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5 + 5) : 10 marks

Total : 100 marks

Paper-A : THEORY

UNIT-I

(a) Origin of Tala

(b) Definition of Tisra, Chatasra, Khand, Mishar and Sankeeran jati

(c) Define Uthan, Rau, Chakradar, Gat & Nagma with example

(d) Knowledge of playing techniques of the following bol Dhaghe Tirkit, Ghe-Ghe, Gadigan Kdaan.
UNIT-II

(a) Knowledge of Uttar Bhartiya Tala system.
(b) Introduction of V.D. Paluskar Tala notation system.
(c) Importance of Gharana of Tabla
(d) Life sketch of the following:
   - Ustad Allah Rakkha Khan
   - Ustad Ahemadjan Thirakuwa

UNIT-III

(a) Ability to write in notation of Uthan, Peshkar, Kayda, Palta in the following Talas – Jhaptal, Roopak, Sultal.
(b) Nine objective type question (covering entire syllabus)

Paper-B: PRACTICAL

(a) Proper Badhat of following Talas on Tabla Jhaptal, Sultal, Rupak
(b) Improvisation of laggi in Kaharawa
(c) Jhaptal- Peshkar, Two Palatas, Two Kaydas and Two Palatas, One simple Tukra
(d) Sultal – Thah, Dugun & Chaugun
(e) Practical Knowledge of Khemta Taal
(f) Ability to play Nagma on Harmonium in Jhaptal
(g) Tuning of Tabla

--------------------------
B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM ) SYLLABUS

TABLA (Instrumental Music)

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

General Instructions

1. In the case of private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. The candidate can take vocal music along with instrumental music or Tabla.
3. The candidate can also take instrumental music with tabla.
4. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
5. In all, eight questions will be set. The question paper will be divided into three units (I, II & III). Unit 1st and 2nd will contain three questions each. Candidates are required to attempt three questions selecting at least one from each unit. Unit III will consist of two compulsory questions, in which question no. 7 will be based on notation and question no. 8 will be based on objective type questions.
   Objective type will consist of ten short answer type questions covering entire syllabus uniformly. Candidates are required to attempt nine questions. All questions carry equal marks.
6. There should not be more than eight students in a batch for practical examination.
7. There would be upto ten students in one section in practical class.

Paper-A : THEORY (3 Hours duration) : 45 marks

Paper-B : PRACTICAL (20 minutes duration) : 45 marks

   (i) Viva : 30 marks
   (ii) Harmonium : 05 marks
   (iii) Tabla : 05 marks
   (iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5 + 5) : 10 marks

Total : 100 marks

Paper-A : THEORY

UNIT-I

(a) Origin & Evolution of tabla.
(b) Detail study of ten Pranas of Tabla.
(c) Write notation in Dugun, Tigun & Chaugun of the following talas :- Teental, Ektal, Jhaptal & Sooltal.
(d) Playing technique of Delhi, Ajarada, Lucknow, Farrukhabad, Punjab and Banaras Gharana.
UNIT-II

(a) Knowledge of Karnataka taal system.
(b) Comparative study of Ultari & Dakshni Bhartiya Tala System.
(c) Ability to write V.D. Paluskar tal notation system of the following Taalas:- Teental, Ektal, Jhaptal, Sooltal.
(d) Life Sketch & Contribution of the following:-
   (i) Amir Hussain Khan
   (ii) Bhai Bahadur Singh

UNIT-III

(a) Ability to write in notation of Gat, Chakradar, Rela & Laggi in following Taalas:- Roopak, Tivra, Ada-Chartaal
(b) Nine objective type question (covering entire syllabus)

Paper-B : PRACTICAL

(a) Proper Badhat of the following Talas on Tabla: Rupak, Tivra, Ada-Chartaal.
(b) Improvisation of laggi in Dadra
(c) Rupak- Peshkar, Two Palatas, One Kayada and Two Paltas, One Mohra.
(d) Teental – Two Rela with Two Paltas, Two Chakradaar Paran, One Charkrdaar Tukra
(e) Practical Knowledge of Playing above taalas with vocal & instrumental music performance
(f) Ability to play Nagma on Harmonium in Rupak
(g) Tuning of Tabla.

Note:- It is understood that candidate must have knowledge of tala of Semester 3rd also.

Books Recommended:

1. Taal Prabhakar Prashnottari : G.C. Srivastava
2. Tabla Tarang : B.S. Nigam
3. Taal Prakash : Sangeeta Karyalaya, Hathras
4. Avanaddha Vadya : M.P. Sharma
5. Hamare Sangeet Ratan : Sangeet Karyalaya, Hathras
6. Tabla ki Utpatti Evam Vikas : Yognaya Shukla
7. Tabla Vadan Part-1 : Jagmohan Sharma
8. Taal Parichay Part-1 : G.C. Srivastava

Ten Books recommended other than already recommended
Aakrosh By : G.C. Srivastava
INDIAN CLASSICAL DANCE

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-2018
SEMESTER-III

GENERAL INSTRUCTIONS:

1. In case of the private candidates, there would be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be upto ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic Instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance along with Vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

THEORY (Time duration 3 hours) : 45 Marks
PRACTICAL (20 minutes duration) : 45 Marks
Internal Assessment (Theory and Practical) (5+5) : 10 Marks

Paper-A: THEORY

Unit-I

1. Definition of the following:
   Kasak-Masak, Bharramri, Chari, Astooti
2. Present status of Kathak Dance.

Unit-II

1. Life Sketch of Pt. Shambhu Maharaj
2. Importance of Gayan and Vadan in Kathak Dance
3. Guru Shishya Prampra

Unit-III

1. Comparision of Classical and Folk Dance.
2. Folk Dance of Himachal.
B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM ) SYLLABUS

Unit-IV

1. Theka and Bol Tatkar in Ekgun, Dugun and Chaugun layakaries of Ada Chautal, Ektaal and Teental
2. Notation of Salami, Amad, Tora and Tihai in Ada Chautal.
3. Notation of Thaat, Amad, Tora and Paran in Teental.
4. Write Nagma in Teental and Adachautaal.
5. Theka and Tatkar of Ektaal in Ekgun, Dugun and Chougun layakaries.

Unit-V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B : PRACTICAL

I. Ada Chautal:
   1. Theka and Tatkar with Ekgun, Dugun and Chaugun Layakaries.
   2. Salami : 1
   3. Tora : 2
   4. Amad : 1
   5. Nagma : 1
   6. Tihai : 1

II. Teentaal
   1. Tatkar with Ekgun, Dugun and Chaugun Layakaries
   2. Thaat : 1
   3. Amad : 1
   4. Tora : 2
   5. Paran : 2
   6. Nagma : 1
   7. Ektaal:
   8. Theka
   9. Tatkar

III. One Gat of Ghunghat

IV. Padhant of above mentioned material on hand in teen taal and Ada chautaal

V. Ability of play Nagma in teental

VI. Theka of Ektaal in Ekgun Layakari on hand

VII. Practical Demonstration of Gidha.

--------------
INDIAN CLASSICAL DANCE
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

General Instructions:

1. In case of private candidates, there would be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be upto ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance music along with vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

THEORY (Time duration 3 hours) : 45 Marks

PRACTICAL (20 minutes duration) : 45 Marks

Internal Assessment (Theory and Practical) (5+5) : 10 Marks

Paper-A: THEORY

Unit-I

1. Definition of the following:
   Gati, Paran, Tisrajali Paran, Chatusrajati Paran, Premlu.
2. Brief knowledge of Kathakali.
3. Importance of Ghungroo in Kathak Dance

Unit-II

1. Gharanas of Kathak Dance and their comparison
2. Merits and demerits of Kathak Dance
3. Contribution of Pt. Rajender Gangani ji in the field of Kathak Dance
Unit-III

1. Knowledge of thumri
2. Knowledge of Chhau Nritya.
3. Knowledge of different Instruments used in Kathak Dance.

Unit-IV

1. Notation of Theka and Bol-Tatkar in Ekgun, Dugun and Chaugun layakaries in Ada chautaal, Teentaal and Ektaal.
2. Notation of Chakardar Tora Chakardar paran, Kavit, Tihai and Nagma in Teentaal.
3. Write Tihai, Thaat, Paran, Chakardar Paran, Kavit and Nagma.
4. Theka of Ektaal in Ekgun, Dugun and Chaugun layakaries with Tihai, Tora and Amad.

Unit-V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL

I. Adachautal
   1. Tatkar with Ekgun, Dwigun and Chaugun Layakari
   2. Paran : 1
   3. Chakardary Paran : 1
   4. Thaat : 1
   5. Tihai : 1
   6. Kavit : 1

II. Teentaal
   1. Tatkar with Ekgun, Dugun, Chaugun and Athgun layakaries.
   2. Kavit : 1
   3. Chakardar Tora : 1
   4. Chakardar Paran : 1
   5. Tihai : 1
   6. Nagma : 1
   7. Ektaal
   8. Amad : 1
   9. Tora : 1
   10. Tihai : 1

III. One Gat Nikas of Mataki
IV. Padhant of above mentioned material in teen taal and Ada Chautaal on hand
V. Ability to play Nagma in Ada Chautaal
VI. Theka of Ekgun and Dwigun Layakaries of above mentioned taals.
VII. Practical Demonstration of a Bhangra steps.
FINE ARTS

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper A : Theory (History of Art) Max. Marks : 54

Time : 3 Hours

Objectives :

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

INSTRUCTIONS FOR PAPER SETTER AND CANDIDATES:

1. The paper carries 54 marks.
2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
3. The first question shall be of short answer type containing 12 questions spread over the whole syllabus. Students are required to attempt 9 questions. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a Compulsory question.
4. 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 9 marks.

Unit-I : History of Indian Painting

• Western Indian Minitaure Painting -- Decorative Designs and Paintings of the 1439 Kalpasutra Manuscript.
• Pre Mughal Painting -- Chaurapanchashika and Nimat Nama Manuscript Paintings

Unit-II : History of Indian Sculpture

• Gandhara –Fasting Buddha and Mahaparinirvana of Buddha
• Mathura –Portraits of the Kushana Kings.
• Sarnath –Seated Buddha.
• Sultanganj –Bronze Buddha.

Unit-III : History of Western Art

• Early Renaissance : Masaccio–Expulsion; Holy Trinity.
• High Renaissance: Leonardo Da Vinci – Last Supper; Michelangelo—Creation of Adam from the Sistine ceiling; Pieta.
• Northern Renaissance : Durer – Knight, Death and the Devil.

Unit-IV : Definition of Key Terms and General Concepts

• Composition – Volume, Texture, Space, Unity, Harmony, Rhythm, Proportion.
• Six Limbs of Indian Painting.

Pedagogy : The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.
Suggested Readings:


Paper–B: PRACTICAL

This paper consists of three sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Max. Marks</th>
<th>Max. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Landscape Painting (on the spot)</td>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>2. Life Sketching</td>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>3. Poster &amp; Book Cover Design or Clay Modelling</td>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>Total:</td>
<td>90 marks</td>
<td></td>
</tr>
</tbody>
</table>

Note: The paper-setter is required to set papers in all three options in Section-3.

SECTION-I: LANDSCAPE PAINTING (on the spot)

LANDSCAPE PAINTING: To study relationships of objects, their arrangements in the foreground, middle distance and distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective.

Medium: Oil, Water or Pastel colours.  
Size: ½ Imperial.

SECTION-II: LIFE SKETCHING

LIFE SKETCHING: From live Model or Cast-Monochrome in any medium, ½ Imperial Sheet.  
Emphasis should be on structure, proportion, foreshortening, textural values, posture and individuality of the model.
SECTION-III: POSTER & BOOK COVER DESIGN OR CLAY MODELLING

POSTER:
Commercial and advertising designing.
Understanding of Colour harmony and contrast.
Imparting understanding of Printing purposes.

BOOK COVER DESIGN:

Concept of Lettering: Block lettering, Roman lettering, Script lettering and free hand brush lettering.
To design book cover with illustration and title, author’s name etc. in three colours (excluding the background colour)

Medium: Pen & Ink, Poster Colours.

Size: 25 cms. x 20 cms.

OR

CLAY MODELLING:
To render animal or human forms in clay in relief. Minimum number of three forms to be composed. Size of slab minimum 30 cms x 25 cms. Creative Pottery—Creative Pot making in clay—any size.

SESSIONAL MARKS: 50 (based on work related equally to 3 sections).
Sessional Marks will be given on the basis of the work done during the session, in all the 3 sections. At least three works will be submitted in each section. Sessional marks shall be given by external and internal examiners jointly. In case of difference of opinion, marking may be done separately by each examiner giving marks out of 50% of the aggregate of the Sessional Marks.

NOTE:
1. Choice of option to be offered would depend on the facility available in each Institution concerned.
2. Minimum of 9 hours’ teaching per week be assigned to the subjects and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week).
FINE ARTS

SEMESTER-IV

Paper A : Theory (History of Art)                                                               Max. Marks : 54

Time : 3 Hours

Objectives :
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

INSTRUCTIONS FOR PAPER SETTER AND CANDIDATES:

1. The paper carries 54 marks.
2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
3. The first question shall be of short answer type containing 12 questions spread over the whole syllabus. Students are required to attempt 9 questions. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a Compulsory question.
4. 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 9 marks.

Unit-I : History of Indian Painting

• Mughal Paintings of Hamza-Nama ; South Kensington Akbar Nama ; Jahangiri Portraits and illustrations of birds and animals.
• Deccani Paintings –Tarif-i-Hussain-Shahi from Ahmednagar ; Najam-ul-Ulum from Bijapur.

Unit-II : History of Indian Sculpture

• Deogarh –Vishnu Anantashayana.
• Ellora—Ravana Shaking Mount Kailasha.
• Mahabalipuram –Descent of Ganges (Kiratarjuniyam panel).

Unit-III : History of Western Art

• Baroque : Rubens –Garden of Love.
• Neo-Classicism and Romanticism : David –The Death of Socrates; Constable-The Haywain.
• Realism : Courbet –Artist’s Studio.

Unit-IV : Definition of Key Terms and General Concepts

• Art and Craft ; Design ; Mosaic ; Tribal Art ; Folk Art ; Piece-mould ; Waste-mould.

Pedagogy : The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.
Suggested Readings:


Paper–B : PRACTICAL

This paper consists of three sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Max. Marks</th>
<th>Max. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Landscape Painting (on the spot)</td>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>2. Life Sketching</td>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>3. Poster &amp; Book Cover Design or Clay Modelling</td>
<td>30</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

Total : 90 marks

Note: The paper-setter is required to set papers in all three options in Section-3.

SECTION-I : LANDSCAPE PAINTING (on the spot)

LANDSCAPE PAINTING: To study relationships of objects, their arrangements in the foreground, middle distance and distance, texture, relative size of masses, tones and colours, use of linear and aerial perspective.

Medium: Oil, Water or Pastel colours.

Size: ½ Imperial.

SECTION-II : LIFE SKETCHING

LIFE SKETCHING: From live Model or Cast-Monochrome in any medium, ½ Imperial Sheet.

Emphasis should be on structure, proportion, foreshortening, textural values, posture and individuality of the model.
SECTION-III : POSTER & BOOK COVER DESIGN OR CLAY MODELLING

POSTER :
Commercial and advertising designing.
Understanding of Colour harmony and contrast.
Imparting understanding of Printing purposes.

BOOK COVER DESIGN :
Concept of Lettering : Block lettering, Roman lettering, Script lettering and free hand brush lettering.
To design book cover with illustration and title, author’s name etc. in three colours (excluding the background colour)
Medium : Pen & Ink, Poster Colours.
Size : 25 cms. × 20 cms.

OR

CLAY MODELLING :
To render animal or human forms in clay in relief. Minimum number of three forms to be composed. Size of slab minimum 30 cms × 25 cms. Creative Pottery—Creative Pot making in clay—any size.

SESSIONAL MARKS : 50 (based on work related equally to 3 sections).
Sessional Marks will be given on the basis of the work done during the session, in all the 3 sections. At least three works will be submitted in each section. Sessional marks shall be given by external and internal examiners jointly. In case of difference of opinion, marking may be done separately by each examiner giving marks out of 50 % of the aggregate of the Sessional Marks.

NOTE : 1. Choice of option to be offered would depend on the facility available in each Institution concerned.
2. Minimum of 9 hours’ teaching per week be assigned to the subjects and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week).
HISTORY OF ART
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

Note:
1. Each paper Carries 100 marks.
2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
3. The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a **Compulsory question.**
4. 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 18 marks.

HISTORY OF INDIAN PAINTING (from ca. 9th century to ca. 1800 A.D.) AND SCULPTURE (from ca. 4th century A.D. to ca. 6th century A.D.)

Objectives:
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

Unit-I
Development of Miniature Painting:
(a) Eastern Indian.
(b) Western Indian.

Unit-II
Painting under the Mughals:
(a) Akbar.
(b) Jahangir.
(c) Shahjahan.

Unit-III
Indian Miniature Painting:
(a) Rajasthani Schools—Mewar, Bundi, Kishangarh.
(b) Pahari Schools—Basohli, Guler, Kangra.
Unit-IV

Indian Sculpture in the Classical Phase :
Sculpture under the Guptas – Mathura, Sarnath, Deogarh, Ajanta.

Pedagogy :
The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings :


-----------------------
HISTORY OF ART

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

Max. Marks : 100
Time: 3 Hours

Note:

1. Each paper Carries 100 marks.
2. The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.
3. The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a Compulsory question.
4. 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 18 marks.

HISTORY OF EUROPEAN PAINTING AND SCULPTURE (from 1300 A.D. to ca. 1850 A.D.) and THEORY AND PRINCIPLES OF ART APPRECIATION

Objectives:

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

Unit-I : History of European Painting and Sculpture
(a) Early Renaissance–Masaccio, Donatello.
(b) High Renaissance–Lenoardo Da Vinci, Michelangelo, Raphael, Titian.

Unit-II: Baroque Period
Caravaggio, Rubens, Rembrandt, Bernini, Claude Lorrain.

Unit-III:
(b) Realism–Courbet.

Unit-IV : Theory and Principles of Art Appreciation
(a) Definition of the term Miniature Painting
(b) Six limbs of Indian Painting (Shadanga) and their manifestations in actual works.
(c) Indian concept of primary colours and their symbolic meaning.
(d) Indian theory of Rasa, Bhava and Beauty.
Pedagogy:
The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings:


****************
ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper-III: HISTORY AND CULTURE OF INDIA FROM 320 A.D. TO 650 A.D.

Objectives:
The main objective of this paper is to make students do a detailed study of the political history and cultural development starting from the Gupta period till the death of Harsha.

INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

1. The theory question paper will be of 90 marks and 10 marks will be for internal assessment.

2. For Private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper-setter must put note (2) in the question paper.

3. The paper-setter is required to set 9 questions in all. All questions shall carry equal marks. The paper shall be of 3 hrs. duration.

4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks OR a question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

5. The map question shall have the following topics:
   (a) Extent of Chandragupta II’s empire.
   (b) Extent of Harsha’s empire.
   (c) Distribution of monuments of the Gupta-Vakataka period.

6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper-setter shall set 2 questions from each unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each unit. Each question shall carry 18 marks.

UNIT-I

1. (a) Political condition of Northern India on the eve of the rise of the Guptas.
   (b) Foundation of the Gupta Empire.

2. The Imperial Gupta rulers.
UNIT-II
1. Decline of the Gupta Empire.
2. The Gupta administration.
3. Cultural and Economic achievements during the Gupta period.

UNIT-III
1. The Vakatakas of the Deccan.
2. The Huna Invasions and their impact.

UNIT-IV
1. The Aulikaras of Daspura, the Maukharis and the Later Guptas, Pallavas & Chalukyas of Badami, Vatapi.
2. The Pushyabhutis of Thanesar: Political and Cultural survey.

Pedagogy of the Course Work:
The students are expected to have an idea of the original sources for the reconstruction of the history of the period. Maps and transparencies should be put to use for better understanding by the students.

Essential Readings:

B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM) SYLLABUS

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

Paper-IV: HISTORY AND CULTURE OF INDIA FROM 650 A.D. TO 1200 A.D.

Objectives:
The primary objective of this paper is to acquaint the students about the political development in India after the death of Harsha. A detailed study of the various dynasties ruling in the different parts of our country will be made.

INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

1. The theory question paper will be of 90 marks and 10 marks will be for internal assessment.

2. For Private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. The paper-setter is required to set 9 questions in all. All questions shall carry equal marks. The paper shall be of 3 hrs. duration.

4. The first question shall be of short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each short answer type question shall be of 2 marks OR A question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

5. The map question shall have the following topics:
   (a) Extent of Pratihara Empire.
   (b) Distribution of Temples—Lingaraja, Konark, Jagannath, Kandariya Mahadev, Parsvanath, Lakshman, Osian, Mahabalipuram.
   (c) Important Centres of Education—Nalanda, Ujjain, Pushpagiri, Nagarjunakonda.

6. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. The paper-setter shall set 2 questions from each unit and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each unit. Each question shall carry 18 marks.

UNIT-I:
1. Pratiharas
2. Palas

UNIT-II:
1. Paramaras
2. Chahamanas
UNIT-III:
1. Gahadavalas
2. Chandellas

UNIT-IV:
1. Rashtrakutas
2. Cholas.

Pedagogy of the Course Work:
The students should be given an outline of the original sources that help to reconstruct the political history of the dynasties and the kings. Slides and transparencies should be used in the class room lectures.

Essential Readings:


***************
DEFENCE & STRATEGIC STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS

Note:
1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper: EVOLUTION OF WARFARE IN INDIA

M. Marks : 70
Time : 3 Hrs.

Objective:
This paper deals with the salient features of Indian warfare with emphasis on Military Organization, Battle techniques and Leadership.

SECTION-I

1. Battle of Hydaspes and Alexander’s Art of War.
2. Kautilya’s Philosophy of War.

SECTION-II

3. Military Organizations and Battle Techniques of Rajputs and Turks with particular reference to Battle of Tarain, 1192 A.D.
4. Military Organizations and Battle Techniques of Mughals and Afghans with particular reference to First Battle of Panipat, 1526 A.D.

SECTION-III

5. Battle techniques of Southern Muslim Sultans with particular reference to Battle of Talikota, 1565 A.D.
SECTION-IV

1. Military organization and Battle Techniques of Sikh Army under Maharaja Ranjit Singh.
2. Warfare under East India Company with particular reference to Battle of Assaye 1803 A.D. and Chilianwala 1849 A.D.
3. Indian Armed Forces 1858 to 1947: General Evolution and Development (A Broad Perspective).

Books Recommended:


Paper: **PRACTICAL**

Max. Marks : 20
Time: 1 hrs

**Note:**

1. There will be of 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.

2. Practical exercise should be carried out on drawing sheets with explanatory notes or on computer.
SECTION-A Practical Test

Marks : 10

Note:

1. There will be three questions in all carrying five marks each and candidates will be required to attempt any two questions.
2. Examiners are required to set the question paper at least half an hour before the examination.

Course contents for practical

1. Bearing: Definition, Types and Inter conversion of Bearing in detail.
2. Liquid Prismatic Compass: Features and Functions of its various parts.
3. Determination of Individual Compass Error

SECTION-B

Marks : 10

1. Practical Record
2. Viva Voce
DEFENCE & STRATEGIC STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS

Note : 1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question form each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper : EVOLUTION OF WARFARE

M. Marks : 70
Time : 3 Hours

SECTION-I

1. Military Organizations and Battle techniques of Macedonians and Persians with particular reference to Battles of Arbella, 331 B.C.
2. Military Organization and Battle Technique of Romans and Carthagenians with particular reference to the Battles of Cannae, 216 B.C.
3. Military Organizations and Battle Techniques of Barbarians with particular reference to Battle of Adrianople, 378 A.D.

SECTION-II

4. Military Organizations and Battle Techniques of the English and French with reference to the Battle of Hastings, 1066 A.D.
5. The Mongol Art of War under Changez Khan and his successors.

SECTION-III


SECTION-IV

8. Naval Warfare with particular reference to the Battle of Trafalgar, 1805.
9. American Civil War (1861-65) : Causes and Events.
Books Recommended:

4. Fuller, JFC, Conduct of War, Eyre & Spottiswoode (Publisher) Ltd., Great Britain, 1962.
5. Fuller, JFC, Machine Warfare, the Infantry Journal, University of Michigan, 1943.

Paper: PRACTICAL

Max. Marks: 20
Time: 1 hrs

Note:

1. There will be 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.
2. Practical exercise should be carried out on drawing sheets with explanatory notes or on computer.

SECTION –A: Practical Test

Note:

1. There will be three questions in all carrying five marks each and candidates will be required to attempt any two questions.
2. Examiners are required to set the question paper at least half an hour before the examination.

Course contents for practical

1. Setting of Map: With Compass and without Compass.
2. Marching by Compass: To set the Compass in a particular direction for Night March.
3. Finding position on the Maps: Determine One’s and Enemy’s position on the Map by Resection and Intersection method.

SECTION-B

Marks: 10

1. Practical Record
Marks: 5

2. Viva-Voce
Marks: 5

***************
INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

(i) *The syllabus has been divided into four units.*

There shall be 9 questions in all. The first question is *compulsory* and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) One question from Unit IV shall be set on the map.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

*The paper-setter must put note (iii) in the question paper.*

**Explanation:**

1. Each essay type question would cover about one-third to one half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:

   - Map: 10 marks
   - Explanatory Note: 08 marks

   **Note:** In case, a paper setter chooses to set a question on important historical places, the paper-setter will be required to ask the students to mark 10 places on map of 1 mark each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

**Paper: HISTORY OF INDIA, 1750-1964 A.D.**

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>90  Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

**Objectives:** To introduce the students to the broad developments in the history of India in Modern times.

**Pedagogy:** Lectures, library work and discussions.
Unit-I

1. Foundation of British Rule: Circumstances leading to the battles of Plassey and Buxar and their significance; Reforms of Warren Hastings.
3. The Uprising of 1857: Political, socio-religious, economic and immediate causes; failure; results.

Unit-II

4. Economic Changes: British Agrarian policies and commercialization of agriculture; rural indebtedness; Growth of modern industry; theory of economic drain.
5. Socio-Religious Reform Movements: Brahmo Samaj; Aligarh Movement; Arya Samaj; Ramakrishna Mission.

Unit-III

8. Indian National Movement: Circumstances leading to the non-cooperation movement 1920-1922; the Civil Disobedience Movement.
9. Rise of Communal Politics: Factors responsible for the growth of communal politics; Separate electorate; Muslim League and Pakistan Resolution.

Unit-IV

12. Map:
   (a) Important Historical Places – Delhi, Calcutta, Madras, Bombay, Goa, Surat, Plassey, Buxar, Gwalior, Jhansi, Hyderabad, Sabarmati, Amritsar, Lucknow, Lahore and Aligarh.
   (b) Extent of the British Empire in 1856.
   (c) Republic of India in 1950.

Books Recommended:

2. Bandyopadhyay, Sekhar, From Plassey to Partition: A History of Modern India, Delhi: Orient Black Swan, 2007 (Also available in Hindi Medium).
7. Gopal, S, (Pbi)
HISTORY
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-2018
SEMESTER-IV

INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

(i) *The syllabus has been divided into four units.*

There shall be 9 questions in all. The first question is *compulsory* and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) One question from Unit IV shall be set on the map.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Explanation:

1. Each essay type question would cover about one-third to one half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   - Map : 10 marks
   - Explanatory Note : 08 marks

Note: In case, a paper setter chooses to set a question on important historical places, the paper setter will be required to ask the students to mark 10 places on map of 1 mark each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of questions within one question paper.

Paper : HISTORY OF THE PUNJAB, 1469-1849 A.D.

Max. Marks : 100
- Theory : 90 Marks
- Internal Assessment : 10 Marks
- Time : 3 Hours

Objectives : To introduce the students to the broad developments in the history of the Punjab from the mid 15th to the mid 19th century i.e. the medieval period

Pedagogy : Lectures, library work and discussions.
Unit-I

1. Teachings of Guru Nanak, Development of Sikh Institutions: langar, manji, masand, gurdwara
2. Compilation of the Adi Granth; causes and significance of the martyrdom of Guru Arjan Dev.

Unit-II

4. Circumstances leading to the creation of Khalsā and its significance; the new injunctions and symbols of the Khalsā.
5. Establishment of independent rule under Banda Bahadur; socio-economic transformation.
6. Role of Rakhi, Gurmata and Dal Khalsā in 18th century polity; emergence of autonomous chiefs.

Unit-III

7. Unification under Ranjit Singh; expansion of the Kingdom of Lahore
8. Civil & Provincial administration; Land Revenue system under Maharaja Ranjit Singh
9. Social Structure in the early 19th century Punjab

Unit-IV

10. Anglo-Sikh relations upto 1839; political developments 1839-1849.
11. First Anglo-Sikh war; second Anglo-Sikh war and the annexation of the Punjab.
12. Map:
   (a) Important Historical Places – Amritsar, Goindwal, Anandpur Sahib, Chamkaur Sahib, Kiratpur, Kartarpur, Paonta Sahib, Sirhind, Muktsar, Tarn Taran, Lahore, Machhiwara, Ropar, Multan and Peshawar.
   (b) Battles of Banda Bahadur. (location)
   (c) Kingdom of Lahore (Boundaries)

Note: In case, a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 10 places on map of 1 mark each and write explanatory note on any four of 2 marks each.

Books Recommended:

INDIAN GOVERNMENT AND POLITICS

Objectives: This paper provides students with a basic knowledge of the fundamental elements and institutions of government, politics and processes in India at both the centre and state levels.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

(i) The syllabus has been divided into four units:

There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 10-20 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

Unit-I
1. Basic Features of Indian Constitution.
2. Preamble and its perceptions.
3. Indian Federalism- Meaning & its features.
4. Centre State Relations (Legislative, Administrative & Financial)

Unit-II
1. Fundamental Rights (Art 14-Art 32)- Meaning, Explanation, Criticism & Importance.
2. Fundamental Duties- Meaning, Explanation, Evaluation (Criticism & Importance).

Unit-III
1. President : Election, powers, position and changing role.
2. Parliament : Composition, powers and role.
3. Cabinet –
   a) Parliamentary features
   b) Prime Minister : Election, powers, position and changing role.
4. Supreme Court : Composition, powers & Judicial Review.

Unit-IV
1. Governor : Appointment, powers and role.
2. State Legislature : Composition, powers and role of Legislative Assembly/Vidhan Sabha.
3. Council of Ministers and Chief Minister : Election, powers, position and role.
4. High Court : Composition, powers and its role.
Books Recommended:

POLITICAL SCIENCE

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

INDIAN POLITICS

| Max. Marks | 100 |
| Theory | 90 marks |
| Internal Assessment | 10 marks |
| Time | 3 Hours |

Objectives:

The aim of this paper is to enrich the student’s understanding of the working of the Indian political system with reference to political parties, the party system, elections and voting behaviour. Units III and IV of the paper examine in detail certain key issues and debates in contemporary India.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES:

(i) The syllabus has been divided into four units:

There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 10-20 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

Unit-I

2. National Political Parties [Indian National Congress, BJP, CPI, CPI(M), BSP] : Ideology, Policy and Programmes
3. Regional Political Parties (SAD, DMK, AIDMK) : Ideology, Policy and Programmes.

Unit-II

1. The Election Commission : A critical evaluation and electoral reforms in India.
2. Pressure Groups in Indian Politics- Types & Role
Unit-III
1. Emerging Trends in Indian Politics.
2. Role of Caste, Religion in Indian Politics.
3. Regionalism in Indian Politics-its causes & impact.

Unit-IV
1. Basic principles and determinants of Indian Foreign Policy.
3. Non-alignment Movement- its Relevance.

Books Recommended:


ECONOMICS

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper : PUBLIC FINANCE AND INTERNATIONAL ECONOMICS

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Course Objective : The primary course objective is to introduce the students to the basics of public finance and international trade. The first two units aim to introduce students to the primary functions of government to generate resources from the people and to spend money improving their lives. The last two units are concerned with basic theories of international trade and commercial policies, balance of payments, determination of exchange rates and role of international financial institutions.

INSTRUCTIONS FOR THE PAPER-SETTERS AND CANDIDATES :

(i) The syllabus has been divided into four units.
There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
The paper setter must put note (ii) in the question paper.

Unit-I


Taxation : Classification and Canons, Characteristics of a Good Tax System.

Unit-II

Incidence and Impact of Taxation : Demand and Supply Theory.

Taxable Capacity : Absolute and Relative Capacity, Determinants of Taxable Capacity.

Public Debt : Its types and Role, Burden of debt and Methods of its Redemption.

Deficit Financing : Objectives and Limitations.
Unit-III


*Terms of Trade*: Concept and Types


Unit-IV

*Balance of Payments*: Meaning, Concept and Components of Balance of Payments. Disequilibrium in the Balance of Payments: Causes and Measures to correct the disequilibrium


*IMF and IBRD*: Objectives, Working and Achievements.

**Recommended Readings**:


**Supplementary Reading**:

ECONOMICS

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

Semester-IV

Paper : QUANTITATIVE METHODS

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Course Objective :

The objective of the course is to train the students in the use of basic mathematical and statistical tools in analyzing various economic phenomena. It deals with the design of how data is presented, the analysis of the data, and the drawing of conclusions from the data. The course aims to improve decision-making accuracy of the students and enabling them to test new ideas.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

1. There shall be 9 questions in all. All questions carry equal marks. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 09 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all.

2. Use of simple calculator is allowed.
3. The paper setter may in general stick to the distribution of marks of 1/3 to theory and 2/3 to numericals.

Unit-I

Elementary Idea of Sets and Functions : Simple and Partial Derivatives. Differentiation of Simple functions – Polynomial (x) and Exponential functions. Maxima and Minima of functions of one variable only. Their Applications of Micro and Macro Economics.

Unit-II

Matrices : Definition and Types, Operations (Sum, Difference, Product and Transpose), Adjoint and Inverse of a matrix (upto 3 x 3), Solution of Equations (upto 3) by Matrix Methods and Cramer’s rule.
Measures of Central Tendency : Mean, Median, Partition Values, Mode, Measures of Dispersion, Skewness.

Unit-III

Correlation Analysis—Karl Pearson’s (except grouped data) and Spearman’s formula, Simple Regression Analysis.
Interpolation – Binomial, Expansion, Newton’s (Advancing Difference Method) and Lagrange’s Method.

Unit-IV

Index Numbers : Concepts, Problems and Importance, Simple Index Number, Lespeyre’s and Fisher’s Index Numbers only (among weighted index numbers), Reversibility Tests.
# Books Recommended


***************
SOCIOMETRY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

SOCIAL STRUCTURE AND SOCIAL CHANGE

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt 9 short answer type questions out of 12 i.e. $9 \times 2 = 18$ marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each unit with internal choice carrying 18 marks each i.e. $4 \times 18 = 72$ marks.

(ii) On an average, 15 hours are to be devoted for each unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective :
This paper basically introduces students both to conceptual and some theoretical understanding of social structure and social change. Students are introduced to characteristics and elements of social structure and to understand the meaning, process and factors of social change.

Course Content

Unit-I


Unit-II

Social Change : Meaning and Features.
Types of Social Change : Evolution (Comte), Revolution (Marx), Development – Changing Connotations.

Unit-III

Factors of Social Change: Economic, Demographic, Education, Legislative, Scientific and Technological

Unit-IV

### Essential Readings:


### Further Readings:

8. Kuppu (Swamy, B, 2001) : Social Change in India, Delhi, Konark

**************
SOCIOLOGY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER IV

SOCIAL INSTITUTIONS

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt 9 short answer type questions out of 12 i.e. $9 \times 2 = 18$ marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each unit with internal choice carrying 18 marks each i.e. $4 \times 18 = 72$ marks.

(ii) On an average, 15 hours are to be devoted for each unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective:

In this paper, social institution as a concept is introduced to the students. Study of various institutions which are foundations of human society, will help students to look at society in an objective and analytical way.

Course Work

Unit-I

Institutions – Meaning, Features; Normative and Relational aspects of Institutions.
Types – Social, Political, Economic and Cultural.
Difference of Institutions with Society Community and Association

Unit-II

Social Institutions :
Marriage –Types : Monogamy and Polygamy; Rules of Mate Selection, Contemporary Trends.
Family – Meaning, Types, Structure, Function; Development Cycle and Changing Trends.
Kinship – Meaning, Significance and a Brief Understanding of Incest, Consanguinity, Affinity, Clan, Lineage, Contemporary Trends.

Unit-III

Political Institutions – State, Government and Political Parties – Features and Functions.
Economic Institutions – Features and Functions, Property, Division of Labour (Emile Durkheim).
Unit-IV

Cultural Institutions – Religion: Meaning elements, Types, Functions (Emile Durkheim & Max Weber), Dysfunctions

Essential Readings:


Further Readings:

PUBLIC ADMINISTRATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER – III

PAPER : PERSONNEL ADMINISTRATION (WITH SPECIAL REFERENCE TO INDIA)

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective of the Paper

The objective of this paper is to give the student an in-depth understanding of various aspects of public personnel administration particularly recruitment, training and promotion. Contemporary issues like grievance redressal machinery, corruption, morale etc. concerning administration of human resources in government will also be examined.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES :

For Private/University School of Open Learning (USOL) students who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put note in question paper in this regard.

The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I

Personnel Administration – Meaning and Significance.
Bureaucracy: Meaning, Characteristics, Demerits and Remedies.
Civil Service: Meaning, Features and Role.
Position and Rank Classification Systems: Significance and Features

Unit-II

Recruitment: Meaning, Methods and Problems.
Recruitment System of Higher Civil Services in India.
UPSC: Composition, Functions and Role.
SPSC: Composition, Functions and Role.

Unit-III

Training – Meaning, Types, Methods, Training of Higher Civil Services in India.
Conduct, Discipline and Ethics in Public Services.
Promotion: Meaning, Significance and Principles.
Unit-IV

Morale, Causes of Low Morale and Measures for Improvement.
Corruption in Administration - Causes and Remedies.
Administrative Tribunals: Meaning, Types, Advantages and Disadvantages.

Essential Readings:


Further Readings:


------------------------
Objectives of the Paper:

The objective of this paper is to give the student an in-depth understanding of various aspects of financial administration like budgeting, auditing, centre-state financial relations etc. It would also make them aware of: institutions like ministry of finance, union finance commission, parliamentary committees; and concepts like direct taxes, indirect taxes, deficit financing, public debt.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

  The Paper-Setter must put a note in question paper in this regard.

- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I

Financial Administration: Meaning and Significance.
Aspects of Public Finance.
Budget: Meaning, Types and Principles.
Budget: Preparation and Enactment.

Unit-II

Union Ministry of Finance: Organisation, Functions and Role.
Centre-State Financial Relations.
Union Finance Commission: Composition and Functions.

Unit-III

Audit: Concept, Objectives and Types.
Comptroller and Auditor General of India (CAGI): Appointment, Functions and Role.
Unit-IV

Legislative Control over Finance.
Public Accounts Committee: Composition, Functions and Role.
Estimates Committee: Composition, Functions and Role.

Essential Readings


Further Readings


Aims and Objectives:
This paper highlights the ethical philosophies propounded in the different Indian Philosophical Systems. It exposes the students to the main tenets of Buddhism, Sikhism, Gandhism, Gita and Vedic Culture. This paper gives an insight into the nature of Ethics, moral notions and basic moral theories as propounded by Western Ethical Philosophers. This paper also deals with problems of applied ethics.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:
(i) The syllabus has been divided into four units.
There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (ii) in the question paper.

Unit-I

1. Salient Features of Indian Ethics with reference to Purusartha : Yuga Dharma and Sanatan Dharma.
3. Concept of Sreyas and Preyas.

Unit-II

Unit-III


Unit-IV

9. Yoga and Stress Management : Definition of Yoga, Ashtanga Yoga.

Essential Readings :


Suggested Readings :

2. Four chapters on Freedom, Commentary on the Yoga Sutras of Patanjali, Swami Satyananda Saraswati Yoga Publications Trust, Munger, Bihar-Chapter II Section 29 onwards, Chapter III—Sections 1 to 6.
PHILOSOPHY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER – IV

Paper: WESTERN ETHICS

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours
Lectures : 75

Aims and Objectives :

This paper gives an insight into the nature of Ethics, moral notions and basic moral theories as propounded by Western Ethical philosophers. This paper also deals with problems of applied ethics.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

(i) The syllabus has been divided into four units.
There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (ii) in the question paper.

Unit-I
2. The notion of Truth, Beauty & Goodness, Reflective Customary Morality.

Unit-II
5. Categorical Ethics : Kant.

Unit-III
7. Teleological Ethics :
   (i) Hedonism
   (ii) Utilitarianism :
        (a) Mill
        (b) Bentham
Unit-IV

8. Moral Rights of Foetus and Female Foeticide.
9. Sexual harassment and Gender Justice.

Essential Readings:


Suggested Readings:

PSYCHOLOGY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

Objectives:

(I) The course introduces to the students the general concepts and historical viewpoints in experimental psychology. The students would also get an understanding of the Nervous System, Psychophysics, Learning. This course will also give an insight into psychophysics, statistics and cognitive aspects of Psychology.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

Paper: EXPERIMENTAL PSYCHOLOGY

Max. Marks                     :      80
Theory                             :    70 marks
Internal Assessment        :    10 marks
Time                                :    3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit I

The Nervous System: Structure and functioning of the neuron; division of nervous system – Central Nervous System and Peripheral Nervous System; Structure and functioning of the brain.

Unit II

Sensation
Concept and types; Vision-The Visual Stimulus, Structure and Functioning of the Eye , Theories of Colour Vision; Audition: The Auditory Stimulus, Structure and Functioning of the Ear, Theories of Hearing.

Unit III

Psychophysics
Thresholds; Psychophysical Methods of Limits, Constant stimuli and Average Error.

Unit IV

Learning
Concept, Classical Conditioning, Operant Conditioning, Observational Learning.
PSYCHOLOGY PRACTICALS

Max. Marks : 20  
Time : 3 Hrs.

Four practicals have to be performed out of six:

1. Two Point Threshold
2. Muller Lyer Illusion
3. Differential Threshold
4. Method of Paired Comparison
5. Maze Learning
6. Bilateral Transfer of Training

Suggested Readings:


------------------------
PSYCHOLOGY

SEMESTER-IV

Objectives:

(I) The course introduces to the students the general concepts and historical viewpoints in General Psychology. The students would also get an understanding of the principles and theories in different areas like Sensation, Perception and Thinking. The course also introduces the elementary statistics.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

Paper: EXPERIMENTAL PSYCHOLOGY

Max. Marks: 80
Theory: 70 marks
Internal Assessment: 10 marks
Time: 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit I
Memory
Sensory Register; Short-Term and Long-Term Memory; Levels of Processing; Measurement of Memory; Forgetting with special reference to retro-active and pro-active inhibition

Unit II
Perception: Concepts, Types of Perception of Form, Space and Movement
Attention: Nature, Types and Factors.

Unit III
Thinking: Nature, Tool & Types and Factors
Creativity: Concept; Torrance’s Theory of Creativity.

Unit IV
Statistics
Normal Probability Distribution: Properties and Applications: Hypothesis Testing – Type I and Type II Errors; Chi-square Test Application to one-way and Two-way classifications.

Note: The use of non-programmable calculators and statistical tables are allowed in the examination.
PSYCHOLOGY PRACTICALS

Max Marks : 20
Time : 3 Hrs.

Four practicals have to be performed out of the following:

1. Division of Attention
2. Span of Attention
3. Comparing Recall and Recognition as Measures of Memory
4. Retroactive Interference
5. Concept Formation.

Suggested Readings:

B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM) SYLLABUS

GEOGRAPHY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

Paper –V: GEOGRAPHY OF INDIA

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:
To foster an understanding of the physical and cultural landscape of India and its spatial diversity

Course Content

Unit-I

Introduction: India in the context of South Asia, Asia and the World. (05 lectures)
Physiography: Relief, drainage, climate, vegetation, soils. (15 lectures)

Unit-II

Agriculture: Characteristics and problems of Indian agriculture; irrigation, major crops (rice, wheat, maize, sugarcane, cotton, jute and tea), Food security with special reference to India. (15 lectures)
Natural hazards in India: Flood, Drought and Earthquake. (05 lectures)

Unit III

Population: Distribution and density, Growth, Migration, Urbanization (05 lectures)
Mineral and Power Resources: Iron ore, manganese, mica, copper and gold; Coal, Petroleum, Hydroelectricity and Non-conventional Power resources. (15 lectures)

Unit IV

Industries: Distribution and localization factors of major industries (Iron and Steel, Cotton Textiles, Sugar, Fertilizers, Automobile). (15 lectures)
Trade & Transport: Rail, Road, Airways and Waterways; International Trade (05 lectures)

Note:

1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should be in about 25 words. Each part will carry 2 marks (Total 20 marks).

2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 10 marks (Total 40 marks). These will be in addition to the compulsory question.

3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked map stencils and colour pens/pencils are allowed.

4. Six hours Theory Classes in a week are compulsory.

5. Internal assessment will be based on (i) class tests, (5%) (ii) academic activities, Seminar, Project, Assignment (3%) and (iii) attendance (2%).

6. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned. The paper-setter must put note (6) in the question paper.
List of Readings:

**Essential Reading:**


**Further Readings :**

1. Singh, Gopal : *A Geography of India*, Atma Ram & Sons, New Delhi, 1995

**Pedagogy:**

- Use of visual aids especially maps.
- Students should be encouraged to use an atlas in the classrooms.
- Audio-video shows on different parts of India.
Paper-VI: CARTOGRAPHY-III

Max. Marks : 30
Time : 3 Hours

Distribution of Marks:

- Written paper of 3 hours duration : 20 marks
- Viva and Practical record (5 + 5) : 10 marks

Objectives:

- To apprise the students with symbolization of different types of geographical data and depiction of various spatial data.
- To provide training in application of various graphical methods of depicting geographic data.
- To train the students to interpret the topographical sheets at different scales.

Course Content:

UNIT-I

Nature of Geographic Data: Spatial and Attribute (Climatic, Population, Agriculture and Industrial)
Symbolization & Scaling of Geographical Data: Point, Line and Area

(4 lectures, 4 lab sessions)

UNIT-II

Choice, Use and Representation of Data using Point Symbols: Columnar Diagrams (Simple, Multiple, Compound, Percentage); Dot, Circle and Sphere

(6 lectures, 12 lab sessions)

UNIT-III

Choice, Use and Representation of the following Point Symbols: Graphs (Line Graph, Climograph, Hythergraph, Ergograph, Wind Rose, Combined and Bar Graph)

(8 lectures, 20 lab sessions)

UNIT-IV

Choice, Use and Representation of Data using: Line Symbols (Isopleth and Flow Lines); and Area Symbols (Choropleth)

(6 lectures, 12 lab sessions)

Note:

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.
2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teachers of Geography in the college.

3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared for USOL students from the prescribed syllabus.

4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should not exceed 25 words. Each part will carry 1 mark (Total 4 Marks).

5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks (Total 16 marks). The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question.

6. Three hours Practical Classes in a week are compulsory.

7. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 12 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

8. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).

9. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.

10. A fresh practical note book shall be prepared by failed/improvement/reappear candidates.

11. For practical classes, the number of students in one group shall not exceed fifteen.

12. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned. **The paper-setter must put note (12) in the question paper.**
List of Readings

Essential Readings:


Further Readings:


Pedagogy:

- The students need to be trained in the use of symbols to depict various geographic data.
- A well equipped cartographic laboratory with necessary instruments to prepare exercises.
- Students should be encouraged to use computers while preparing practical exercises.
GEOGRAPHY
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

Paper-VII: GEOGRAPHY OF PUNJAB

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:
• To understand the regional setting of Punjab state in detail through physical and political maps.
• To examine the cultural patterns of the regions.
• To study the distribution of major crops, industries and transport links in the state.
• To understand the intra regional variations in select aspects.

Course Content:

Unit –I
Introduction: Location, Evolution, Cultural Regions (Majha, Doaba & Malwa) and Administrative Divisions of the State. (15 lectures)

Unit –II
Physical Base: Relief, Drainage, Climate, Soils and Vegetation (12 lectures)
Resources: Mineral and Power; Water with special reference to river water sharing. (8 lectures)

Unit-III
Agriculture: Main Characteristics and Problems; Agro-climatic Regions; Green Revolution & its Ecological Implications; Irrigation; Main crops (wheat, rice, cotton, sugarcane) and their distribution, Livestock and dairying. (20 lectures)

Unit –IV
Population: Distribution, Density, Growth, Migration, Sex Ratio, Urbanization. (7 lectures)
Industries: Main characteristics, Distribution Patterns of Major Industries (Cotton Textile, Sugar, Hosiery Engineering) Industrial Concentration, Problems of Industrialization. (15 lectures)
Trade &Transport: Road, Rail and Air Transport; Inter-State Trade. (3 lectures)

Note:
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should be in about 25 words. Each part will carry 2 marks (Total 20 marks).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 10 marks (Total 40 marks). These will be in addition to the compulsory question.
3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked map stencils and colour pens/pencils are allowed.
4. Six hours Theory Classes in a week are compulsory.
5. Internal assessment will be based on (i) class tests, (5%) (ii) academic activities, Seminar, Project, Assignment (3%) and (iii) attendance (2%).
6. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned. The paper-setter must put note (6) in the question paper.

List of Readings

**Essential Readings:**


**Further Readings:**

2. Economic and Statistical Organization of Punjab : *Statistical Abstract of Punjab*, Economic and Statistical Organization of Punjab, Chandigarh, 2014

**Pedagogy**

- Extensive and intensive use of maps to understand the regional setting.
- A component of field visit to some areas of each region may be planned for effective understanding of the region.
Paper-VIII: CARTOGRAPHY-IV

Max. Marks : 30
Time : 3 Hours

Distribution of Marks:

- Written paper of 3 hours duration : 20 marks
- Viva and Practical record (5 + 5) : 10 marks

Objectives:

- To apprise the students with symbolization of different types of geographical data and depiction of various spatial data.
- To provide training in application of various graphical methods of depicting geographic data.
- To train the students to interpret the topographical sheets at different scales.

Course Content:

UNIT-I
Topographical Maps: Nomenclature (Classification), Study and Interpretation; Significance and Application in Geographical Studies
(4 lectures, 4 lab sessions)

UNIT-II
Profiles: Serial, Composite, Superimposed and Projected
Longitudinal and Transverse; Profiles of rivers
(8 lectures, 16 lab sessions)

UNIT-III
Elementary Remote Sensing : Definition, Concept, History, Application Areas and Types of platforms
(10 lectures, 8 lab sessions)

UNIT-IV
Introduction to Concept of GIS and Computer Cartography,
Definition, Development, Database (Spatial and Non Spatial) GIS Components (Hardware & Software) and Application.
Preparation of Line Graphs, Bars and Pie Charts using Computers.
(10 lectures, 10 lab sessions)

Note:

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. For college students, a separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.
2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teachers of Geography in the college.
3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared by the University for USOL students from the prescribed syllabus.
4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should not exceed 25 words. Each part will carry 1 mark (Total 4 Marks).

5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks (Total 16 marks). The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question.

6. Three hours Practical Classes in a week are compulsory.

7. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 12 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

8. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).

9. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.

10. A fresh practical note book shall be prepared by failed/improvement/reappear candidates.

11. For practical classes, the number of students in one group shall not exceed fifteen.

12. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned. The paper-setter must put note (12) in the question paper.

List of Readings

Essential Readings:


Further Readings:


Pedagogy:

- They should learn to comprehend the topographical maps by deriving slopes and drawing profiles.
- A well equipped cartographic laboratory with necessary instruments to prepare exercises.
- Students should be encouraged to use computers while preparing practical exercises.
GANDHIAN STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

SOCIAL THOUGHT OF MAHATMA GANDHI

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Course Objectives :
The paper is designed to acquaint the students with the Social Thought of Mahatma Gandhi.

Pedagogy of the Course Work :
90% Lectures (including expert lectures)
10% Unit tests, Snap tests, assignments, attendance and class room participation

Note :
1. The syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I

Fundamentals of Gandhi’s Social Thought

1. Truth
2. Non-violence
3. Sarvodaya
UNIT-II

Man and State

4. Human Rights
5. Ideal Society, State and Rama Rajya

UNIT-III

Gandhi and Ethics

6. Education
7. Theory of Civilization
8. Morality and Religion

UNIT-IV

Gandhi and Social Justice

9. Drive against Untouchability:
   (a) Caste System
   (b) Communal Award
   (c) Poona Pact

10. Women Empowerment

Essential Readings:

**Further Readings:**


GANDHIAN STUDIES
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

POLITICAL THOUGHT OF MAHATMA GANDHI

Course Objectives:
The paper is designed to acquaint the students with the Political Thought of Mahatma Gandhi.

Pedagogy of the Course Work:
90% Lectures (including expert lectures)
10% Unit tests, Snap tests, assignments, attendance and class room participation

Note:
1. The syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I

Fundamentals of Gandhi’s Political Thought
1. Truth & Non-violence
2. Theory of Ends & Means
3. State : Ideal Society and State

UNIT-II

Democracy & Decentralization
4. Panchayat Raj/Gram Swaraj
5. Freedom & Equality
6. Rights and Duties
UNIT-III

Religion and Politics

7. Satyagraha: Meaning, Essentials, Forms & Significance
8. Satyagraha & Passive Resistance
9. Spiritualization of Politics

UNIT-IV

Contemporary Relevance

10. Communal Harmony
11. Assessment and Contemporary Relevance

Essential Readings

Further Readings:


JOURNALISM & MASS COMMUNICATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

PRINT JOURNALISM

Max. Marks: 100

Theory 70 marks
Internal Assessment 10 marks
Time 3 Hours
Practical 20 marks

A. Objectives:
This course will introduce students to the basic techniques of sourcing news stories and features. They will also be trained in the art and science of writing and presenting print media content.

B. Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I: Definition, nature and types of news and features; sourcing news and features.

Unit-II: Writing techniques and styles of news reports and features.

Unit-III: Role and responsibility of a sub-editor; basic editing techniques for copy and pictures; importance and writing of headlines.

Unit-IV: Introduction to typography and design principles; page make up using publishing software

PRACTICALS

Max. Marks : 20

1. Prepare a Current Affairs file of news & features. : 20 Marks
Books Recommended:

ESSENTIAL READING


ADDITIONAL READING


RADIO & TV JOURNALISM

Max. Marks: 100
Theory 70 marks
Internal Assessment 10 marks
Time 3 Hours
Practical 20 marks

A. Objectives:
The course will introduce students to the basic techniques of writing & presenting for the radio and TV medium.

B. Pedagogy of the Course Work:
80 % lectures (including expert lectures).
20 % assignments, discussion and seminars

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I: Basic principles of gathering, treatment and presentation of news for Radio; Basic principles of gathering, treatment and presentation of news for Television

Unit-II: Reporting and writing for Radio and TV; Pronunciation and modulation in Radio/TV reporting: Pitch, volume, tempo, vitality.

Unit-III: Basic introduction to audio/video production & its stages (pre-production, production, post production).

Unit-IV: Basic camera shots and language of camera movements.

PRACTICALS

Max. Marks: 20
1. Compilation of 5-minute weekly TV news bulletins 10 Marks
2. Compilation of 10-minute weekly radio bulletins.
ESSENTIAL READING


2. Luthra, H.P., 1984, *Indian Broadcasting*. Publications Division, Min. of I & B.


14. Fulding, Ken, (1990), *Introduction to Television Production*, Longman, New York,
ADDITIONAL READING


2. Lynee S. Gross WCB, *Tele Communication- An Introduction to Electronic Media*. Wm. C. Brown Publisher


POLICE ADMINISTRATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

Police Personnel Administration

(A) Course Objectives:

The objective of this course is to give inputs to the students on the various aspects of personnel relevant to police administration. Effort is made to impart knowledge to the candidates about the meaning, nature, scope and significance of Police Personnel Administration in India. In addition, job analysis, job description, pay policy, compensation and fringe benefits have been discussed. Further, the recruitment, training and promotion system in Police Service in India has been included in the syllabus. The students are also taught about the performance appraisal, police ethics, corruption in police, code of conduct and discipline along with doctrine of pleasure.

(B) Pedagogy of the Course Work:

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:

i. Internal Test-5%;
ii. Academic activities (Seminar, Project, Assignment)-3%;
iii. Attendance-2%

(C) Instructions for Paper Setters and Candidates:

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (9x2 = 18 marks).
- Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks).
(D) Course Content:

Unit-I

Meaning, Nature and Scope of Police Personnel Administration; Significance of Police Personnel Administration in India; Career System in Police Administration.

Unit-II

Job Analysis and Job Description of Police Personnel – Concept and Significance; Pay Policy, Compensation and Fringe Benefits.

Unit-III

Recruitment: Meaning and Methods; Recruitment of Police Personnel in India; Training: Meaning and Types; Training of IPS Officers and State Police Services in India; Promotion: Meaning and Principles; Promotion of Police Personnel in India.

Unit-IV

Performance Appraisal; Police Ethics and Code of Conduct; Corruption – Meaning and Causes; Corruption in Police Force; Disciplinary Actions; Doctrine of Pleasure – Safeguards against Arbitrary Punishment.

Essential Readings:

1. Administrative Reforms Commission

2. Goel, S.L.

3. Mamoria, C.B.

4. Zehra, Kaneez

5. Muthuswamy, P.

Further Readings

1. Saxena, A.P.

2. Singh, Sahib Bhayana, Singh, Swinder and Dogra, R.K.

3. Ghosh, P.
POLICE ADMINISTRATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

Law and Order Administration

(A) Course Objectives:

The principal objective of the syllabi is to acquaint the students with the basics of Law and Order Administration in India. Specifically, the students will be imparted the knowledge about the meaning, nature, scope and significance of Law and Order Administration in India along with some basic issues and emerging patterns. The endeavour is to discuss in detail the role and significance of Primary and Auxiliary Agencies of Law and Order Administration. Further, the role of Law and Order Administration in crowd management, communal riots, agrarian and industrial conflicts has also been discussed. The students are also taught about the challenges before Law and Order Administration. In addition, the concept of National Security along with challenges to it, in contemporary terms have been included in the syllabus.

(B) Pedagogy of the Course Work:

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:

i. Internal Test-5%;
ii. Academic activities (Seminar, Project, Assignment)-3%;
iii. Attendance-2%

(C) Instructions for Paper Setters and Candidates:

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (9x2 = 18 marks).
- Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks).

(D) Course Content:

Unit-I

Meaning, Nature and Scope of Law and Order Administration; Significance of Law and Order Administration in India; Law and Order Administration – Some Basic Issues and Emerging Patterns.

Unit-II

Role, Significance and interrelationships of Law and Order Administration Agencies at the District level: The Police; Civil Administration; Court of Law; Prisons; and Health.
Unit-III

Role of Law and Order Administration in Crowd Management, Communal Riots and Industrial & Agrarian Conflicts. Challenges before Law and Order Administration.

Unit-IV


Essential Readings:


Further Readings


***************
WOMEN’S STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper: FEMINIST THEORY

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective:
This course offers the prominent theories that feminists have formulated to explain the matrix of gender inequality from the nineteenth century to the present. It further seeks to introduce the student to the key debates within feminist theories as well as the shifts in feminism.

Note: The students are expected to have a general understanding of the various strands of feminism and not of any specific feminist thinker in this course.

Course Contents:

Unit-I: Feminism
(a) Definition,
(b) Emergence of Feminism with special focus on
   o Women in French Revolution,
   o Suffrage Movement in the U.S.A. (with reference to Seneca Falls Convention and Declaration of Sentiments),
   o Suffrage Movement in the U.K.
(c) Three waves of Feminism.

Unit-II: Strands of Feminism-I
(a) Liberal Feminism,
(b) Socialist Feminism,
(c) Marxist Feminism.

Unit-III: Strands of Feminism-II
(a) Radical Feminism
(b) Post modern Feminism
(c) Psycho-analytic Feminism (Freudian).
Unit-IV : Strands of Feminism-III

(a) Black Feminism
(b) Cultural Feminism
(c) Eco-Feminism.

NOTE:
- In each of the papers the candidate will be assessed for 90 marks on the basis of a written examination for 10 marks internal assessment.
- There shall be 9 questions in all. The first question shall be compulsory containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit-4 in all. Each question will carry 18 marks.

Essential Readings:


Chatterjee, Mohini, *Feminism and Gender Equality*, Aavishkar, Jaipur, 2005.


Further Readings:


*************
Objective: This course aims to sensitize the student with the status of women in contemporary India, with a special focus upon the factual situation apart from the major issues confronting Indian women.

Unit-I: Demographic Trends

(a) Sex Ratio, Age Specific Sex Ratio: Trends
(b) Change in Sex Ratio: Causes and Consequences
(c) Fertility Rates
(d) Definitions: Infant Mortality Rate, Child Mortality Rate, Total Mortality Rate, Maternal Mortality Rate, Causes of Gender Differentials in Mortality Rates

Unit-II: Women and Education

(a) Gender Gaps in Literacy Rates, School Enrolment and Dropout Rates
(b) Women in Higher Education: Gender Gaps
(c) Obstacles to Women’s Education: Socio Cultural, Economic and Infrastructural

Unit-III: Women and Health

(a) Definition: Health & Reproductive Health
(b) Factors affecting Women’s Health Status
(c) Issues relating to women’s health status: Nutritional health status of women and girl child in India.
Unit-IV : Women and Work:

(a) Changing definition

(b) Gender differential in Work Participation Rates

(c) Sexual Division of Labour

(d) Sexual Harassment at the Workplace

(e) Obstacles to Women’s Workforce Participation: Cultural, Skill development etc.

NOTE:

- In this paper, the candidate will be assessed for 90 marks on the basis of a written examination and for 10 marks internal assessment.

- There shall be 9 questions in all. The first question shall be compulsory containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit-4 in all. Each question will carry 18 marks.

Essential Readings:


Further Readings:


***************
HUMAN RIGHTS & DUTIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

PAPER: HUMAN RIGHTS & DUTIES IN INDIA

Max. Marks : 100 Marks
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective:
The course is designed to make students aware about the human rights and duties framework in India. An attempt has been made to deal the issue within the ambit of evolution of the concepts of human rights and duties; Constitutional structure and Implementation mechanisms.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

Note:
For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e. 9x2 = 18 marks.

In addition to it, Questions No. II to IX will consist of long answer (Essay Type) questions i.e. 2 questions from each Unit with internal choice carrying 18 marks each i.e. 4x18=72.

UNIT I: EVOLUTIONARY PHASE

(i) Evolution of the concept of Human Rights in India
(ii) The notion and significance of Duties in India
(iii) Values and relevance of composite culture of India: non-violence; secularism and fraternity

UNIT II: CONSTITUTIONAL FRAMEWORK

(i) The Preamble
(ii) Fundamental Rights
(iii) Directive Principles of State Policy
(iv) Fundamental Duties

UNIT III: KEY AREAS IN THE CONTEMPORARY PHASE

(i) Right to food security
(ii) Right to Education
(iii) Right to Information
(iv) Right to clear environment
UNIT IV: IMPLEMENTATION OF HUMAN RIGHTS

(i) Constitutional Machinery: Role of Judiciary
(ii) Statuary Machinery: National Human Rights Commission and State Human Rights Commissions

Essential Readings:


Further Readings:

HUMAN RIGHTS & DUTIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

PAPER: HUMAN RIGHTS ISSUES IN INDIA

Max. Marks : 100 Marks
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective:

The Paper deals with a few specific issues in India along with some key responses emerging from the Indian society for the protection and Promotion of human rights.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

Note: For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e. 9x2 = 18 marks.

In addition to it, Questions No. II to IX will consist of long answer (Essay Type) questions i.e. 2 questions from each Unit with internal choice carrying 18 marks each i.e. 4x18=72.

UNIT I: HUMAN RIGHTS & LABOUR

(i) Bonded Labour
(ii) Unorganized labour
(iii) Child Labour

UNIT II: STRUCTURAL PROBLEMS AND IMPACT ON HUMAN RIGHTS

(i) Poverty
(ii) Illiteracy
(iii) Unemployment

UNIT II: HUMAN RIGHTS & CRIMINAL JUSTICE

(i) Concept of Criminal Justice System in India
(ii) Rights of the accused
(iii) Rights of the victim

UNIT IV: SOCIAL AUDITING FOR HUMAN RIGHTS

(i) Definition, significance of social auditing
(ii) Agent of Social Auditing including Human Rights Defenders
(iii) Role of Media in social auditing
(iv) Role of Civil Society in social auditing
**Essential Readings:**


**Further Readings:**


Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9X2).
In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4X18).

Course Contents

Unit - I

Unit - II

Unit - III
Life, Teachings and Contribution: Bhagats and Bhattas

Unit - IV
Compilation of the Adi Granth; Foundation of the Khalsa
Essential Readings

- G.S. Talib: *Guru Nanak: His personality & Vision*

Further Reading

RELIGIOUS & SIKH STUDIES
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

PAPER- IV SIKH LITERATURE AND INSTITUTIONS

Max. Marks : 100
Written : 90
Internal : 10
Time : 03 hrs

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9X2).
In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4X18).

Course Contents

Unit - I
Unity of Guruship; Institution of Gurdwara

Unit -II
Different sects within the Sikh Movement (Udasis, Minas, Dhirmalya, Ram Raiyas) origin and development

Unit - III
Study of Japji and Chandi Di Var (Message and Formation)

Unit - IV
Study of Janam Sakhis; Tika; Parmarath; Gost. (Definition and Features) (Two out of three)
Essential Readings

- तत्काल वेंच जांटीका अनु नमांकित वेंच दिलह, डा. (पीएस.) भुवन गिर्जा संसरण, बड़ा राजव एच्चे फूलवन्सिटी, अंग्रेजी
- जगत सिंह, तुलसी दीपक विश्वास लाल, धर्मविवेक, बंगलार्डक, धार्मिक अध्ययन, परिभाषा
- रघु नंद सिंह, डा., राम अधिकार साधन सिंह अधिकार, पंजाब धार्मिक विवेक, पंजाबी फूलवन्सिटी, परिभाषा
- चुनौती सिंह, सुनील, श्रीरंग, धर्मविवेक, राजव राज, राजव राज, पूर्व में महत्व, अंग्रेजी
- राम सिंह, डा., सुनील देव, धर्मविवेक, विवेक, पंजाबी फूलवन्सिटी, परिभाषा
- फूलवन्सिटी सिंह, विवेक नंद, चंडी दी बांध, चंडी दी बांध, चंडी दी बांध, दुर्गाप्रभा
- चंडी सिंह संती, चंडी दी बांध, तुलसी दीपक धार्मिक अध्ययन, परिभाषा
- चंडी सिंह नंदी, चंडी दी बांध, नंदी धार्मिक धर्मविवेक नंदी

Further Reading

- Jagraj Singh: A complete guide to Sikhism, Unistar Chandigarh, 2011

***************
ENVIRONMENT CONSERVATION
B.A./B.Sc.(GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

Paper : Air Pollution and Climate Change

<table>
<thead>
<tr>
<th>Theory Hours</th>
<th>Practical Hours</th>
<th>Theory Marks</th>
<th>Internal Assessment Marks</th>
<th>Practical Marks</th>
<th>Practical Internal Assessment Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>65</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and practical per week shall be 6 hours and 4 hours respectively.

**Note:** The practical will include survey and its project reports carrying 5 marks, and 20 marks will be allotted to laboratory practicals.

**Instructions for paper setters :-**
There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from section I to IV and the first compulsory question.

**Paper :**

**AIR POLLUTION AND CLIMATE CHANGE**

**Unit-I**

**Atmosphere:** Composition of atmosphere, Air Pollution: Sources, Classification (Natural and anthropogenic sources; primary and secondary pollutants), Smoke, Smog, Particulate Matter and Acid rain. Effects of air pollution on human health, plants, animals and material. Air (Prevention and Control of Pollution) Act, 1981.

**Unit-II**

**Green House Effect:** Definition, Green house gases, Sources of green house effect, Global Warming. Stratospheric ozone layer depletion. Role of agriculture to green house effect (paddy and livestock, biomass burning) in GHE.

**Unit-III**

**Noise pollution:** Definition, Sources, Noise standards, Silence Zones, Consequences of noise pollution.

**Radioactive Pollution:** Definition, Sources, effect on human health.

**Mineral Resources:** Types and Importance of minerals; Mineral extraction and environmental problems (limestone mining in Moussourie hills, coal mining in Jharkhand).

**Unit-IV**

**Control:** Measures and techniques to control air pollution in vehicles and industries, Green building concept, CDM (Clean Development Mechanism), Carbon sequestration. Control of noise pollution.
PRACTICAL

To monitor the level of Dust fall, SPM in surrounding atmosphere.

To monitor the level of NOx and SO$_2$ in surrounding atmosphere.

To prepare a survey report on different sources causing air pollution in local area.

To prepare a survey report on noise pollution in your locality.

To visit, collect data and prepare report regarding air and water pollution from sugar mill, thermal plant, cement factory in the adjoining area like Nawanshahr, Ropar, and Hoshiarpur.
ENVIRONMENT CONSERVATION
B.A./B.Sc.(GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-IV

Paper: SOLID WASTE AND DISASTER MANAGEMENT

<table>
<thead>
<tr>
<th>Theory Hours</th>
<th>Practical Hours</th>
<th>Theory Marks</th>
<th>Internal Assessment Marks</th>
<th>Practical Marks</th>
<th>Practical Internal Assessment Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>65</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and practical per week shall be 6 hours and 4 hours respectively.

Note: The practical will include survey and its project reports carrying 5 marks, and 20 marks will be allotted to laboratory practicals.

Instructions for paper setters:-

There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from section I to IV and the first compulsory question.

Unit-I


Unit-II

Natural disasters: Floods, earthquakes, Tsunami, land slides, drought, forest fire and Tropical cyclones.

Disaster management: pre-disaster phase, actual disaster phase, post-disaster phase.

Unit-III

Bioenergy and waste water treatment: Biogas plant: Construction and working of biogas plants, its advantages and disadvantages. Vermi-culture and Vermi-composting, Biofertilisers, Biofuels.

Waste water treatment (STP and ETP), A brief account of primary, secondary and tertiary treatment.

Unit-IV


Waste lands: Definition, Categories of waste lands, Desertification, ways of reclamation.
PRACTICAL

A visit to Composting/Vermicomposting Unit.

To prepare a survey report of municipal waste of your city (Generation to disposal).

Classify the waste of your municipality waste (Source based and Waste based)

To visit any landfill site and prepare a tour report.

To prepare a list of herbicides / pesticides / insecticides commonly used in this area

To make a list of various botanical pesticides available in the market

Assignments/project as assigned by the teacher

Books Recommended

HOME SCIENCE
B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER- III

Scheme of Examination

<table>
<thead>
<tr>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. No.</td>
<td>Name of Papers</td>
</tr>
<tr>
<td>1.</td>
<td>Clothing &amp; Textile</td>
</tr>
</tbody>
</table>

Total: 100

Note : 1. Each Practical group will have 12-15 students.

SEMESTER-III

CLOTHING & TEXTILE (THEORY)

Max. Marks : 50
Theory : 40
Int. Ass. : 10
Periods : 6 Hours/8 periods per Week

INSTRUCTIONS FOR THE PAPER SETTER:
The question paper will consist of five Sections : A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

INSTRUCTIONS FOR THE CANDIDATES:
Candidates are required to attempt one question each from the Sections A, B, C & D of the question paper and the entire section E.

SECTION-A

1. Equipment & supplies used for Clothing construction - their use & care
2. Sewing Machine :
   (a) Parts of Sewing Machine and its accessories.
   (b) Common defects in sewing machine & their remedies.
   (c) Care of Sewing Machine.
SECTION-B

1. Recording of body measurements & care to be taken while taking body measurements.
3. Tools of Drafting, Steps involved in drafting from measurement to garment construction, points to be kept in mind while making a draft.
4. Terms used in construction i.e. Seam Allowance, Ease, Selvedge, Dart, Grain line, Stay stitching.

SECTION-C

1. Classification of textile fibres

SECTION-D

1. Different types of yarns:
   Simple, Novelty and Textured Yarns.
2. Fabric Construction –
   (A) Weaving - Parts of a loom, Process of weaving & Types
      a. Simple weaves – Plain, Rib, Basket
      b. Twill weaves
      c. Satin weave & Sateen weave
   (B) Knitting, Felting and Bonding.

(SEMESTER-III)

CLOTHING & TEXTILE (PRACTICAL)

<table>
<thead>
<tr>
<th>Maximum Marks : 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper : 40</td>
</tr>
<tr>
<td>Internal Assessment : 10</td>
</tr>
<tr>
<td>Time : 6 periods/week</td>
</tr>
</tbody>
</table>

1. Make samples of the following:
   (a) Tacking, running stitch, hemming, Back Stitch, Fasteners using buttonhole stitch
   (b) Seams—Flat seam, Counter hem, Mantua maker, French Seam & Run & Fell seam.
   (c) Processes—Continuous wrap, two piece placket opening, pleats, gathers into a band, tucks.
   (d) Joining- shaped facing on V neck line & piping on round neck.
2. Embroidery—any “10” fancy stitches.

3. Drafting of the following:
   (a) Jangia
   (b) Bloomer
   (c) Child’s bodice block
   (d) Sleeve- Plain sleeve, Puff sleeve
   (e) Collars- Baby, Cape & Peter Pan

4. Construction of following :
   (a) Jangia
   (b) Bloomer
   (c) Gathered frock with any sleeve and collar.

------------------------
B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM) SYLLABUS

HOME SCIENCE

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER- IV

SEMMESTER-IV

Scheme of Examination

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clothing &amp; Textile</td>
<td>1</td>
<td>6</td>
<td>40</td>
<td>10</td>
<td></td>
<td>1</td>
<td>6</td>
<td>40</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

Total: 100

Note: 1. Each Practical group will have 12-15 students.

SEMMESTER-IV

CLOTHING & TEXTILE (THEORY)

Max. Marks: 50
Theory: 40
Int. Ass.: 10
Periods: 6 Hours/8 periods per Week

INSTRUCTIONS FOR THE PAPER SETTER:

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of 8 objective type questions covering the entire syllabus uniformly and will carry 8 marks.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt one question each from the Sections A, B, C & D of the question paper and the entire section E.

SECTION-A

1. Elements of art such as colour, form, texture, shape and line
2. Principles of design such as Harmony, Balance, Rhythm, Emphasis, Proportion in relation to clothing

SECTION-B

1. Introduction to Fashion, Fad and Style.
2. Selection of suitable clothes for following age groups:
   Infants, Toddlers, School going children, Adolescents, Adults, Elderly.
3. Care & Storage of garments of cotton, wool, silk.
SECTION-C

1. Bleaches- Oxidising, reducing bleaches & their suitability to different fabrics.

SECTION-D

1. Application of colour on fabrics
   (a) Dyeing-Simple dyeing of cotton
   (b) Resist-Tie, Dye and Batik
2. Printing-Block printing, screen printing, roller printing

(SEMESTER-IV)

CLOTHING & TEXTILE (PRACTICAL)

Maximum Marks : 50
Paper : 40
Internal Assessment : 10
Time : 6 periods/week

1. Laundry :
   (a) Testing of cotton, wool, silk and nylon by burning test.
   (b) Stain Removal : Rust, Coffee, Tea, Paint, Nail Polish, Lipstick, Perfume, Blood, Boot Polish, Ink (Ball Pen), Curry and Juice.
2. Laundry & finishing of following garments :
   *Cotton : Salwar, Kameez.
   *Synthetic : Gathered Frock/Pleated Skirt.
   *Woollen : Cardigan/Pullovers.
   * Spot cleaning of a Shawl.
3. Preparation of samples of Tie and Dye & Block Printing.
4. Drafting and construction of the following garments:
   a. Petticoat
   b. Lady’s kameez and salwar
5. Project on Care Labels of Garments or Market survey of Laundry Products.
Reference Books:


17. Printing and Washing of Textile, Neelima


Paper – III : Agricultural Diversification and Machinery

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 5 Marks
Time : 3 Hours

Period per week :
1. Theory – Six of 45 minutes duration each.
2. Practical – Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS :

1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question 1 shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit-I

Agricultural aid on works :
Dairy
Poultry
Fishery
Mushroom Cultivation
Animal Husbandry
Bee Keeping

Unit-II

Maintenance of grassy lawns and flower beds.
Raising of winter and summer ornamental flowers (rose, gladioli, dahlias, dianthus, foliage plants).
Fundamentals of landscape of an educational institute, factory, panchayat lands and office buildings.

Unit-III

Introduction to medicinal, aromatic and spice plants.
Growing of non-conventional plants.
Basic idea of Genetically Modified crops.
Fundamentals of land measurements and land revenue.

Unit-IV

Important parts of the tractor, combine, thresher and their maintenance.
Study of various agricultural tools and implements.
PRACTICAL

Max. Marks : 25 Marks
Practical : 20 Marks
Internal Assessment : 5 Marks
Time : 3 hours

Visit to Poultry Farms, Fish Ponds, Apiary, Dairy Farms
Raising various ornamental flowers of different seasons
Maintenance of grassy lawns
Study the parts of engines, tractor and combine

Books :

AGRICULTURE (ELECTIVE)

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATIONS, 2017-18
SEMESTER-IV

Paper – IV : Cultivation Practices of Vegetables, Timber and basic statistical methods

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 5 Marks
Time : 3 Hours

Period per week :
1. Theory – Six of 45 minutes duration.
2. Practical – Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS :

1. The syllabus of this paper has been divided into four units.
2. Question paper shall comprise of 9 question in all.
3. Question 1 shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective Units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit – I

Tillage, Fundamentals and Principles of Tillage, Zero Tillage, Tillage Implements.

Unit – II

Cultivation Practices of Potato, Tomato; Bhindi, Cabbage; Onion and Asparagus

Unit – III

What are Timbers and Lumbers?
Raising of Dalbergia; Tectona; Poplar; and Eucalyptus

Unit – IV

Statistical Methods for Agricultural workers including Mean, Mode, Median, Chi-Square, Standard Deviation.
PRACTICAL

Max. Marks : 25 Marks
Practical : 20 Marks
Internal Assessment : 5 Marks
Time : 3 hours

Visit to Agricultural Farms for Fundamental Aspects of Tillage
Raising Forest Nursery
Cultivation of Seasonal Vegetables
Numerical Problems of Statistics

Books :


MATHEMATICS

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

SEMESTER-III

Paper-I: ADVANCED CALCULUS-I

Max. Marks : 30
Time : 3 Hours
Int. Assessment : 4 Marks

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.

2. A student will be asked to attempt five questions in all selecting at least two questions from each unit. Each question will be of 6 marks.

3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorials.

4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Limit and continuity of functions of two and three variables. Partial differentiation. Change of variables. Partial derivation and differentiability of real-valued functions of two and three variables. Schwarz and Young’s theorem. Statements of Inverse and implicit function theorems and applications.

Vector differentiation, Gradient, Divergence and Curl with their properties and applications.

Unit-II


References


Paper II : DIFFERENTIAL EQUATIONS- I

Max. Marks : 30
Time : 3 Hours
Int. Assessment : 3 Marks

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I


Unit-II

Linear differential equations with variable coefficients- Cauchy and Legendre Equations. Linear differential equations of second order- transformation of the equation by changing the dependent variable/the independent variable, methods of variation of parameters and reduction of order. Simultaneous Differential Equations

References
Paper III : STATICS

Max. Marks : 30
Time : 3 Hours
Int. Assesment : 3 Marks

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Basic notions. Composition and resolution of concurrent forces – Parallelogram law of forces, Components of a force in given directions, Resolved parts of a force, Resultant of any number of coplanar concurrent forces, Equilibrium conditions for coplanar concurrent forces, equilibrium of a body resting on a smooth inclined plane. Equilibrium of three forces acting at a point – Triangle law of forces, \( \lambda - \mu \) theorem, Lami’s theorem. Parallel Forces.

Unit-II

Moments and Couples – Moment of a force about a point and a line, Centre of Parallel forces, theorems on moment of a couple, Equivalent couples, Varignon’s theorem, generalized theorem of moments, resultant of a force and a couple, resolution of a force into a force and a couple, reduction of a system of coplanar forces to a force and a couple. Equilibrium conditions for any number of coplanar non-concurrent forces.

Friction: Definition and nature of friction, laws of friction, equilibrium of a particle on a rough plane, Problems on ladders, rods, spheres and circles.

References

3. K.R.Chaudhery and A.C.Aggarwal : Elements of Mechanics, Statics and Dynamics, S. Chand and Company
B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM ) SYLLABUS

MATHEMATICS
B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

Paper I: ADVANCED CALCULUS II

Max. Marks : 30
Time : 3 Hours
Int. Assesment : 4 Marks

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Definition of a sequence, Bounds of a sequence, Convergent, divergent and oscillatory sequences, Algebra of limits, Monotonic Sequences, Cauchy’s theorems on limits, Subsequences, Bolzano-Weirstrass Theorem, Cauchy’s convergence criterion.

Sequential continuity and Uniform continuity of functions of single variable.

Unit-II

Series of non-negative terms, P-Test, Comparison tests, Cauchy’s integral test, Cauchy’s Root test, Ratio tests, Kummer’s Test, D’Alembert’s test, Raabe’s test, De Morgan and Bertrand’s test, Gauss Test, Logarithmic test, Alternating series, Leibnitz’s theorem, Absolute and conditional convergence, Rearrangement of absolutely convergent series, Riemann’s rearrangement theorem.

References

Unit-I


Bessel functions of First and Second kind. Legendre function. Generating function. Recurrence relation and orthogonality of Bessel and Legendre function.

Partial Differential Equations: Origin of first order Partial Differential Equations, Linear Equation of first order, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces.

Unit-II

Inverse Laplace transforms- Linearity property, Shifting properties, Change of Scale Property. Inverse Laplace transforms of derivatives and integrals, Convolution theorem.

Applications of Laplace Transforms - Solution of differential equations with constant coefficients, Solution of differential equations with variable coefficients, Solution of simultaneous differential equations.

Laplace Transforms - Linearity of the Laplace transformation. Existence theorem for Laplace transformations, Shifting Theorems, Laplace transforms of derivatives and integrals, Multiplication of \( e^{nt} \), Division by \( e^t \).

References

Paper III : DYNAMICS

Max. Marks : 30
Time : 3 Hours
Int. Assessment : 3 Marks

Note: 1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upwards: Newton’s Laws of Motion, Motion of two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane. Variable acceleration: Simple harmonic motion, elastic string.

Unit-II

Curvilinear motion of a particle in a plane: Definition of velocity and acceleration, projectiles, motion in a circle.

Work, power, conservative fields and the potential energy, work done against gravity, potential energy of a gravitational field.

Relative motion, relative displacement, velocity and acceleration, motion relative to a rotating frame of reference.

Linear momentum, angular momentum, conservation of angular momentum, impulsive forces, principle of impulse and momentum, motion with respect to centre of mass of a system of particles, collisions of elastic bodies, loss of energy during impact.

References

2. K.R. Chaudhery and A.C. Aggarwal : Elements of Mechanics, Statics and Dynamics. S Chand and Company

**************
COMPUTER SCIENCE
SEMESTER-III

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>THIRD SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – CS05</td>
<td>Theory-A</td>
<td>Computer Organization</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Paper – CS06</td>
<td>Theory-B</td>
<td>Object Oriented Programming using (C++)</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Paper – PCS03</td>
<td>Practical-C</td>
<td>Practical Based on Paper – CS06</td>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of Lab. Record.

Paper-CS05 : Computer Organization

Objective: To teach the students the basics of computer organization, Microprocessor & basic know how about system maintenance.

Note:
(i) The question paper will consist of Four units.
(ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt ONE question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

UNIT - I

Representation of Information: Number system: Binary, Decimal, Hexadecimal, Octal; Conversions; integer and floating point representation, character codes (ASCII, EBCDIC), error detection and correction codes: Parity bit method, Hamming code; Boolean algebra.

UNIT – II


Microinstructions: Register Transfer, Arithmetic, Logical and Shift Operations; Instruction: Instruction Format, Instruction Cycle; Interrupt: Interrupt types, Interrupt Cycle.
UNIT – III

Micrprocessor: Architecture of 8086/8088 Processor Model; Instruction Set; Addressing Modes: Registers used in Microprocessor.

Assembly Language: Features of Assembly Language, Machine Language vs Assembly Language, Pseudo Instruction; use of Assembly for programs: Addition, Subtraction, Multiplication using Subroutines and Basic Input/Output.

UNIT – IV

System Maintenance: Introduction to various physical components of a computer, Physical Inspection and Diagnostics on PC, types of displays and other peripheral devices, installing software; Functional description of various Internal and External cards; Viruses: Types of Computer Viruses, Detection of Viruses, Protection from Viruses.

Suggested Readings:

Essential:

Further Reading:

Paper-CS06 : Object Oriented Programming (using C++)

**Objective** : To teach the students the implementation of various object oriented programming concepts through C++ programming

**Note** : 
(i) The question paper will consist of Four units.
(ii) Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt **ONE** question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

**UNIT – I**

*Basic Concepts of Object Oriented Programming (OOP)* : Object, Class, Encapsulation, Data Hiding, Inheritance, Polymorphism. Analysis and design of system using Object Oriented Approach, Benefit of OOPs.

*Structure of a C++ Program* : Include files, Declaration of class, Main function, I/O streams.

*Classes* : Class Declaration : Data Members, Member Functions, Private and Public members, data hiding and encapsulation, arrays within a class.

*Objects* : Creating Objects, Accessing class data members, Accessing member functions, Methods of passing arguments to functions.

**UNIT – II**


*Functions in C++* : Member function definition inside the class declaration and outside the class declaration, scope resolution operator, Private and Public member function, Nesting of member functions, Static and Friend functions.

**UNIT – III**

*Constructors and Destructors* : Constructors: Declaration and Definition, Default Constructors, Parameterized Constructors, Copy Constructors. **Destructor** : Definition and use.

*Inheritance – Extending Classes* : Concept of inheritance, base class, derived class, defining derived classes, visibility modes, private, public, protected; single inheritance: privately derived, publicly derived; making a protected member inheritable, access control to private and protected members by member functions of a derived class, multilevel inheritance, nesting of classes.

**UNIT – IV**

*Polymorphism* : Definition, types, Function overloading, Operator Overloading, Virtual functions and pure virtual functions.
Suggested Readings :

**Essential :**

2. E. Balaguruswamy : *Object Oriented Programming with C++*, TMH.

**Further Reading :**

4. Herbert Schildt : *Schildt’s Advanced Win 95 Prog. in C & C++*, TMH.
5. Herbert Schildt : *C++ The Complete Reference*, TMH.

Paper – PCS03 : Practical Based on Paper CS06
COMPUTER SCIENCE
SEMESTER-IV

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>FOURTH SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – CS07</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Theory-A</td>
<td>Database Concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper – CS08</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Theory-B</td>
<td>Data Structures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper – PCS04</td>
<td>3</td>
<td>30</td>
<td>--</td>
<td>30</td>
</tr>
<tr>
<td>Practical-C</td>
<td>Practical Based on Paper – CS08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of Lab. Record.

Paper-CS07: Database Concepts

Objective: To teach the underlying concepts of database system in depth to students.

Note:
(i) The question paper will consist of Four units.
(ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt ONE question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

UNIT – I

Basic Concepts: A Historical perspective, File Systems vs. DBMS, Characteristics of the Database Approach, Abstraction and Data Integration, Database users, Advantages and Disadvantages of DBMS, Implication of Database approach; Data Independence.

UNIT – II

Relational Data Model: Relational model concepts, Integrity constraints over Relations, Conventional Data Models: An overview of Network and Hierarchical Data Models, The 12 Rules (Codd’s Rule) for an RDBMS; Entity Relationship model.

UNIT – III

UNIT – IV

*Advance concepts:* Client-Server Architecture, 3-tier Architecture of database, Distributed databases, Normalization: First, second and third Normal Form, Boyce Codd Normal Form; Database Integrity: entity and referential; Security: , Concurrency, Recovery

**Suggested Reading**

**Essential:**


**Further Readings**


****
Paper-CS08 : Data Structures

Objective : To teach the students various data structures and operations performed on them using algorithms. The students will be capable to implement these operations using any programming language.

Note : (i) The question paper will consist of Four units.
  (ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.
  (iii) The students are required to attempt ONE question from each unit and the compulsory question.
  (iv) All questions carry equal marks unless specified.

UNIT – I

Basic Concepts: Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures; Arrays: Introduction, Types of Array, Memory representation, Applications and operations. Stacks: Introduction, memory representation, Applications and operations

UNIT – II

Linked List: Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation; Queue: Introduction, Types, Memory Representation and Applications.

UNIT – III

Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Binary Search tree; Graphs: Introduction, Memory Representation, Graph Traversal (DFS and BFS)

UNIT – IV

Searching: Binary and Linear Search; Sorting: Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort.

Suggested Readings :

Essential :


Further Readings :


statistics

b.a./b.sc. (general) second year examination, 2017-18

semester-iii

note:

1. a candidate shall offer this subject in b.a./b.sc. only if he/she takes up mathematics as a subject in b.a./b.sc.

2. a candidate shall offer b.a./b.sc. 2nd year only if he/she had taken up the corresponding subject in b.a./b.sc. 1st year.

3. there are two papers with codes 201 and 202 in the subject of statistics in b.a./b.sc. 3rd semester. these are to be taught simultaneously throughout the semester.

4. 8 lectures (of 45 minutes each) for theory per week and 4 lectures (of 45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

paper–201 : statistical inference

max. marks: 75
theory: 65
internal assessment: 10
time allowed: 3 hours

notes:

1. there will be in all nine (9) questions, all of equal marks. the first question is compulsory and will be of short answer type covering the entire syllabus. out of the remaining eight (8) questions, four (4) questions will be set from each unit. the candidate will be required to attempt five questions in all including the compulsory first question and two questions from each unit.

2. simple non-programmable calculator is allowed.

3. statistical tables and log tables will be provided on request.

unit-i

concept of a statistic and its sampling distribution. point estimate of a parameter, concept of unbiasedness, consistency, efficiency and sufficiency (only the definitions and examples). maximum likelihood estimation (standard distributions). standard errors of sample mean and sample proportion. sampling distribution of sum of independent binomial and poisson random variables. independence of sample mean and variance in random sampling from a normal distribution (without derivation).

statements and sampling distributions of chi-square, t & f distributions and their relationships.
Unit-II

Statistical Tests and Interval Estimation: Null and alternative hypothesis, two types of errors, level of significance and p-value. Testing for the mean and variance of a normal distribution, testing of equality of means and variances of two univariate normal distributions, and their related confidence intervals. Testing the significance of sample correlation coefficient.

Large Sample Tests: Use of central limit theorem for testing and interval estimation of a single mean and a single proportion, difference of two means and two proportions. Fisher’s Z-transformation and its uses. Chi-square test for goodness of fit and testing of independence of attributes, Yates’ correction.

References:


Additional References:


Paper-202: PRACTICAL (Semester-III)

Maximum Marks : 25
Time allowed : 3 hours

(Viva-Voce : 5 marks; Record of the year : 5 marks; Annual Paper : 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks in three hours’ duration.

1. Drawing random samples from standard distributions: Uniform, Exponential and Normal.
2. Tests of significance based on t, chi-square and F for one sample, two samples and paired sample problems; significance of correlation coefficient. Use of Z-Transformation for testing \( p = p_0 \).
3. Large sample tests for means and proportions, tests of goodness of fit and independence of attributes in contingency tables.
4. Confidence intervals for one and two sample problems (mean, variance and proportion).
STATISTICS
B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-IV

Note:
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. A candidate shall offer this subject in B.A./B.Sc. 2nd year only if he/she had taken up the corresponding subject in B.A./B.Sc. 1st year.
3. There are two papers code named 203 and 204 in the subject of Statistics in B.A./B.Sc. 4th Semester. These are to be taught simultaneously throughout the semester.
4. 8 lectures (45 minutes each) for theory per week and 4 lectures (45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

Paper–203: SAMPLE SURVEYS, DESIGN AND ANALYSIS OF EXPERIMENTS

Max. Marks : 75
Theory : 65
Internal Assessment : 10
Time Allowed : 3 hours

Objective: The objective of this course is to acquaint the students about the need & merits of sampling over census and the implementation of various sampling schemes along with their merits, demerits and comparisons in appropriate practical situations. The students will get exposure to various statistical designs leading to the analysis of variance, elimination of heterogeneity of the data and construction of designs.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit-I
Concepts of population and sample, need for sampling, census and sample surveys, basic concepts in sampling. Sample selection and sample size. Sampling and non-sampling errors.

Some basic sampling methods for estimation of population mean, variance and standard error of estimates: Simple Random Sampling (SRS) with and without replacement, stratified random sampling under various allocations and systematic sampling.

Unit-II
Linear Models: Concepts of fixed effect, random effect and mixed effect models. Analysis of variance for one-way, two-way (with one observation per cell and with multiple but equal observations per cell) classifications under the fixed effect models.

Need for design of experiment, three fundamental principles of design, basic designs—CRD, RBD, LSD and their analysis.
References:


Additional References:


Paper-204: PRACTICAL (Semester-IV)

(Viva-Voce : 5 marks; Record of the year : 5 marks; Annual Paper : 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks in three hours duration.

1. Selection of sample and determination of sample size : Simple Random Sampling (SRS), stratified SRS, allocation problems in stratified SRS and systematic sampling.
2. Analysis of variance for one-way and two-way classifications. Analysis of CRD, RBD and LSD.

Maximum Marks : 25
Time allowed : 3 hours

***************
APPLIED STATISTICS

SEMESTER-III

Note: 1. This course shall not be opted for along with courses in B.A./B.Sc. Mathematics and/or B.A./B.Sc. Statistics.

2. The candidate opting for this course will not be eligible for admission to M.A./M.Sc. Statistics.

3. There is one paper with code 201AS in B.A./B.Sc. Semester-III having a total of 100 marks.

4. 9 lectures of 45 minutes each per week shall be allotted for the teaching.

Paper-201AS : MATHEMATICAL METHODS-II

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>90</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10</td>
</tr>
<tr>
<td>Time allowed</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

Objective: The objective of the course is to provide an exposure to the Coordinate Geometry of three dimensions, Calculus of several variables and theory of Matrices.

Note: There will be in all nine (9) questions. The first question is compulsory and will be of short answer type covering the whole syllabus. This question will have (9) parts of 2 marks each. Of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidates will be required to attempt five (5) questions in all including the compulsory first question and two questions from each Unit.

Unit-I

Coordinate Geometry of 3 Dimensions: Cartesian, spherical coordinates, equations of line, plane, sphere and ellipsoid.

Matrices and Linear Algebra: Determinants, algebra of matrices, rank of a matrix, inverse of a matrix, symmetric matrices (upto $4 \times 4$ matrices only).

Unit-II

Matrices and Linear Algebra: Systems of Linear equations and their solutions.

Calculus of Several Variables: Functions of two variables, Partial derivatives and double integrals. Applications to evaluation of area.
Books Prescribed:


Books Suggested for Supplementary Reading:

B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM ) SYLLABUS

APPLIED STATISTICS

SEMESTER-IV

Note: 1. This course shall not be opted for along with courses in B.A./B.Sc. Mathematics and/or B.A./B.Sc. Statistics.

2. The candidate opting for this course will not be eligible for admission to M.A./M.Sc. Statistics.

3. There is one paper with code 202AS in the subject of Applied Statistics in B.A./B.Sc. Semester-IV having a total of 100 marks.

4. 9 lectures of 45 minutes each per week shall be allotted for the teaching.

Paper-202AS : STATISTICAL METHODS

| Max. Marks | 100 |
| Theory     | 90  |
| Internal Assessment | 10  |
| Time allowed | 3 Hours |

Objective: The objective of the course is to make the students conversant with various techniques used in summarization and analysis of data. The focus will be both on theoretical as well as practical approach.

Notes: 1. There will be in all nine (9) questions. The first question is compulsory and will be of short answer type covering the whole syllabus. This question will have (9) parts of 2 marks each. Of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidates will be required to attempt five (5) questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

Unit-I

Compilation, classification, tabulation and diagrammatic representation of statistical data. Concepts of Statistical population, random sample and frequency curve, measures of location, dispersion, skewness and kurtosis.

Two dimensional random variable, joint probability distributions, marginal and conditional probability distributions, conditional expectation, covariance and correlation coefficient.
Unit-II

Measures of association and contingency, correlation and linear-regression involving two variables. Bivariate normal distributions.

Statement of weak law of large numbers and central limit theorem for independent and identical random variables. Sampling distributions of means, chi-square, t and F in sampling from normal populations (without proof).

Books Recommended:

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2005) : Fundamentals of Statistics, Vol.1 Chapter 1 to 6, 9, 10, 13 (only the relevant portion from these chapters as suggested by the body of the syllabus).

PHYSICS
B.Sc. (GENERAL) SECOND YEAR (3rd and 4th Semester) EXAMINATION, 2017-18

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the theory papers is allocated 25 marks including 3(three) marks for the Internal Assessment. The Practical examination is of 50 marks including 5(Five) marks for the Internal assessment and will be held along with the fourth semester examination.

2. The number of lectures per week will be three for each theory paper and six for practicals.

3. The examination time for each theory paper as well as practical paper will be three hours.

4. Each theory paper will consist of seven questions comprising of three sections. First two sections will comprise of three questions from each of Units I and II of syllabus, and the third section will comprise of one compulsory question of ten short answer type parts covering whole syllabus. The question paper will be set for 44 marks - All the questions in first and second sections will carry 9 (nine) marks each and the compulsory question will carry 8 marks. Student will attempt two questions from each of the first two sections and any eight parts of the compulsory questions. After evaluation of the answer books out of 44 marks, the marks will be given out of 22 marks.

5. The numerical problems/exercises in the question paper should be 25-30%.

6. The use of Non-programmable calculators will be allowed (paper setter should explicitly mention this in the question paper) in the examination centre but these will not be provided by the University/College. Mobile phones and pages are not allowed in the examination hall.
PHYSICS

SEMESTER-III

Papers, marks and teaching hours allocation:

Paper A : Statistical Physics and Thermodynamics – I          Total Teaching hrs. 30
Paper B : Optics and Lasers –I                                Total Teaching hrs. 30
Paper C : Quantum Physics-I                                  Total Teaching hrs. 30
                                      Physics Practicals                  Total Teaching hrs. 45

Paper A : STATISTICAL PHYSICS AND THERMODYNAMICS-I           (30 Hrs.)

UNIT-I

Basic ideas of Statistical Physics, Scope of Statistical Physics, basic ideas about probability, distribution of four distinguishable particles in two compartments of equal size. Concept of macrostates, microstates, thermodynamic probability, effects of constraints on the system, distribution of n particles in two compartments, deviation from the state of maximum probability, equilibrium state of dynamic system, distribution of distinguishable n particles in k compartments of unequal sizes.

UNIT-II

Phase space and its division into elementary cells, three kinds of statistics. The basic approach in the three statistics. Maxwell-Boltzmann statistics applied to an ideal gas in equilibrium, experimental verification of Maxwell-Boltzmann’s law of distribution of molecular speeds.

Books Suggested :

Essential Readings :


Further Readings:

Paper-B : OPTICS AND LASERS-I (30 Hrs.)

UNIT-I


UNIT-II

Diffraction : Huygen-Fresnal theory half period zones, zone plates. Distinction between Fresnel and Fraunhofer diffraction. Fraunhofer diffraction due to single slit and intensity distribution, double slits & multiple slits (qualitative). Fraunhofer diffraction at rectangular (qualitative discussion) and circular apertures. Effects of diffraction in optical imaging, resolving power of microscope and telescope, diffraction grating, its use as a spectroscopic element, resolving power, Moiré’s fringes.

Polarization : Concept and analytical treatment of unpolarised, plane polarized and elliptically polarized light. Double refraction, Nicol prism, sheet polarisers, retardation plates. Production and analysis of polarized light (quarter and half wave plates).

Books Suggested :

Essential Readings:
1. Optics, Jenkins and White, McGraw Hill.
2. Optics, Ajoy Ghatak, McMillan India.

Further Readings:
1. Optics, Born and Wolf, Pergamon.
UNIT-I

Formalism of Wave Mechanics:

(i) Planck’s formula of Black body radiation and energy quantization, Wave-particle duality – Photoelectric effect, X-ray diffraction, Compton effect, Pair production, Photon and gravity. De Broglie waves, wave packet, Phase velocity and Group velocity, Electron microscope, Particle in a box, Particle diffraction, Davisson-Germer experiment, Interferferometry with particles. Uncertainty principle with illustrations, Principle of complementarity. (Chapters 2 and 3 of book 1 or Chapters 1-3 of book 2)

(ii) Quantum mechanics, Wave equation, Plausible arguments leading to time-dependent Schrodinger equations, Born’s interpretation of Wave function, complex character, continuity and boundary conditions, probability interpretation, normalization, Probability current, Probability conservation equation, Principle of superposition.


UNIT-II

Problems in One and Three Dimensions:

(h) Steady-state Schrodinger equation, Application to stationary states for one dimension, Potential step, potential barrier, Tunnel effect examples, Scanning Tunneling microscope, rectangular potential well, Linear harmonic oscillator. (Chapter 5 of book 1 and book 2)

(ii) Schrödinger equation for spherically symmetric potential, spherical harmonics, hydrogen atom energy levels and eigenfunctions, Principal, Orbital and Magnetic quantum numbers, Electron probability density. (Chapter 6 of book 1 and book 2)

BOOKS SUGGESTED:

Essential Readings:

Further Readings:
PHYSICS PRACTICALS

The students are required to perform all the Nine experiments from each of the Units I and Unit II. The Practical examination will be held along with the fourth semester examination.

The aim of the project work is to develop the scientific and technical temper in the students and as such it may consist of development of a laboratory experiment, fabrication of a device or electronic circuit etc. The student will prepare a project report of about 10 pages. Assessment of the project work will be done on the basis of the effort put in the execution of the project, report prepared and viva-voce.

General Guidelines for Physics Practical Examinations:

Total: 50 marks

1. The distribution of marks is as follows:

   (i) One full experiment out of section–A requiring the student to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error). 20

   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 7

   (iii) Viva-Voce and Record (Practical file) 10

   (iv) Project 8

   (v) Internal Assessment 5

Note for Examiners:

2. The marks scored under each head must be clearly written on the answer sheet.

3. There will be one session of 3 hours duration. The paper will have two sections. Section–A will consist of 4 experiments from each of Units I and Unit II, out of which an examinee will mark 3 experiments from either of units and one of these is to be allotted by the external examiner.

4. Section–B will consist of exercises/computer based activities which will be set by the external examiner on the spot. The length of the exercises should be such that any of these could be completed in one hour.

5. The examiner should take care that the experiment allotted to an examinee from section-A and exercise allotted from section–B are not directly related to each other.

6. Number of candidates in a group for practical examination should not exceed 20.

7. In a single group, no experiment be allotted to more than three examinees in the group.
List of Experiments:

UNIT-I

A. Statistical Physics and Thermodynamics:
   I. To study adiabatic expansion of a gas.
   II. To measure thermal expansion of crystal using interference fringes.
   III. To measure thermal conductivity in poor conductor by Lee’s method.
   IV. Thermo emf calibration, comparison.
   V. Total radiation law, temperature dependence of radiation.
   VI. To study Probability distribution using coloured dice, coins.

B. Optics and Lasers:
   VII. To determine the refractive index of a liquid using spectrometer.
   VIII. To determine the Cauchy’s constants.
   IX. To study the refractive index of a doubly refracting prism.
   X. Study of rotation of plane of polarization with a polarimeter.
   XI. To determine the wavelength of a given light using biprism.

Exercises:
1. To measure the thermo e.m.f.
2. To determine the heating efficiency of an electric kettle with varying voltages.
3. To measure the angle of rotation of plane of polarization for the given liquid.
4. To determine the least count and setup the spectrometer for minimum deviation position of the prism.

Computer Based Activities: Elementary C language programs.
1. Motion of particle in a central force field.
2. Calculation of days between two dates of a year.
3. To check if triangle exists and the type of the triangle.

UNIT-II

C. Optics and Lasers:
   I. To determine the wavelength and dispersive power using plane diffraction grating (use Hg source).
   II. To determine the resolving power of a telescope.
   III. To determine the resolving power of a grating.
   IV. Set up Newton’s rings to determine wave length of sodium light.
   V. To measure an inaccessible height using sextant.
   VI. To determine the principal points of a lens system.
   VII. To determine the divergence and wave length of a given laser source.
D. Quantum Physics:

VIII. To study the Photoelectric effect and determine the value of Planck’s constant.
IX. To study the gas discharge spectrum of hydrogen.
X. To study the absorption spectra of iodine vapours.
XI. To determine the ionization potential of mercury.

Exercises:

1. To measure the diameter of Newton’s rings.
2. Study of variation of light intensity using photovoltaic cell/inverse square law.
3. To determine the angle of wedge using interference method.
4. To measure the angle of elevation of a tall building.

Computer Based Activities: Elementary C language programs.

1. To find the sum of the sine and cosine series and print out the curve.
2. To find Sum and Product of Matrices
3. Motion of a projectile using computer simulation.

Text and Reference Books:

2. B.Sc. Practical Physics, C.L. Arora (S. Chand) & Co. (2014)
PHYSICS

SEMESTER – IV

Papers, marks and teaching hours allocation:

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Total Teaching hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper A</td>
<td>Statistical Physics and Thermodynamics – II</td>
<td>30</td>
</tr>
<tr>
<td>Paper B</td>
<td>Optics and Lasers –II</td>
<td>30</td>
</tr>
<tr>
<td>Paper C</td>
<td>Quantum Physics-II</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Physics Practicals</td>
<td>45</td>
</tr>
</tbody>
</table>

Paper A: STATISTICAL PHYSICS AND THERMODYNAMICS-II (30 Hrs.)

UNIT-I


UNIT-II


Books Suggested:

**Essential Readings:**

1. “Statistical Physics and Thermodynamics”, V.S. Bhatia, (Shoban Lal Nagin Chand, Jalandhar)

**Further Readings:**

1. Thermal Physics by C. Kittel & H. Kroemer, CBS Pub., 1987
Paper-B : OPTICS AND LASERS-II (30 Hrs.)

UNIT-I

_Laser Fundamentals:_
Interacation of light with matter: Absorption, spontaneous emission, stimulated emission, Wave mechanical explanation, Properties of Spectral Lines, Temporal and spatial coherence, Characteristics of stimulated emission, Einstein coefficients and their relations, Light amplification and threshold condition, Population inversion, Kinetics of optical absorption (qualitative account only), Qualitative account of Collisional broadening, Doppler broadening & Natural broadening, Mechanism of Luminescence.

Lasing action, Components of Laser, Elementary theory of optical cavity, longitudinal and transverse modes, Principal pumping schemes, Three level and four level laser schemes.

UNIT-II

_Laser Systems:_ Types of lasers, Ruby and Nd : YAG lasers. He–Ne, N₂, Dye and CO₂ lasers – construction, mode of creating population inversion and output characteristics.
Applications of lasers—a general outline, Holography. Principle, recording of hologram and reconstruction of image.
_Fiber Optics:_ Photonics, Optical fibre, Construction, Numerical aperture, acceptance angle, skip distance, Step index fibre – single mode and multimode, Graded index fibre, Losses in optical fibre, Material losses and Rayleigh scattering, bending losses, Intermodal and intramodal dispersion.
Splicing techniques, Optical fibre based communication system, Medical applications, Displacement sensor temperature sensor, force sensor, Humidity sensor.

Books Suggested:

**Essential Readings:**

4. *Optical Fiber Communication*, Keiser, MH.

**Further Readings:**

Paper-C : QUANTUM PHYSICS-II (30 Hrs.)

UNIT-I

Radiative transitions, selection rules and life times,
Spectrum of hydrogen atom.
Normal Neeman effect and experiment, Degeneracy of H-atom energy levels, fine structure, Electron angular
momentum, Larmor’s frequency, electron spin angular momentum, Exclusive principle, Stern-Gerlach
experiment, spin-orbit coupling, electron magnetic moment, total angular momentum, Hyperfine structure,
examples of one electron systems, Anomalous Zeeman effect, Lande-g factor (sodium D-lines). Paschen-
Back Effect, Stark Effect.

(Chapters 6 & 7 of Book 1, Chapters 8-10 of Book 2)

UNIT-II

Symmetric and Antisymmetric wave functions, exclusion principle, Many electron atoms, Slater determinant,
Electronic configurations, Hund’s rule, Spin-Orbit coupling, L-S coupling, J-J couplings, term symbols.
Atomic spectra of H, Na, He and Hg, selection rules.
X-ray spectra, nomenclature, Selection rules, Mosley law, Auger effect.
Molecular bonding, H$_2^+$ ion and H$_2$ molecules, Complex molecules, molecular spectra, selection rules,
symmetric structures, rotational vibrational levels and spectra of diatomic molecules, vibration-rotation
spectra, electronic spectra of molecules, Franck Condon principle, fluorescence and phosphorescence, Raman
Effect, Magnetic resonance experiments.

(Chapters 7 & 8 of Book 1, Chapter 12 of Book 2)

Books Suggested :

Essential Readings :


Further Readings :

2. *Atomic and Molecular Spectra*, Rajkumar (Kedarnath Ramnath Prakashan, Meerut).

PHYSICS PRACTICALS

The Practical examination will be held along with the fourth semester examinations. General Guidelines
for Physics Practical Examinations and syllabus is given in syllabus for Semester III.
CHEMISTRY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18

Scheme of Teaching and Examination

**SEMESTER-III**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX</td>
<td>Inorganic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>X</td>
<td>Organic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XI</td>
<td>Physical Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XII</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

**SEMESTER-IV**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIII</td>
<td>Inorganic Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIV</td>
<td>Organic Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XV</td>
<td>Physical Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVI</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

**Total Marks**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMESTER-III-</td>
<td>100</td>
</tr>
<tr>
<td>SEMESTER-IV-</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>
CHEMISTRY

SEMESTER-III

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX</td>
<td>Inorganic Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>X</td>
<td>Organic Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XI</td>
<td>Physical Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XII</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 periods/week</td>
<td>100</td>
</tr>
</tbody>
</table>

Paper-IX: INORGANIC CHEMISTRY-A

Time : 3 Hrs
Max. Marks : 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I

Chemistry of Elements of First Transition Series:
Characteristic properties of $d$-block elements.

Properties of the elements of the first transition series, their simple compounds and complexes, illustrating relative stability of their oxidation states, coordination number and geometry.

UNIT-II

Chemistry of Elements of Second and Third Transition Series:
General characteristics, comparative treatment with their $3d$-analogues in respect of ionic radii, oxidation states, magnetic behaviour, spectral properties and stereochemistry.

UNIT-III

Chemistry of Coordination Compounds-I
Werner’s coordination theory and its experimental verification, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds

UNIT-IV

Chemistry of Coordination Compounds-II
Valence bond theory of transition metal complexes. Properties of Coordination compounds i.e. magnetic properties, colours (Qualitative approach only), use of coordination compounds.
Instructions for paper setters and candidates:

i. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt **FIVE** questions in all, **ONE** question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books Suggested


Paper-X: ORGANIC CHEMISTRY-A

Time : 3 Hrs
Max. Marks : 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

**OBJECTIVE OF THE COURSE**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.
UNIT-I (8 Hrs.)

**Alcohols and Phenols:**
Classification and nomenclature


UNIT-II (8 Hrs.)

**Aldehydes and Ketones I**
Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids. Physical properties.

UNIT-III (7 Hrs.)

**Aldehydes and Ketones-II**
Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations. Condensation with ammonia and its derivatives. Wittig reaction, Mannich reaction.

Use of acetal as protecting group. Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV, Clemmensen, Wolff-Kishner, LiAlH₄ and NaBH₄ reductions.

UNIT-IV (7 Hrs.)

**Carboxylic Acids:**

Methods of formation and chemical reactions of unsaturated monocarboxylic acids.

Dicarboxylic acids: Methods of formation and effects of heat and hydrating agents.

Instructions for paper setters and candidates:

i. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

ii. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

iii. **Compulsory question carries six marks and remaining all questions carry four marks each.**
Books suggested


Paper-XI: PHYSICAL CHEMISTRY-A

Time : 3 Hrs.
Max. Marks:22+3
60 Hrs. (2 Hrs./Week)
3 Periods/Week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I

Liquid State:
Intermolecular forces, structure of liquids (a qualitative description).
Structural differences between solids, liquids and gases.
Liquid Crystals: Difference between liquid crystal, solid and liquid. Classification, structure of nematic and cholesteric phases. Thermography and seven segment cell.

UNIT-II

Chemical Equilibrium:
Equilibrium constant and free energy. Thermodynamic derivation of law of mass of mass action. Le Chatelier’s principle.
Reaction isotherm and Reaction isochore-Clapeyron equation and Clausius–Clapeyron equation, applications.

UNIT-III

Thermodynamics-II:
Concept of Entropy: Entropy as a state function, entropy as a function of V & T, entropy as a function of P & T, entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

UNIT-IV (7 Hrs.)

Thermodynamics-III:
Third Law of Thermodynamics: Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz functions (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P, V and T.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XII: LABORATORY PRACTICALS

Inorganic Chemistry
Quantitative Analysis

Volumetric Analysis:
  a) Estimation of calcium content in chalk as calcium oxalate by permanganometry.
  b) Estimation of hardness of water by EDTA.
  c) Estimation of ferrous and ferric by dichromate method.
  d) Estimation of copper using sodium thiosulphate

Gravimetric Analysis
Analysis of Cu as CuSCN and Ni as Ni (dimethylglyoxime)₂.

Physical Chemistry
Thermochemistry:
  a) To determine the solubility of benzoic acid at different temperatures and to determine ∆H of the dissolution process.
  b) To determine the enthalpy of neutralization of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionization of the weak acid/weak base. pH of a Buffer solution, Determination of ionization constant of a weak acid.

General Instruction to the Examiners:
Note: Practical examination will be of four hours duration & shall consist of the following questions:

Q.No. I.  Inorganic Chemistry : 09 marks
Q.No. II. Physical Chemistry : 06 marks
Q.No. III. Viva-Voce : 04 marks
  Ask four questions (2 marks each) related to chemistry practicals.
Q.No. IV. Note Book : 03 marks

Books Suggested (Laboratory Courses)


CHEMISTRY

SEMESTER-IV

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIII</td>
<td>Inorganic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIV</td>
<td>Organic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XV</td>
<td>Physical Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVI</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

Paper-XIII: INORGANIC CHEMISTRY-B

Time: 3 Hrs
Max. Marks: 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)

Chemistry of Lanthanide Elements:
Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

Chemistry of Actinides:
General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from U, similarities between the later actinides and the later lanthanides.

UNIT-II (7 Hrs.)

Acids and Bases:
Arrhenius, Bronsted-Lowry, the Lux-Flood, solvent system and Lewis concepts of acids and bases.

UNIT-III (8 Hrs.)

Oxidation and Reduction:
UNIT-IV  

Non-aqueous Solvents:
Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH$_3$ and liquid SO$_2$.

Instructions for paper setters and candidates:

i. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

ii. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

iii. **Compulsory question carries six marks and remaining all questions carry four marks each.**

Books Suggested


---
Paper-XIV: ORGANIC CHEMISTRY-B

Time: 3 Hrs
Max. Marks: 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)

Carboxylic Acid Derivatives:

Preparation of carboxylic acid derivatives, chemical reactions. Mechanisms of esterification and hydrolysis (acidic and basic).

UNIT-II (8 Hrs.)

Ethers, Epoxides, Fats, Oils and Detergents:
Nomenclature of ether and methods of their formation, physical properties. Chemical reaction-cleavage and autoxidation, Ziesel’s method.

Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening, reactions of Grignard and organolithium reagents with epoxides.

Natural fats, edible and industrial oils of vegetable origin, common fatty acids, glycerides, hydrogenation of unsaturated oils. Saponification value, iodine value, acid value. Soaps, synthetic detergents; alkyl and aryl sulphonates.

UNIT-III (7 Hrs.)

Organic Compounds of Nitrogen:

Structure and nomenclature of amines, physical properties. Stereochemistry of amines, Separation of a mixture of primary, secondary and tertiary amines. Structural features effecting basicity of amines. Amine salts as phase-transfer catalysis. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-phthalimide reaction, Hofmann bromamide reaction.
UNIT-IV

Electromagnetic Spectrum: Absorption Spectra –I: (7 Hrs.)
Ultraviolet (UV) absorption spectroscopy – Absorption laws (Beer – Lambert Law), molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV spectra of conjugated enes and enones.

Woodward Fieser Rules and their applications in calculating maximum values of conjugated alkenes (cyclic as well as acyclic) and conjugated carbonyl compounds.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


Paper-XV: PHYSICAL CHEMISTRY-B

Time: 3 Hrs
Max. Marks: 22+3
60 Hrs. (2 Hrs/Week)
3 Periods/Week

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)

Phase equilibrium:
Statement and meaning of the terms – phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibria of one component system—water, CO₂ and S systems.

Phase equilibria of two component system – solid – liquid equilibria, simple eutectic – Bi-Cd system, desiliverisation of lead.

Solid solutions—compound formation with congruent melting point (Mg-Zn) and incongruent melting point, (NaCl-H₂O) system. Freezing mixtures, acetone-dry ice.


Nernst distribution law-thermodynamic derivation, applications.

UNIT-II (7 Hrs.)

Electrochemistry –I:
Electrical transport – Conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution.

Migration of ions and Kohlrausch Law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald’s dilution law, its uses and limitations. Debye-Huckel-Onsager’s equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf method and moving boundary method.

UNIT-III (8 Hrs.)

Electrochemistry-II:
UNIT-IV

(7 Hrs.)

Electrolytic and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells.

E.M.F. of a cell and its measurements. Computation of cell E.M.F. Calculation of thermodynamic quantities of cell reactions (ΔG, ΔH and K), Polarization, over potential and hydrogen overvoltage. Concentration cell with and without transport, liquid junction potential, application of concentration cells, valency of ions, solubility product and activity coefficient, potentiometric titrations.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XVI LABORATORY PRACTICALS

Max. Marks: 22+3
6 Periods/week

Organic Chemistry
Laboratory Techniques:

a) Determination of Rf values and identification of organic compounds. Separation of isometric mixture of Ortho and paranitroaniline using hexane and ethyl acetate (8.5 : 1.5) by thin layer chromatography.

b) Extraction of caffeine from tea leaves.

Qualitative Analysis:
Detection of elements (N, S and halogens) and functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro and anilide), in simple organic compounds.

General Instruction to the Examiners:
Note: Practical examination will be of four hours duration & shall consist of the following questions:
Q.No. I. Organic Chemistry: (analysis of organic compound) : 09 marks
Q.No II. TLC experiment, Extraction of caffeine) : 06 marks
Q.No. III. Viva-Voce : 04 marks
Ask four questions (2 marks each) related to chemistry practicals.
Q.No. IV. Note Book : 03 marks

Books Suggested (Laboratory Courses)


***************
BOTANY

B.Sc. (GENERAL) SECOND YEAR (3rd and 4th Semester) EXAMINATION, 2017-18

<table>
<thead>
<tr>
<th>Third Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Diversity of Seed Plants and their Systematics-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-I</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs.</td>
<td>18</td>
<td>02</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Diversity of Seed Plants and their Systematics-II</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-II</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs.</td>
<td>18</td>
<td>02</td>
<td>20</td>
</tr>
</tbody>
</table>

Total 200

Note:

1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.

2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.
B.A./B.Sc. (GENERAL) SECOND YEAR (SEMESTER SYSTEM ) SYLLABUS

BOTANY
SEMESTER-III

THEORY PAPER- A: DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS- I

Objective: This paper deals with highly advance and evolved group of plants with naked seeds i.e. Gymnosperms. The course work of this paper gives a fair idea about the general features, economic importance and study of fossil as well as living gymnosperms.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc. Students will be taken for field excursions to various hill stations/forests to familiarize them with the flora of the area covering various plant forms.

UNIT-I

General characteristics and economic importance of gymnosperms; differences between gymnosperms and angiosperms; differences between manoxylic and pycnoxylic wood.

UNIT-II

Fossil gymnosperms: Brief account of fossils, their formation and types (excluding details).

*Lyginopteris:* Introduction, external structure of stem; internal structure of primary stem, root and leaf; reproduction.

*Williamsonia:* Introduction, external morphology; internal structure; reproductive organs, male and female flowers.

UNIT-III

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of *Cycas*.

UNIT-IV

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of:

a) *Pinus*
b) *Ephedra*
Suggested Reading:


PAPER –B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-I

Objective: This paper deals with the basic body plan and diversity in flowering plant forms. The course work of this paper covers vegetative and reproductive morphology of these plants and will familiarize the students with plants bearing the enclosed seeds.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

The basic body plan of a flowering plant.
Diversity in plant form in annuals, biennials and perennials.
Root system: Tap root and adventitious root system and their various types; structural and anatomical modifications for storage, respiration and reproduction.

UNIT-II

Stem: Modifications of aerial and underground stem.
Leaf: Venation, phyllotaxy, simple and compound leaves, functions and modifications; internal structure (dicot and monocot leaves).

UNIT-III

Flower: As a modified shoot, functions; structure of anther and pistil; structure and development of male and female gametophytes.

UNIT-IV

Double fertilization and its significance; different types of ovules and embryo-sacs.
Suggested Reading:


Suggested laboratory exercises:

1. **Cycas:**
   i) Habit, armour of leaf bases on the stem, young and old foliage leaves, scale leaves, male cone, megasporophyll, seed.
   ii) Preparation of permanent stained slides of *Cycas* (T.S. leaflet, rachis and coralloid root).

2. **Pinus:**
   i) Dwarf shoot; Male cone; Female cones (first year, second year and third year); Seed.
   ii) Preparation of permanent slide of T.S. needle and pollen grains.
   iii) Study through permanent slides:
       a) L.S. male cone
       b) L.S. female cone
       c) L.S. ovule

3. **Ephedra:**
   i) Habit and structure of male and female cones
   ii) Preparation of permanent slide of T.S. stem (young).
   iii) Study through permanent slides:
       a) L.S. female cone
       b) L.S. male cone
4. Modifications of underground stem and leaf modifications.

5. Study through permanent slides:
   i) V.S. dicot leaf
   ii) V.S. monocot leaf

Guidelines for Botany Practical Examination

1. Cut T.S. of specimen A. Make its permanent stained slide. Identify, draw its well labeled diagram and show it to the examiner. 6

2. Identify, write illustrated morphological note on specimen B (from gymnosperms) and C from underground stem/leaf modifications. 4

3. Identify slides D and E giving at least two identifying features. 4

4. Practical note book and Viva-voce 2+2=4

------------------
BOTANY
SEMESTER-IV

PAPER-A: DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-II

Objectives: This paper deals with highly advanced and evolved group of plants i.e. Angiosperms. The study of gradual transition from seedless plants to seed plants would make students familiar with origin of structural and functional complexity in plant kingdom. The systematics part of this paper is the backbone of study of Botany. Without having knowledge of taxonomy and species concept, no further research work can be pursued. The identification, nomenclature and classification of the concerned plants make the first step of any research work in Botany.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc. Students will be taken for field excursions to various hill stations/forests to familiarize them with the flora of the area covering various families of flowering plants.

UNIT-I

General characters of Angiosperms. Plant nomenclature and International Code of Botanical Nomenclature: Common names and scientific names, principles and rules; taxonomic ranks; type concept (Holotype, Isotype, Syntype, Paratype, Lectotype, Neotype and Topotype); principle of priority, aims and objectives of plant taxonomy.

A brief account of Bentham and Hooker’s System of classification, its merits and demerits.

UNIT-II

Terminology pertaining to floral description.

General account and diagnostic features of the following families (excluding economic importance):

Liliaceae : Asphodelus/Asparagus
Gramineae (Poaceae) : Triticum
Ranunculaceae : Ranunculus and Delphinium
Brassicaceae : Brassica

UNIT-III

General account and diagnostic features of the following families (excluding economic importance):

Rutaceae : Citrus and Murraya
Malvaceae : Hibiscus
Fabaceae : Lathyrus, Cassia and Acacia
Umbelliferae (Apiaceae) : Coriandrum
UNIT-IV

General account and diagnostic features of the following families (excluding economic importance):

- **Compositae (Asteraceae)**: *Helianthus/Ageratum*
- **Asclepiadaceae**: *Calotropis*
- **Solanaceae**: *Solanum and Petunia*
- **Labiatae (Lamiaceae)**: *Ocimum*
- **Chenopodiaceae**: *Chenopodium*

**Suggested Readings:**

PAPER-B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-II

Objectives: This paper deals with structure development and reproduction in flowering plants – the most fascinating group of plants on earth. The course material of this paper deals with internal structure of various plant parts, their growth patterns and abnormalities in structural development. The vast range of variation found in this group of plants provides a platform to students for acquiring basic knowledge of flowering plants which makes a foundation of applied branches like horticulture, floriculture, olericulture and arboriculture.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Tissue systems: Meristematic, shoot apex, root apex; simple and complex permanent tissues, special tissues; internal structure of primary dicot stem & root (Helianthus); secondary growth in dicot stem & root (Helianthus); internal structure of monocot stem & root (Zea mays); differences between dicot stem and monocot stem; differences between dicot root and monocot root.

UNIT-II

Anomalous stem structure in Boerhaavia, Nyctanthes, Mirabilis and Dracaena. Various methods of vegetative propagation; micropropagation, basic technique and its importance.

UNIT-III

Types of pollination, advantages and disadvantages of self and cross-pollination; contrivances for self and cross-pollination, various agencies to bring about cross-pollination, characters of flowers pollinated by different agencies.

UNIT-IV

Seed formation: Development of endosperm and embryo. Fruit development, maturation and parthenocarpy. Significance of seed: Suspended animation; ecological adaptation and dispersal strategies.

Suggested Readings:


Suggested Laboratory Exercises:

1. Preparation of permanent stained slides to show:
   a. Anomalous internal structure of stem in *Boerhaavia, Nyctanthes, Mirabilis* and *Dracaena*.
   b. T.S. dicot stem & root (*Helianthus*)
   c. T.S. monocot stem & root (*Zea mays*)

2. Description of flowers in technical terms, drawing Floral Diagram, V.S. flower, T.S. ovary, writing Floral Formula with reference to the respective families of the genera mentioned in different families in theory syllabus.

Note: To make the students familiar with plants, (preferably pertaining to syllabus) the teachers are required to organize excursions to forests and hills.
Guidelines for Botany Practical Examination

Max. Marks: 20
Practical: 18
Int. Assess.: 02
Time: 3 hours

1. Cut T.S. of specimen A., Make its permanent stained slide. Identify and draw its well labeled diagram and show it to the examiner. 5

2. Describe specimen B or C in technical terms and proper sequence. Draw Floral Diagram and V.S. of flower B or C. Cut T.S. of ovary and V.S. of flower and show them to the examiner. Write Floral Formula also. Refer specimen B or C to its respective family. 5

3. Identify slides D and E giving at least one reason. 2

4. Practical note book 2

5. Plant Album 2

6. Viva-voce 2

***************
ZOOLOGY
B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

<table>
<thead>
<tr>
<th>Paper-I</th>
<th>Biodiversity (Chordates) &amp; Evolution-I</th>
<th>40</th>
<th>(36 + 4 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-II</td>
<td>Biochemistry &amp; Animal Physiology-I</td>
<td>40</td>
<td>(36 + 4 marks)</td>
</tr>
<tr>
<td>Practical</td>
<td>(Covering the entire syllabus) of 4 hours duration</td>
<td>20</td>
<td>(18 + 2 marks)</td>
</tr>
</tbody>
</table>

Total : 100 marks

Note : The number of hours for Theory and Practical per week shall be 6 hours and 4 hours respectively.

OBJECTIVES OF THE COURSE :

The syllabus pertaining to B.Sc. (General) Part-II, in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Seashores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.

PAPER-I : BIODIVERSITY (CHORDATES) & EVOLUTION-I (ZOO 301)

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Exam.</td>
<td>36 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>4 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

Note : Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each unit. One question is to be attempted from each unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.
UNIT-I

Concept and evidences of organic evolution.
Theories of organic evolution.
Origin of life.

UNIT-II

Chordates – Origin, Parental care and migration.
Protochordates –Urochordata-Type Study – Herdmania except development,
Cephalochordata- Type Study – Amphioxus (except development)

Classification of the animals up to orders relating to the following groups along with brief ecological notes of the following :
Protochordates : Herdmania, Molgula, Pyrosoma, Dolioium, Salpa, Oikopleura & Amphioxus (excluding development).

UNIT-III

Cyclostomata – External Characters of Petromyzon & affinities of Cyclostomata
Pisces-Type study-Labeo, Scales & fins.
Cyclostomata : Myxine, Petromyzon & Ammocoetes larva.
Chondrichthyes : Zygaena (Hammer headed shark), Pristis (saw fish), Narcine (electric ray), Trygon, Rhinobatus and Chimaera (rabbit fish).
Actinopterygii : Polypeterus, Acipenser, Lepisosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.
Dipneusti (Dipni) : Protopterus (lung fish)

UNIT-IV

Amphibia – Type study-Frog.

Classification of the animals up to orders relating to the following groups along with brief ecological notes of the following :

Suggested Readings


PAPER II : BIOCHEMISTRY AND ANIMAL PHYSIOLOGY-I (ZOO 302)

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note : Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each unit. One question is to be attempted from each unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT-I

Biochemistry and its scope;
Carbohydrates, proteins, lipids and nucleic acids: their classifications and functions.

UNIT-II

Enzymes : Nature, their classification and coenzymes.
Carbohydrate metabolism : The Embden Meyerhoff, Parnas pathway,(glycolysis), the tricarboxylic acid cycle, the hexose monophosphate shunt, glycogenesis and glycogenolysis.

UNIT-III

Digestion : Digestion of dietary constituents, regulation of digestive processes and absorption, extra and intra cellular digestion, enzymatic digestion and symbiotic digestion.
Respiration : Transport of O₂ and CO₂, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride(-) shift, Haldane effect and control of breathing.

UNIT-IV

Blood : Composition and functions of blood and lymph, Function of hemoglobin, blood clotting, Blood groups including Rh. Factor.
Heart : Origin and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, blood pressure and micro-circulation.
Suggested Readings


PRACTICALS : Practical based on Theory Papers ZOO 301 & 302 (ZOO 251)

1. Classification up to orders habits, habitats, distinctive characters and economic importance (if any) of the following animals:
   - Urochordata : Herdmania, Molgula, Pyrosoma, Doliolum, Salpa & Oikopleura.
   - Cephalochordata : Amphioxus.
   - Cyclostomata : Myxine, Petromyzon & Ammocoetes Larva.
   - Chondrinchthyes : Zygæna (Hammer headed shark), Pristis (Saw fish), Narcine (Electric ray), Trygon, Rhinobatus and Chimaera (Rabbit fish).
   - Dipneusti (Dipnoi) : Protopterus

2. Demonstrate the dissection of following animals through video clipping, charts, models etc.
   - Herdmania : General anatomy
   - Labeo : Digestive, reproductive systems, heart, afferent and efferent branchial arteries and cranial nerves.

3. Study of the skeleton of Labeo, Rana (frog)
4. Study of the following prepared slides:
   - T.S. Amphioxus through various regions.
   - Spicules & pharynx of Herdmania & pharynx of Amphioxus.
5. Study of the following prepared slides:
   - Histology of frog (compound tissues).
6. Recording of blood pressure of man
7. Demonstration of equipment used for estimating haemoglobin content.
8. Demonstrate the presence of amylase in saliva, denaturation by pH and temperature.
9. Field study : Visit to a fossil Park/Museum. Familiarity with the local vertebrate fauna and report.
Guidelines for conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks
Time : 3 hours

1. Draw a labeled sketch of --------system of given animal and explain it to the examiner. (2)

2. Identify the given bones A & B. Make labelled sketches of their respective ________views. (2)

3. Minor experiment of physiology related to blood /osmosis /diffusion. (1½)

4. Perform the given physiology experiment, write the procedure and show it to the examiner such as identification of some food stuffs/presence of chloride or glucose in urine etc./Salivary Amylase/Blood. (2)

5. Identify the slides F-H giving two reasons for each identification. (2)

6. Identify and classify the specimens F to I upto orders. Write a short note on habitat of F, special feature of G, feeding habit of H and economic importance of specimen I. (4½)

7. Viva-voce. (2)

8. Note book and Project Report. (2)

--------------------------
OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Part-II, in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Seashores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.

PAPER – I : BIODIVERSITY (CHORDATES) & EVOLUTION- II (ZOO 401)

UNIT-I

Reptilia- Type study- *Uromastix*, Poisonous and non-poisonous snakes, Poison apparatus.

Classification of the animals up to orders relating to the following groups along with brief ecological notes of the following :

Reptilia : *Chelone* (turtle) and *Testudo* (Tortoise), *Hemidactylus* (wall lizard), *Calotes, Draco, Varanus, Phrynosoma*, *Chamaeleon, Typhlops, Python, Eryx, Bungarus, Naja, Hydrus, Vipera, Crocodilus, Gavialis* and Alligator.

UNIT-II

Aves-Type study-Pigeon, Flight adaptations.

Classification of the animals up to orders relating to the following groups along with brief ecological notes of the following :

Aves : *Ardea, Milvus, Pavo, Tyto, Alcedo, Eudynamis* and *Casuarius*. 
UNIT- III

Mammals-Type study-Rat, Dentition.

Mammalia : *Ornithorhynchus, Echidna, Didelphis, Macropus* (Kangaroo), *Loris, Macaca, Manis* (Scaly ant eater), *Hystrix* (porcupine), *Funambulus* (Squirrel) *Panthera, Canis, Herpestes* (Mongoose), *Capra, Pteropus*.

UNIT- IV

Concept of micro, macro and mega-evolution.

Biological concept of species.

Fossils and evolutionary rate.

Evolution of man.

Suggested Readings


PAPER II : BIOCHEMISTRY AND ANIMAL PHYSIOLOGY-II (ZOO 402)

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note : Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each unit. One question is to be attempted from each unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.
UNIT-I

Lipid metabolism : B-oxidation of fatty acids, fate of glycerol and gluconeogenesis, interaction of carbohydrates and lipids, lipogenesis in tissues, ketosis.

UNIT-II

Protein metabolism : Protein metabolism of amino acids (Oxidative deamination, transamination and decarboxylation; hydrolysis of proteins and Ornithine cycle).

UNIT-III

Excretion : Urine formation, osmoregulation and counter current mechanism.
Muscles : Ultrastructure, chemical and physiological basis of skeletal muscle contraction.

UNIT-IV

Neural Integration : Structure of neuron, resting membrane potential, origin and propagation of impulse along the axon, synapse and myoneural junction.
Endocrine System : Structure, hormones and functions of thyroid, parathyroid, adrenal, pineal, hypothalamus, pituitary, pancreas, gonads, thymus, hormones of alimentary canal and kidney.

Suggested Readings

PRACTICALS : Practical based on Theory Papers ZOO 401 & 402 (ZOO 252)

1. Classification up to orders habits, habitats, distinctive characters and economic importance(if any) of the following animals :
   Reptilia : Chelone(Turtle) and Testudo (Tortoise), Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Vipera, Crocoidilus, Gavialis.
   Aves : Casuarius, Ardea, Anas, Milvus, Pavo, Eudynamis, Tyto and Alcedo.

2. Demonstrate the dissection of following animals through video clipping, charts, models etc.
   Chick : Digestive, arterial, venous and urinogenital systems.
   White Rat : Digestive, arterial, venous and urinogenital systems.

3. Study of the skeleton of Varanus, Gallus and Rat/ Oryctolagus (Rabbit).
4. Study of the following prepared slides:
   Histology of rat/rabbit (compound tissues)
5. Make temporary preparations of the following:
   Blood smear of a mammal.
7. Demonstration of osmosis and diffusion.
8. Analysis of urine for urea, chloride, glucose and uric acid.
9. An idea of location of endocrine glands in mammals through charts / models/ video clippings

Field study : Visit to a fossil Park/Museum. Familiarity with the local vertebrate fauna and report.

Guidelines for conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks
Time : 4 hours

1. Draw a labeled sketch of --------system of given animal and explain it to the examiner. (2)
2. Identify the given bones A & B. Make labelled sketches of their respective ________views. (2)
3. Minor experiment of physiology related to blood/osmosis/diffusion. (1½)
4. Perform the given physiology experiment, write the procedure and show it to the examiner such as identification of some food stuffs/presence of chloride or glucose in urine etc./Salivary Amylase/Blood. (2)
5. Identify the slides D & E giving two reasons for each identification. (2)
6. Identify and classify the specimens F to I upto orders. Write a short note on habitat of F, special feature of G, feeding habit of H and economic importance of specimen I. (4½)
7. Viva-voce. (2)
8. Note book and Project Report. (2)
BIOCHEMISTRY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2017-18
SEMESTER-III

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:

1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper A: Carbohydrate & Lipid metabolism
Marks: 45+5

Objective: To learn about digestion and absorption of carbohydrates and lipids and major metabolic pathways pertaining to them.

SECTION-I
(Lectures 8)
Digestion & Absorption of Carbohydrates:
Metabolic pathways of carbohydrates, glycolysis and alcoholic fermentation, The pentose phosphate pathway, glucuronate and glyoxylate pathway, TCA cycle, glycogenolysis & glycogenesis, gluconeogenesis, biosynthesis of starch and ascorbic acid.

SECTION-II
(Lectures 8)
Digestion & transport of lipids:
β-Oxidation of fatty acids including odd chain fatty acids. α and ω oxidation of fatty acids. Degradation of triglycerides and phospholipids. Formation and utilization of ketone bodies.

SECTION-III
(Lectures 7)
Lipid biosynthesis
Biosynthesis of saturated and unsaturated fatty acids, triglycerides and phospholipids

SECTION-IV
(Lectures 7)
Biosynthesis of Cholesterol and other lipids
Cholesterol biosynthetic pathway. Biosynthesis of cerebrosides; sulfatides and gangliosides. Biosynthesis of prostaglandins, thromboxanes, leukotrienes, lipooxins and prostacyclins.

Books:
Paper B: Protein & Nucleic acid metabolism  

Objective: To learn major metabolic pathways pertaining to nitrogenous compounds proteins & nucleic acids.

SECTION-I 
( Lectures 6)

SECTION-II 
( Lectures 8)
Catabolism of carbon skeletons of amino acids: glycine, alanine, serine and threonine, phenylalanine and tyrosine, tryptophan, histidine, leucine, valine and isoleucine, cysteine and methionine, lysine, glutamic acid and glutamine, aspartic acid and asparagine.

SECTION-III 
( Lectures 7)
Biosynthesis of nutritionally non-essential amino acids : glutamate and glutamine, aspartate and asparagine, proline, alanine, cysteine & selenocysteine, tyrosine, serine, glycine. conversion of amino acids to specialized products : polyamines, catecholamines, glutathione, creatinine, melanin, serotonin.

SECTION-IV 
( Lectures 9)
Nucleic Acids
Degradation and biosynthesis of purines and pyrimidines nucleotides, salvage pathway, formation of deoxyribonucleotides, biosynthesis and degradation of heme. Disorders of purine & pyrimidine metabolism, anticancer drugs.

Books:

PRACTICALS:  

Marks : 25  
One Practical of three hours per week

2. Isolation and assay of glycogen from rat liver.
3. Separation and identification of amino acids by 
   (i) Paper chromatography (ii) Thin layer chromatography.
4. Estimation of Ca^{2+} in serum.
5. Estimation of total and free cholesterol in serum.
INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper A: Advanced Biochemical Techniques
Marks: 45+5
Objective: To understand the principles and applications of cell biology techniques, spectroscopic, radioisotopic & spectrometry techniques.

SECTION-I
(Lectures: 8)
General Laboratory Techniques:
Membrane/ultra filtration, dialysis, diffusion, surface tension, viscosity and their applications to biological systems. Cell biology techniques: microbial, animal and plant cell/tissue culture, cell disruption/homogenization/sonication, cell sorting, cell counting, cryopreservation.

SECTION-II
(Lectures: 6)
Fluorescence spectroscopy: principle, applications of fluorescence activated cell sorting (FACS), different fluorescence in situ hybridization (FISH), fluorescence immunoassay.

SECTION-III
(Lectures: 10)
Radio isotopic techniques:

SECTION-IV
(Lectures: 6)
Nuclear magnetic resonance (NMR) and Electron spin resonance (ESR) : theory, applications. atomic spectrometry; mass spectrometry: matrix assisted desorption ionization (MALDI)

Books Suggested:
Paper B: Membrane Biochemistry

Objective: to make students aware of structural and functional aspects of membranes. Highlighting the significance of their compositional heterogeneity and to various cell functions.

SECTION-I


SECTION –II


SECTION –III


SECTION –IV


Books Suggested
1. Jain, MK. Introduction to Biological membranes, John Wiley and sons New York, 1988
2. Vance, DE & Vance JE, Biochemistry of lipids and Biomembranes, Benjamin Cummings, 1985
5. Various review articles.

PRACTICALS:

Marks : 25
One Practical of three hours per week

1. Electrophoresis of nucleic acids.
2. Gram staining of cells.
5. Separation of phospholipids by thin layer chromatography.
6. Estimation of lactic acid in blood before and after exercise.
7. Preparation of starch from potato and its hydrolysis by salivary amylase.

******************
MICROBIOLOGY

B.Sc. (GENERAL) SECOND YEAR (3rd and 4th Semester) EXAMINATION, 2017-18

Note: 1. A student who has passed the +2 examination under 10+2+3 system of education of a recognized University/Board/Council or any other examination recognized by the Panjab University as equivalent thereto shall be eligible to offer the subject of Microbiology at the B.Sc. level, if he/she has passed the +2 examination with Physics, Chemistry, Mathematics, Biology as his/her subjects.

2. Only such colleges which have all necessary infrastructure or equipment and staff shall admit students to the subject of Microbiology. The infrastructure must be approved by the University as per usual practice.

SEMESTER-III

<table>
<thead>
<tr>
<th>Scheme of Examination</th>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIC 301: Introduction to Medical Microbiology-I</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
</tr>
<tr>
<td>MIC 302: Introductory Immunology-I</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
</tr>
<tr>
<td>PRACTICAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Practical pertaining to the entire syllabus included in Theory Papers MIC 301 and MIC 302</td>
<td>3 hrs.</td>
<td>25(20+5*)</td>
</tr>
</tbody>
</table>

Semester-IV

<table>
<thead>
<tr>
<th>Scheme of Examination</th>
<th>Duration</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEORY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIC 401: Introduction to Medical Microbiology-II</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
</tr>
<tr>
<td>MIC 402: Introductory Immunology-II</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
</tr>
<tr>
<td>PRACTICAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Practical pertaining to the entire syllabus included in Theory Papers MIC 401 and MIC 402</td>
<td>3 hrs.</td>
<td>25(20+5*)</td>
</tr>
</tbody>
</table>

Note: * Denotes marks for the Internal Assessment.
MICROBIOLOGY
SEMESTER-III

MIC 301 : INTRODUCTION TO MEDICAL MICROBIOLOGY-I

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Brief introduction to terminology of infectious diseases, Frequency of disease, Recognition of infectious disease, Infectious disease cycle.

Section B
Nomenclature and classification of microbes of medical importance, criteria of classification

Section C
Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body.

Section D
Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs.

Recommended Books:


MIC 302 : INTRODUCTORY IMMUNOLOGY-I

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Introduction and history of immunology, Non-specific defence; Physical barriers, Chemical barriers, Cellular, Phagocytosis, Inflammatory barriers, Inflammation, Fever, Types of Immunity, Active and Passive Immunity, Immunological memory

Section B
Humoral Immune Response, Antibodies/ Immunoglobulins, Structure, function and type of antibodies

Section C
Cell Mediated Immune System (CMI), Mechanism of CMI, Types of effector T cells, Helper T cells, Suppressor T cells, Cytotoxic T cells, Killer T cells, Interactions between T and B lymphocytes

Section D
Antigen-antibody interactions; Precipitation reaction, Immunodiffusion test, Counter current Immuno electrophoresis, Complement fixation tests

Recommended Books :

PRACTICAL

MAX. MARKS: 25 MARKS
PRACTICAL: 20 MARKS
INTERNAL ASSESSMENT: 5 MARKS
TIME: 3 HRS.

1. Staining- Gram staining, Albert and ZNCF staining
2. Isolation and maintenance of pure cultures
3. Physiological characteristics of bacteria and its use for their identification
4. Assay of antimicrobials
5. Preparation of serum/plasma
MICROBIOLOGY

SEMESTER IV

MIC 401 : INTRODUCTION TO MEDICAL MICROBIOLOGY-II

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A

Virulence and mode of transmission, Emerging and reemerging infectious diseases, Global travel and health considerations, Nosocomial infections

Section B

Origin of normal flora, Germ free and gnotobiotic life, Distribution and occurrence of Normal flora of skin, eye, respiratory tract, mouth, intestinal tract and genitourinary tract

Section C

Events in infection following penetration, Microbial virulence factors

Section D

Antibacterial drugs viz. sulphonamides, Quinolones, Penicillins, Cephalosporins, Tetracyclines, Erythromycin, and Chloramphenicol, Drug resistance, Antifungal and antiviral drugs

Recommended Books :


MIC 402 : INTRODUCTORY IMMUNOLOGY-II

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Primary and secondary lymphoid organs, Mucosa associated lymphoid tissues (MALT), Cutaneous associated lymphoid tissues (CALT), Lymphocyte traffic, Cells of Immune system, Antigens; Factors affecting Immunogenicity, Epitopes, Haptens

Section B
Antigenic combining regions of antibodies, Factors influencing antibody production, Genetic model, Multigene organisation, Generation of antibody diversity

Section C
Cytokines, Lymphokines, Colony stimulating factors, Tumour necrosis factors, Interferons, Accessory cells (Macrophages), the complement system, Classical and alternate pathway, HLA, Monoclonal antibody technology and its applications

Section D
Antigen-antibody Interactions: Widal test, Wasserman’s test, Weil-Felix reaction, Western blotting, Types of Vaccines

Recommended Books :

PRACTICAL

MAX. MARKS: 25 MARKS
PRACTICAL: 20 MARKS
INTERNAL ASSESSMENT: 5 MARKS
TIME: 3 HRS.

1. Sterilization- Introduction to autoclave, hot air oven, filter sterilization
2. Demonstration of Immune organs in dissected animals
3. Demonstration of Immune cells in smears prepared from Immune organs
4. Complement fixation
5. Antigen-antibody interactions:
   - Agglutination
   - Precipitation
   - Blood grouping
   - Immunodiffusion

*********************
ELECTRONICS

(KEPT IN ABEYANCE)
SYLLABI

FOR

B.A. & B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM)
EXAMINATIONS, 2017-2018

(SEMESTER : FIFTH AND SIX)

i.e

Fifth Semester       :   November/December, 2017
Sixth Semester       :   April/May, 2018

© The Registrar, Panjab University, Chandigarh.
All Rights Reserved.
## CONTENTS

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English (Compulsory) (for B.A. Candidates only)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Panjabi (Compulsory) (for B.A. Candidates only)</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>History and Culture of Punjab (for B.A. Candidates only)</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>English (Elective)</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Hindi (Elective)</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>Sanskrit (Elective)</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>Panjabi (Elective)</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>Urdu (Elective)</td>
<td>24</td>
</tr>
<tr>
<td>9</td>
<td>Persian (Elective)</td>
<td>26</td>
</tr>
<tr>
<td>10</td>
<td>French (Elective)</td>
<td>28</td>
</tr>
<tr>
<td>11</td>
<td>German (Elective)</td>
<td>32</td>
</tr>
<tr>
<td>12</td>
<td>Russian (Elective)</td>
<td>34</td>
</tr>
<tr>
<td>13</td>
<td>Arabic (Elective)</td>
<td>37</td>
</tr>
<tr>
<td>14</td>
<td>Bengali (Elective)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Tamil (Elective)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Kannada (Elective)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Kept in Abeyance)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Malayalam</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Telugu (Elective)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Physical Education</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Adult Education</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Music (Vocal)</td>
<td>58</td>
</tr>
<tr>
<td>23</td>
<td>Music (Instrumental )</td>
<td>62</td>
</tr>
<tr>
<td>24</td>
<td>Tabla (Instrumental Music)</td>
<td>66</td>
</tr>
<tr>
<td>25</td>
<td>Indian Classical Dance</td>
<td>70</td>
</tr>
<tr>
<td>26</td>
<td>Fine Arts</td>
<td>75</td>
</tr>
<tr>
<td>27</td>
<td>History of Art</td>
<td>79</td>
</tr>
<tr>
<td>28</td>
<td>Ancient Indian History, Culture &amp; Archaeology</td>
<td>83</td>
</tr>
<tr>
<td>29</td>
<td>Defence and Strategic Studies</td>
<td>87</td>
</tr>
<tr>
<td>30</td>
<td>History</td>
<td>92</td>
</tr>
<tr>
<td>31</td>
<td>Political Science</td>
<td>96</td>
</tr>
<tr>
<td>32</td>
<td>Economics</td>
<td>100</td>
</tr>
<tr>
<td>33</td>
<td>Sociology</td>
<td>104</td>
</tr>
<tr>
<td>34</td>
<td>Public Administration</td>
<td>108</td>
</tr>
<tr>
<td>35</td>
<td>Philosophy</td>
<td>112</td>
</tr>
<tr>
<td>36</td>
<td>Psychology</td>
<td>116</td>
</tr>
<tr>
<td>37</td>
<td>Geography</td>
<td>120</td>
</tr>
<tr>
<td>38</td>
<td>Gandhian Studies</td>
<td>128</td>
</tr>
<tr>
<td>39</td>
<td>Journalism &amp; Mass Communication</td>
<td>133</td>
</tr>
<tr>
<td>40</td>
<td>Police Administration</td>
<td>137</td>
</tr>
<tr>
<td>41</td>
<td>Women’s Studies</td>
<td>141</td>
</tr>
<tr>
<td>42</td>
<td>Human Rights and Duties</td>
<td>145</td>
</tr>
<tr>
<td>43</td>
<td>Computer Science</td>
<td>149</td>
</tr>
<tr>
<td>44</td>
<td>Environment Conversation</td>
<td>153</td>
</tr>
<tr>
<td>45</td>
<td>Home Science</td>
<td>156</td>
</tr>
<tr>
<td>46</td>
<td>Agriculture (Elective)</td>
<td>163</td>
</tr>
<tr>
<td>47</td>
<td>Mathematics</td>
<td>168</td>
</tr>
<tr>
<td>48</td>
<td>Statistics</td>
<td>174</td>
</tr>
<tr>
<td>49</td>
<td>Applied Statistics</td>
<td>178</td>
</tr>
<tr>
<td>50</td>
<td>Physics</td>
<td>182</td>
</tr>
<tr>
<td>51</td>
<td>Chemistry</td>
<td>192</td>
</tr>
<tr>
<td>52</td>
<td>Botany</td>
<td>206</td>
</tr>
<tr>
<td>53</td>
<td>Zoology</td>
<td>215</td>
</tr>
<tr>
<td>54</td>
<td>Bio-Chemistry</td>
<td>231</td>
</tr>
<tr>
<td>55</td>
<td>Microbiology</td>
<td>236</td>
</tr>
<tr>
<td>56</td>
<td>Electronics (Kept in Abeyance)</td>
<td>243</td>
</tr>
</tbody>
</table>
PANJAB UNIVERSITY, CHANDIGARH
OUTLINES OF TESTS, SYLLABI AND COURSES OF READING IN VARIOUS SUBJECTS FOR
B.A./B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) i.e. FIFTH SEMESTER
NOVEMBER/DECEMBER 2017 AND SIXTH SEMESTER APRIL/MAY 2018, EXAMINATIONS.

ENGLISH (Compulsory)
(For B.A. Candidates Only)

SEMESTER V

Max. Marks : 50
Written : 45 Marks
Int. Ass. : 05 Marks
Time : 03 Hours

Note:
(i) The paper shall be divided into two sections i.e section A & B. The distribution of marks in each
section shall be indicated separately against the questions.
(ii) Section A shall deal with the text and Section B with composition and grammar.
(iii) The questions should be set strictly in accordance with the pattern of question paper outlined in the
syllabus.

Text Prescribed:
INSIGHTS: A Course in English Literature and Language (by K. Elango, Hyderabad: Orient Blackswan),
Panjab University Edition.
Unit I to III (Unit II- Chapter ‘Emotional Intelligence’ deleted)

Section-A (Poetry & Prose)

Q.1. Reference to the context only from Poetry. One out of two given stanzas ............................... 5 marks

Q.2. The examiner will set eight short questions from Poetry & Prose Sections of the prescribed text, out of
which a student shall be expected to attempt only five selecting, at least, two from each section (to be
answered in not more than 60-80 words). These questions may be drawn from each of the units given in the
text .................................................................................................................................................. 10 Marks

Q.3. The examiner shall set four questions (on the pattern of questions for Critical Analysis suggested in the
prescribed text) again from Poetry & Prose Sections of the text, out of which a student is expected to attempt
only two selecting, at least, one from each section (to be answered in not more than 150-180 words). The
questions should be chosen in such a manner that all the units given in the text are covered. ........................... 10 Marks

Section-B (Composition & Grammar)

Q.4. Write an essay (in not more than 500 words), choosing one topic out of the given four. A wide range of
topics should be given and in this respect ideas may be drawn from the prescribed text. ............................... 10 Marks

Q.5. (a) Antonyms –ten out of fifteen . .................................................. 5 Marks

(b) Correct the sentences- ten out of fifteen. ........................................ 5 Marks

.........................
ENGLISH (Compulsory)
(For B.A. Candidates Only)

SEMESTER VI

Max. Marks : 50
Written : 45 Marks
Int. Ass. : 05 Marks
Time : 03 Hours

(i) The paper shall be divided into two sections i.e **section A & B**. The distribution of marks in each section shall be indicated separately against the questions.

(ii) Section A shall deal with the text and Section B with composition and grammar.

(iii) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

**Text Prescribed:**


Unit IV-VI

**Section-A (Poetry & Prose)**

Q.1. Reference to the context only from Poetry. **One out of two** given stanzas. **5 marks**

Q.2. The examiner will set **eight** short questions from Poetry & Prose Sections of the prescribed text, out of which a student shall be expected to attempt only **five**, selecting, at least, **two** from each section (to be answered in not more than 60-80 words). These questions may be drawn from each of the units given in the text **10 Marks**

Q.3. The examiner shall set **four** questions (on the pattern of questions for Critical Analysis suggested in the prescribed text) again from Poetry & Prose Sections of the text, out of which a student is expected to attempt only **two** selecting at least, **one** from each section (to be answered in not more than 150-180 words), The questions should be chosen in such a manner that all the units given in the text are covered. **10 Marks**

**Section-B (Composition & Grammar)**

Q.4. A question on Précis writing shall be set, without any internal choice. For this purpose, the passage chosen should be simple, lucid and coherent and must not exceed 240-250 words. **10 Marks**

Q.5 (a) Idioms and Phrases to be used in sentences. **ten out of fifteen** **5 marks**

(b) One word substitution – **ten out of fifteen** **5 Marks**

-------------------------
B.A./B.Sc.(General) Third Year (Semester System) Syllabus

भाषाएँ (लघभग)
(बी ई का विभाग संयोजन 2017 ई के तिथिविदेश सत्र)
(बीए ए के विभागाधीश सत्र)

प्रथमता पंजीकरण

<table>
<thead>
<tr>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>अंग्रेजी</td>
<td>50</td>
</tr>
<tr>
<td>लिपिविद्या</td>
<td>45</td>
</tr>
<tr>
<td>तिथिविदेश प्रथमता</td>
<td>5</td>
</tr>
<tr>
<td>औसत : 3 घटने</td>
<td></td>
</tr>
</tbody>
</table>

पाठ्यक्रम

1. भाषावादी पंजीकरण लिखित चा अभिमत
   20 अंक
2. भौसंगत
   8 अंक
3. सिखाया
   7 अंक
4. विशेषाधिकार : रोजन दे दिलास
   10 अंक

वेबसिटी विभागीय चीफ

1. भाषावादी पंजीकरण वाशि एका (नेपा) अंक मिश्र, वर्तकक्रिया घटित, भाषा वर्तंबरमू, चंद्रमू।
2. वाशि एका चा मध्य दे वेबसिटी जड़ (दे विचित्र दिचित)
   5 अंक
   5+5=10 अंक
3. वाशि-संकृय दिचित मंदिर रावण रावण (खूंटक दिचित मंदिर दे हूंटक दिचित)
   (अंक पुत्र दिचित प्रमाण दे खूंटक दिचित)
   5+1 = 5 अंक
4. ईचित दी भूली ताल- परिशोध:
   ईचित दी परिशोध, ताल दे दिलास,
   7 अंक
5. विशेषाधिकार : रोजन दे दिलास

   (i) राब्रा, राब्रा राब्रा दे विनिमय राब्रा दी परिशोध दे परिशोध 6 अंक
   (दे पुस्तक दिचित वेदी दिचित पुस्तक वजन)
   (ii) विशेषाधिक दिलास (सत्य पुस्तक दिचित वेदी दे पुस्तक वजन) 2+2=4 अंक

केट : एकादश मैटर रावण खूंटकक्रिया मंदिरमू दे अभ्यास दे दी मंदिर मध्य पुत्र ताल।

......................
1. तबियत चा अध्ययन
   20 अंक
2. बच्चावास लड़की पूवः नैट
   10 अंक
3. ग्रंथविभ किछू
   5 अंक
4. दिवालिव निर्देश : निर्देश ते दिवालिव
   10 अंक

बंद

1. अंद्व ऐतिहास चा यास, बूढ़ा-सुधारम सिंग, संजीव पुलाम, चंदीगढ़।

प्रशिक्षण आदेश बीम

1. (द) अंद्व ऐतिहास चा यास पुस्तक डिस्पो निर्देश पुस्तक विभाग किछू (दे विच निर्देश)
   5 अंक
   (अ) तबियत चा अध्ययन, निर्देश ते तबियत निर्देश (दे विच निर्देश)
   10 अंक
2. तबियत निर्देश संख्यात "दूरदर्शी" चा पुस्तक (दूरदर्शी निर्देश ते दूरदर्शी चा पुस्तक)
   (पंद्रह पुस्तक डिस्पो निर्देश ते तबियत निर्देश) 5 x 1 = 5 अंक
3. बच्चावास लड़की पूवः नैट निर्देश दर्शन : वाक्य चीज विभाग, महिलावाद, 8 अंक
   पैड़े अध्ययन चौथा यास तबियत विभाग महिलावाद महाविद्यालयाची वाची। (लक्षण 200 वाची निर्देश)
   नैट : निर्देश निर्देश पूवः नैट निर्देश वाची लड़की ते निर्देश लड़की
4. ग्रंथविभ किछू ते स्थल- पुस्तक:
   7 अंक
   ग्रंथविभ किछू ते स्थलवात, ग्रंथविभ किछू ते पुस्तक चा बतावा अनुदान, पुस्तक विभागाची, तिथि किछू (आत्मरखी) (दिस्पो निर्देश निर्देश साधन)
5. दिवालिव निर्देश : निर्देश ते दिवालिव
(1) तबियत चा "दूरदर्शी" चा पुस्तक: तबियत विभाग ते तबियत
   विभाग: महिलावाद, महिलावाद ते निर्देश तबियत
   वाची: पुस्तकाची, आत्मरखी ते विभागीय तबियत 6 अंक
   (पुस्तक डिस्पो ते तबियत निर्देश दर्शन)
(ii) दिवालिव पुस्तक (स्त्री पुस्तक डिस्पो ते स्त्री दर्शन)
   2+2=4 अंक
   नैट: निर्देश ते "दूरदर्शी" तबियत, महिलावाद ते आत्मरखी तबियत ते तबियत तबियत
2. ਗੁਰਦਿੰਦਰ ਸਿਖਰ ਸਈਖ (ਦਾ.), ਪੰਜਾਬੀ ਗਰਮਿਤਾ ਵਿਵਿਧਤਾ, ਪੰਜਾਬੀ ਗਰਮਿਤਾ ਅਲਾਖਸ਼ੀ, ਸਾਲਾਵਤ, 1997
4. ਪੰਜਾਬੀ ਵੇਰਾਕ ਗੋਬਾਰ ਵਿਵਿਧਤਾ, ਪੰਜਾਬ ਸਟੇਟ ਪੁਰੀਕਤਵਲਿ ਟੀਵੀਰਾ ਵੇਵਡ, ਚੰਡੀਗੜ੍ਹ.
5. ਧਾਰਾਕ ਗੁਡਮਨ ਸਿਖਰ (ਦਾ.), ਪੰਜਾਬੀ ਵਿਵਿਧਤਾ, ਮਿਰੌਂਟ ਅਫ ਵਿਵਿਧਤਾ’, ਚੀਅਲ ਪੁਰਾਣ ਲੁਖਾਲਾ, 2008.
7. ਸਾਂਤਾਰਕ ਰਾਕਸਾ ਸਿਖਰ, ਰਾਕਸਾ ਵਿਵਿਧਤਾਵਲ, ਦੀਪਾਰ ਵਿਵਿਧਤਾਵਲ, ਸਾਲਾਵਤ, 1981

ਸੇਟ
1. ਟੀਵੀਰਾ ਵਾਲੀ ਗੁਡਮਨ ਦੇ ਦੀਪਾਰ
2. ਵਸਤਵਿਕਾਰ ਤਿੱਖੀ 25-30 ਵਿਵਿਧਤਾਵਲਿ ਦੇ ਸਾਹਨ ਦੇ ਦੀਪਾਰ ਦੇ ਵਿਸਤ ਦੇ ਦੀਪਾਰ
3. ਦੀਪਾਰ ਦੇ ਦੀਪਾਰ 6+3=9 ਦੀਪਾਰ
HISTORY AND CULTURE OF PUNJAB (FOR B.A ONLY) SEMESTER V

PAPER: HISTORY AND CULTURE OF PUNJAB: COLONIAL PERIOD

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 marks for each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 6 Marks
   Explanatory Note : 4 Marks

In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 marks each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

Paper: Max. Marks : 50
       Theory : 45
       Internal Assessment : 05
       Time : 3 Hours

Objectives: To introduce the students to the history of the history of the region and the impact of colonial rule.

Pedagogy: Lectures, library work and discussions.

UNIT 1

1. Early British Administration: Board of Administration 1849-1853; Reforms under John Lawrence
2. Colonial Policy: Agriculture; Trade & Industry
3. Spread of Modern Education

UNIT II

4. Impact of Socio-Religious Reform Movements: Namdhari; Singh Sabha
5. Impact of Socio-Religious Reform Movements: Arya Samaj; Ahmediyas
6. Uprising of 1907: Causes and Consequences
UNIT III

7. Ghadar Movement: Origin and Activities
8. Jallianwala Bagh: Circumstances and Consequences
9. Gurudwara Reform Movement: Causes and Consequences

UNIT IV

10. Response to Non Co-operation; Civil Disobedience
11. Partition: Circumstances; Impact
12. Map; Delhi, Amritsar, Lahore, Lyallpur, Montgomery, Jaito, Nankana Sahib, Khemkaran, Tarn Taran, Jalandhar, Sargodha, Sialkot, Ambala,

Suggested Readings:

HISTORY AND CULTURE OF PUNJAB
(FOR B.A ONLY)
SEMESTER VI

PAPER: HISTORY AND CULTURE OF PUNJAB: POST INDEPENDENCE PERIOD

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:

1. The syllabus has been divided into four Units.
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type
   containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words
   each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e.
   1 marks for each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type
   questions and the candidate shall be given internal choice of attempting one question from each Unit-
   IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured
   by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of
   internal assessment.
   The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

4. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

5. The distribution of marks for the map question would be as under:
   Map : 6 Marks
   Explanatory Note : 4 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter
   will be required to ask the students to mark 6 places on map of 1 marks each and write explanatory
   note on any two of 2 marks each.

6. The paper-setter would avoid repetition between different types of question within one question
   paper.

Objectives: To introduce the students to the history of the history of the region in the post 1947 period.

Pedagogy: Lectures, library work and discussions.

UNIT 1

1. Migration and its Socio-Economic impact
2. Rehabilitation and Resettlement
3. Demand for Punjabi Suba; Reorganization Act 1966
UNIT II

4. Green Revolution and its impact
5. Development of Education
6. Political and Economic Development post 1966

UNIT III

7. Issues of Boundary; water; Chandigarh
8. Socio-Economic Development in the 1980’s
9. Operation Bluestar and its impact

UNIT IV

10. New Social issues-gender discrimination, drug menace, farmer suicide
11. Development of Punjabi literature :Bhai Vir Singh; Shiv Kumar Batalvi; Amrita Pritam

Suggested Readings:

ENGLISH (ELECTIVE)

SEMESTER V

Max.Marks 100
Written 90
Int. Assessment 10

Objective: The main aim of teaching English (Elective) to B.A.III students is to enable them to approach a wide variety of literary texts and genres with critically sensitive and analytical understanding. The idea is to introduce the students to the basic concepts of literature and also empower them to read, analyze and write about a poem, prose essay or drama in an independent manner. It is with this modest aim in mind that the new text books have been selected for B.A English Third Year (Elective) courses. The focus of the new text books is two-fold: to teach finer nuances of literature and language through an integrated approach; and to help and motivate for students to develop basic tools of analyzing a variety of literary texts/genres.

Note:
(i) There will be two semesters in all the three years of B.A English (Elective) courses. Rather than divide the papers vertically, there will be horizontal division in terms of texts, composition and grammar. As two books are prescribed for each course, these two books shall be distributed across two papers/semesters and shall not be included in the same paper/semester. So, Modern Indian literature: Poems and Short Stories shall figure in Semester V and R.K.Narayan’s The Guide shall be included in Semester VI. Questions on composition and grammar shall, however, be included in Paper B/Semester VI. This is being done to help the students, who shall now find both the papers proportionately divided and so easily manageable.

(ii) Each theory Semester shall be of 90 marks, as 10 marks in each semester shall be reserved for internal Assessment. Each semester shall be further sub-divided into two sections i.e Section I & Section II. The mode of distribution of marks shall, however, vary from paper to paper. There shall be six questions in each semester. All the questions will be compulsory. Though internal choice may be offered in some of the questions, there will be no external choice.

(iii) Each paper shall include minimum 15 literary terms/concepts appropriate to the particular literary genre included in that paper.

(iv) The paper shall be divided into two sections i.e section I & II.

(v) Section I shall deal with the text and Section II with composition and grammar

(vi) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

(vii) For the successful implementation of this syllabus, it is necessary that we reflect upon objectives of this course. First in our teaching practices and then in designing question paper/s and evaluating answer scripts of the students. The examination shall be held at the end of each semester as is recommended by the university from time to time.
Text Prescribed:

1. Modern Indian Literature: Poems and Short Stories, Edited by the Dept. of, University of Delhi, OUP, 2007 New Delhi.

Section I

(Literary terms/Concepts: Literatures Indian Languages, Colonialism, Post-colonial, Multicultural Society: Orientalism, Hybridity, Ideology, Gender, Race, Class, Caste, Nation, Importance of Translation in India, Methods of Translation)

Q.1. It shall be on literary terms/concepts. Eight terms shall be given in all and the students will be required to do five. 15 marks

Q.2. The examiner will set seven short questions (each to be answered in 60-80 words) based on Modern Indian Literature: Poems and Short stories out of which the students shall be required to attempt only five. 15 marks

Q.3. There will be three long questions, out of which two long questions are to be answered each in about 180-200 words. These questions shall be based on Modern Indian Literature: Poems and Short Stories. 15 marks

Section II

Q.4. Note-making (A passage of about 1000 words is to be given for this Purpose) 15 marks

Q.5. An unseen passage for Comprehension (about 1000 words again) With ten multiple choice questions is to be given. 15 marks

Q.6. Applied Grammar:
   (a) 5 Pairs of words to be used in sentences. (altar/alter/compliment/complement etc.) (1x5=5 marks)
   (b) First find one word for many and then use it in a sentence. 5 marks
   (c) First change the form of nouns/verbs/adjectives and then make sentences. (1x5=5 marks )

..................
**ENGLISH (ELECTIVE)**

<table>
<thead>
<tr>
<th>Max.Marks</th>
<th>100</th>
</tr>
</thead>
</table>

**SEMESTER VI**

<table>
<thead>
<tr>
<th>Written</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. Assessment</td>
<td>10</td>
</tr>
</tbody>
</table>

**Objective:** The main aim of teaching English (Elective) to B.A.III students is to enable them to approach a wide variety of literary texts and genres with critically sensitive and analytical understanding. The idea is to introduce the students to the basic concepts of literature and also empower them to read, analyze and write about a poem, prose essay or drama in an independent manner. It is with this modest aim in mind that the new text books have been selected for B.A English Third Year (Elective) courses. The focus of the new text books is two-fold: to teach finer nuances of literature and language through an integrated approach; and to help and motivate for students to develop basic tools of analyzing a variety of literary texts/genres.

**Note:**

(i) There will be two semesters in all the three years of B.A English (Elective) courses. Rather than divide the papers vertically, there will be horizontal division in terms of texts, composition and grammar. As two books are prescribed for each course, these two books shall be distributed across two papers/semesters and shall not be included in the same paper/semester. So, *Modern Indian literature: Poems and Short Stories* shall figure in **Semester V** and *R.K.Narayan’s The Guide* shall be included in **Semester VI**. Questions on composition and grammar shall, however, be included in Paper B/Semester VI. This is being done to help the students, who shall now find both the papers proportionately divided and so easily manageable.

(ii) Each theory Semester shall be of 90 marks, as 10 marks in each semester shall be reserved for internal Assessment. Each semester shall be further sub-divided into two sections i.e Section I & Section II. The mode of distribution of marks shall, however, vary from paper to paper. There shall be six questions in each semester. All the questions will be compulsory. Though internal choice may be offered in some of the questions, there will be no external choice.

(iii) Each paper shall include minimum 15 literary terms/concepts appropriate to the particular literary genre included in that paper.

(iv) The paper shall be divided into two sections i.e **section I & II**.

(v) Section I shall deal with the text and Section II with composition and grammar

(vi) The questions should be set strictly in accordance with the pattern of question paper outlined in the syllabus.

(vii) For the successful implementation of this syllabus, it is necessary that we reflect upon objectives of this course. First in our teaching practices and then in designing question paper/s and evaluating answer scripts of the students. The examination shall be held at the end of each semester as is recommended by the university from time to time.
Text Prescribed:


SECTION I


Q.1 Literary terms/concepts (five out of eight) 15 marks
Q.2. Short question based on the prescribed novel, *Five out of Seven* (each in 60-80 words). 15 marks
Q.3 Long questions based on the novel *three out of five* dealing with the incidents, theme(s) Character(s), symbols etc.( each in 180-200 words) 15 marks

SECTION II

Q.4 Essay on any one (out of the given four) topic of international importance (in about 700 words) 20 marks
Q.5. Report-writing (in about 300 words) on an incident/situation, conference/seminar, problem/state of education/poverty/unemployment or similar issues. 10 marks
Q.6. Translation from Hindi/Punjabi into English (Passage of about 400 words)

OR

Paragraph on any one out of the two given topics (for foreign students only) 15 marks
हिन्दी (एचसी)

बी0 ए0 (सामान्य तृतीय वर्ष) सेमेस्टर-5

पूर्णक 90+10=100
समय- 3 घंटे

1. कुर्सिक्षेत्र
   रामधारी सिंह ‘दिनकर’ प्रकाशक-राजपत्ता एण्ड संस्था, नई दिल्ली।
   (क) 6-6 अंकों की दो संबंध सहित व्याख्याएं करनी होगी।
   कुल चार काफ्यांश दिए जाएंगे।
   (ख) 15 अंकों का एक अलोचनात्मक प्रश्न करना होगा। कुल
   दो प्रश्न पूछे जाएंगे।
   अंक-27

2. समीक्षा सिद्धांत:
   क. काय्य की परिभाषा तथा भेद, महाकाव्य, सांस्कृतिक, नीतिकाव्य
   की परिभाषा तथा विशेषताएं
   ख. गहा विधाएं-विवेचन, संस्कृति, जीवनी तथा आत्मवक्ता के
   स्वरूप और तत्त्वों का सामान्य परिचय।
   अंक-30

उपर्युक्त खंडों के ख में से संबंधित 15-15 अंकों के वार प्रश्न
पूछे जाएंगे इनमें से केवल दो के उत्तर देने होंगे।

3. अलंकार:
   केवल विमलतिमत अलंकार नियमित हैं।
   अनुप्रास, यमक, शलोक, पकोल, उपभा, रूपक, अतिशयोक्ति,
   विरोधभास, उल्लेख, व्रतीय।
   6 x 3=18

4. लघुपुराणांशी:
   प्रश्न दो खंडों (कुर्सिक्षेत्र एवं समीक्षा सिद्धांत)
   में से पांच-पांच अंक के तीन प्रश्न करने होंगे।
   6 प्रश्न पूछे जाएंगे। (शब्द सीमा - 50 शब्द)
   अंक-15

5. आंतरिक मूल्यांकन
   अंक-10

सहायक पुस्तकी:
1. हिन्दी का आलमकाय-साहित्य, विश्वबंधु, व्यंग्य राय पक्षेष्ठ, नई दिल्ली
2. काय्य के तत्व, आचार्य देवेंद्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद
हिंदी (एच.मई)
बी.ए (सामाजिक) (तृतीय वर्ष) सेमेस्टर-6

पूर्णांक 90+10=100
समय- 3 घंटे

1. विनंदन लेखन (केवल साहित्यिक और सामाजिक विषयों पर)
कुल आठ विषयों में से किसी एक विषय पर लिखने के लिए कहा जाएगा।
अंक-20

2. गद्दा पुलवारी, समाप्त डी॰ शहाबुद्दीन शेख, प्रकाशक-राजपाल एण्ड साम्ब, नई दिल्ली।
केवल निम्नलिखित पाठ विचारित हैं।
अंक-16

‘आयुषों की होली’ (प्रेमचंद), ‘अकेली’ (मनु भंडारी), ‘चीफ की दाबत’ (भीम शाहली)
‘सुभाष कों’ (रामदुर्ग वेमीपुरी) ‘भाभी’ (महादेवी वर्मा), ‘सदाचार का नायबीज (हरीशकर
परसाई), महालम्बा गांधी’ (रामकुमार बर्मा), ‘मैं दौड़ी हूँ’ शिवप्रसाद सहाय), ‘ग़ाय-शाय’
(नामवर शिंग), ‘जमनोजी की यादा’ (विश्वन, प्रभाकर).

(क) 6 अंकों की एक समीक्षा सहित व्याख्या करनी होगी। कुल दो व्याख्याएं पूर्ण जाएंगी।
(ख) 10 अंकों का एक समीक्षात्मक प्रश्न करना होगा। कुल दो प्रश्न पूर्ण जाएंगे।

3. हिंदी साहित्य का इतिहास
केवल निम्नलिखित गद्दा-विघ्नों का उद्देश्य और विकास : उपन्यास, कहानी,
मात्रक, निबंध, आलक्यकथा, जीवनी, संस्कृति, रेखाचित्र।
इन गद्दा- विघ्नों में से 12-12 अंकों के कम से कम बार प्रश्न पूर्ण जाएंगे,
छात्रों को केवल दो प्रश्नों के उत्तर लिखने होंगे।
अंक-24

4. छन्द-परिवर्तन- निम्नलिखित छन्द निर्धारित हैं।
दोहा, सोररा, चंपार्ड, रोंगाल, चुवलिया, सबसांस, दुरुदिलिमित, हरिगितिका, उपेन्द्रका, इन्द्रका।
पूर्ण छन्दों के लक्षण और उद्घरण पूर्ण जाएंगे, जिज्ञासाएं से जीवन का उत्तर देना होगा।
अंक-15

5. हिंदी भाषा और उसकी लिपि
देवनागरी लिपि : विकास, गुण दोष, सुधार के उपाय 10 अंकों के कुल दो प्रश्न पूर्ण जाएंगे, जिज्ञासाएं से
केवल एक प्रश्न का उत्तर देना होगा।
अंक-10

6. निम्नलिखित पत्र, न्यूज, विश्वसित, विज्ञापन का प्रारूप तैयार करना।
दो प्रश्न पूर्ण जाएंगे, छात्रों को एक प्रश्न का उत्तर देना होगा।
अंक-5

आत्मिक सूचीबांध
अंक-10

सहाय्य पुस्तकें:
1. हिंदी का आलमकाय-साहित्य, विश्वबंधु, ज्ञाति राधा पवित्रस्वामी, नई दिल्ली
2. काव्य के तत्त्व, आचार्य देवेंद्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद
निर्देश तथा उद्देश्य:

- प्रश्नपत्र का माध्यम हिंदी होगा । उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक माध्यम होगा।
- ईश्वर, त्याग, कर्म, विद्या, अविद्या, सम्भृति, असम्भृति आदि ओप्शनालिक विषयों का अध्ययन कराना।
- आदि काव्य सालमिके रामायण तथा दोलिक काव्य के सीनेट या दिवंगत कराना।
- संस्कृत के समुच्चयांश में एक दीर्घ उत्तर करना।
- पत्र का अध्ययन विभाग नौ पृष्ठांक (प्रतियोगिता) प्रति सतां होगा, जिसमें तीन पृष्ठांक कम्प्यूटरिशन के होंगे।
- सभी प्रश्नों में शत-प्रतिशत अथवा निर्दिष्ट विकल्प आवश्यक हैं।

UNIT-I

(क) ईशोपिनियुद्

(1) भन्त/भन्ता का अनुवाद एवं व्याख्या  
1x10=10अन्क

(2) समीक्षात्मक प्रश्न / सूची व्याख्या  
1x10=10अन्क

(ख) वाल्मीकिरामायण (सून्दरकाण्ड, सर्ग-15, गीता प्रेस गोरखनगर) को के व्याख्या  
2x7½=15अन्क

UNIT-II

(ग) व्याकरणिक संस्कृत शब्दावली: बाधा, खेत्र एवं युद्ध सम्बन्धि (15 में से 10 शब्दों की संस्कृत)  
1x10=10अन्क

1. उत्तर – अवरोधः  
2. चढ़ाव-आरोहः  
3. जलतरंग-जलतरङः

4. हिंदी-हिंदियमः  
5. हीरो - पठः  
6. दोरकः - दोरकः

7. तवल्ला - मुरुजः  
8. तानपुरा - तानपुरः  
9. तुराहृ (शहनाई) - तुरभः

10. नगराः - नगरकः  
11. पिपानो - नाथीबाबाम्  
12. बासुरी - मुरुली

13. मंदिरा-महामुरुः  
14. सांगी (शायरिम्)-सांगी  
15. शिक्त-शिक्ता

16. हारमोनियम-मनोहारिवाचः  
17. गंद-कन्दुः  
18. टेनिस का खेल-टेनिस-कीड़ा

19. नेट-जालम्  
20. फुटबाल-पादकळुकः  
21. बैड मिन्ट-पटिकड़ा

22. मेच-कीड़ापतियोगिता  
23. रेफरी-निर्णयकः  
24. रैफ्ट-कािपरिश्रः

25. वाटीसबलकेश्वरः  
26. हाफ़ी का खेल-पत्थरेकड़ा  
27. विगुलं-संज्ञाशाश्वः

28. कोमलसबर-मन्दः स्वरः  
29. तीत्तस्वर-तारः स्वरः  
30. मध्यस्वर- मध्यः, मध्यस्वरः
31. पटमयम-परमाणु अख्म 32. कच-वर्मम 33. कृपाण-असि:
34. गण्डा-स-तीमर: 35. गदा- गदा 36. गोली-मुखिका
37. छावनी-विविस्म 38. टीयर गंग-पूराण्म 39. तेप-शाली
40. जल सेनापति-भूमाण्यक्ष: 41. थल सेनापति- भूमाण्यक्ष: 42. वायुसेनापति-वायुसेनाण्यक्ष:
43. घनुष-घनु:ः कोदण्डःः, चापम, कार्मका 44. पिंतील-लघुभुजण्डः 45. बनूक-भृशुण्डः:
46. धम-ध्रुत्याख्म 47. हार्ड्रोजन धम-धार्मकाण्यक्षः 48. बाहुध-अभिवृत्तमः
49. लडाईः का जहाज-युद्धातः 50. लडाईः का विमान-युद्धविमानमः

UNIT-III

(च) विसर्ग संधि 5x1=5अंक
(ड) अन्ययीत्री समास 5x1=5अंक
(ब) अर्थकारः उपमा, उत्प्रेक्षा, रूपक, विभावना, विशेषता क्यों तथा विरोधाभास 2x7½=15 अंक
(तीन में से दो के लक्षण, उदाहरण व स्पष्टीकरण प्रश्न है।)

UNIT-IV

(च) वैदिक इतिहास (लघु प्रश्न/टिप्पणी) 2x5=10अंक
(i) वेदों का सामान्य परिचय
(ii) वेदांग साहित्य का सामान्य परिचय

UNIT-V

(ज) हिंदी से संस्कृत में अनुवादः (10 में से 5 वाचक) 5x2=10अंक

..........................
Paper - Sanskrit : तीनिक काय्य, श्रौबास, निकल्य व व्याकरण
(सामान्य परीक्षा- 10, लिखित परीक्षा- 90)
पूर्णक: 90+10=100 अंक
समय- 3 घण्टे

निर्देश तथा उद्देश्य-
• प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेज़ी में से कोई एक भाषा होगी।
• तीनिक काय्य के रचनासीमा से परीक्षा करना।
• संस्कृत के समस्त शब्दमण्डल से छात्रों में संस्कृत के प्रति रुचि उत्पन्न करना।
• पत्र का अध्ययन समय नौ पीरियड (प्रतिमान) प्रति सत्रां होगा, जिसमें तीन पीरियड कम्प्यूटरण के होंगे।
• सभी प्रश्नों में लेख-निर्देश अथवा निर्दिष्ट कविता आवश्यक हैं।

UNIT-I

(क) रघुवंश (प्रथम सर्ग) - कालिदास
i) शोक त्रास का समस्त संस्थान व्या क्या? 2x10=20अंक
ii) सूक्ष्म-संस्थान व्या क्या? (तीन में से एक) 1x10=10अंक

UNIT-II

(ख) संस्कृत शब्दावली: सम्बन्ध-सूचक एवं प्रशासनिक शब्द 10x1=10अंक
1. पिता/माता - जनक:; /जमनी 2. चाचा, चाची-पितृत्व:; बितृत्वा
3. पति, पत्नी-पति:; पत्नी (भाई, जाया) 4. नाना, नानी-मातामहः; मातामही
5. छोटा भाई, बड़ा भाई-अनुजः; अजः 6. दादा, दादी-पितामहः; पितामही
7. पुत्र, पुत्री-पुत्र:/आत्मजः; पुत्री/आत्मजा 8. जीजा-भागिनी-पति:;
9. जेवाई (तमाद)+जामाता 10. देव, देवरानी-देव:; याता
11. मामा, मामी-मातुलः; मातुली 12. सातल ला ज्यालिगः (स्वारः), ज्यालिगः (स्वारः)
13. सात, ससुर-चशुः; भशुरः 14. सम्भी (कुड़मः), समोधिन (कुड़मसी) -सम्भवी, सम्भविनी
15. पंता, पंती-पंचः; पंची 16. भातीजा, भातीजी-भातुजः /भातुजः; भातुपुत्री /भातुपुत्री
17. मानजा, मानजी-भागिनेि:; भागिनेि: 18. चैत्र भाई, चैत्री-व्हिनित-पितृत्वपुत्रः; पितृत्वपुत्री
19. माती-आतंतजः 20. Administration-अशासनमः
23. Ban-पत्रिका:
24. Cabinet-मन्त्रिमण्डलम्
25. Corporation-निगम:
26. Director-निदेशक:
27. Employment-आर्थिक, वृत्ति:
28. Initials-आचार्यरूपम्
29. Judgement-निष्कर्ष:
30. Gazetted Officer-राजपत्रियकारी
31. Notification-अधिसूचना
32. Procedure-कार्यविधि:
33. Receipt-प्रमाण:
34. Senior-वरिष्ठ:
35. Subordinate-अधीनस्त:
36. Transfer-स्थानान्तरणम्
37. Vacancy-रिश्ते:
38. Character Certificate-चरित्रप्रमाणपत्रम्
39. Civic-नागरिक:

(ii) पंजाबी में प्रयुक्त संस्कृत के तक्षम तथा तद्द्रव शब्दों की सूची

<table>
<thead>
<tr>
<th>संस्कृत शब्द</th>
<th>पंजाबी शब्द</th>
<th>संस्कृत शब्द</th>
<th>पंजाबी शब्द</th>
</tr>
</thead>
<tbody>
<tr>
<td>चिरम्-(विलम्ब, देरी, दीर्घकाल)</td>
<td>चिर</td>
<td>रटितम् (रटा हुआ)</td>
<td>रटे</td>
</tr>
<tr>
<td>वेला (समय, अवसर)</td>
<td>वेला</td>
<td>तोहितम् (पूर्त)</td>
<td>तह्ह</td>
</tr>
<tr>
<td>शाक (हरी सजी)</td>
<td>साग</td>
<td>वसितम्, वसिति (बस्ती)</td>
<td>बसू, बसों</td>
</tr>
<tr>
<td>कंकरम् (ढंगा, कंकर)</td>
<td>कंकर</td>
<td>हदयम् (हदय, दिल)</td>
<td>हिउ, हियां</td>
</tr>
<tr>
<td>चाउकम् (चौंक)</td>
<td>चौंक, चौंका</td>
<td>श्रृंग (सास)</td>
<td>सरसू</td>
</tr>
<tr>
<td>द्वयम् (दो, जोड़ा)</td>
<td>दोह</td>
<td>बब्: (बहू)</td>
<td>बहू</td>
</tr>
<tr>
<td>धावनम् (धोना)</td>
<td>धावण</td>
<td>अद्व (आध)</td>
<td>अद्व</td>
</tr>
<tr>
<td>नलम् (नलन)</td>
<td>नउंह, नहु, नौह</td>
<td>अर्घ (आधा)</td>
<td>अद्व</td>
</tr>
<tr>
<td>निषिद्धम् (बुरा, अपवित्र)</td>
<td>निकिंद</td>
<td>उखं: (ऊेंचा)</td>
<td>उखा</td>
</tr>
<tr>
<td>मेलम् (एक रख)</td>
<td>मेलम, लैलम</td>
<td>कद: (कब)</td>
<td>कद</td>
</tr>
<tr>
<td>पदम् (पैर)</td>
<td>पउं</td>
<td>तदा (तब)</td>
<td>तद</td>
</tr>
<tr>
<td>नस्तम् (नाच)</td>
<td>नेभुः</td>
<td>यदा (जब)</td>
<td>जद</td>
</tr>
<tr>
<td>पूलचम् (पूछा)</td>
<td>पूछ</td>
<td>कृतः (किया)</td>
<td>कीता</td>
</tr>
<tr>
<td>वात्त्वम् (वचन)</td>
<td>वात्त्व</td>
<td>चन्त्र: (चंद)</td>
<td>चन्त्र</td>
</tr>
<tr>
<td>वीजम् (वीज)</td>
<td>वी, वींदु</td>
<td>तमम (तुम)</td>
<td>तुम</td>
</tr>
<tr>
<td>भयम् (डर)</td>
<td>भें, भड़, भंड</td>
<td>निन्म: (नीम)</td>
<td>निन्म</td>
</tr>
<tr>
<td>मायम् (उड़द)</td>
<td>माह, महां</td>
<td>पिप्पल् (पीप</td>
<td>पिप्पल</td>
</tr>
</tbody>
</table>
18. मनःप्राकर्ध (स्वकल्पित) नाति 38. कल्पः (चौल) कल्पः, चौलः
19. मृण्म (मृणु) मृण, मृ 39. हस्तः (हाथ) हस्तः
20. जुगल्म (जुगला) जुगल्म 40. सर्वः (सब) सार्वः

UNIT-III

(ग)णिज्ञान व सहजन्त्र प्रयोग (प्रथम पुरुष का एकवचन ही प्रश्नस्तव है।) 5x1 = 5 अंक
(i) गणित प्रत्यय केवल भू. पठ. हस्त. गम्भ. कृ. अधिकृत, खाद, चल, नश्व. व नम् धातु से ही प्रश्नस्तव हैं।
(ii) सन् प्रत्यय केवल स्वप, घा. पठ. कृ. गम्भ. भू. मुच्छ. त्. तथा भू. धातु तथा ही प्रश्नस्तव हैं।

(घ)बहुविहि समास 5x1 = 5 अंक
(ड)अंतकार : अनुप्रास, यमक, अर्थगति, शेष, अतिशयोक्ति व हस्ताल्प (तीन में से दो के लक्षण, उदाहरण व स्पष्टीकरण प्रश्नस्तव हैं।) 2x5=10 अंक

UNIT-IV

(घ)लौकिक संस्कृत साहित्य के निम्नाचरित लेखकों की कृतियों का परिचय 2x5= 10 अंक
(आस, कालिदास, अभवभूति, बाणभद्र, माघ, भतृहरि व दर्दो)

UNIT-V

(छ)संस्कृत निबंध (तीन में से एक विषय पर दस पंक्तियों में) 1x10=10अंक
विषय – संस्कृतभाषाय महत्त्वम्, मम प्रियः कविः, मम प्रियः पुस्तकम्, दीपावली, सत्संगतिः तथा पर्यावरणसुरक्षा)

..................................
भाषिक (टिल्डेटिड)  
वीं वर्ष  तीसरा अध्याय राजस्थान 2017 आयोजित समीक्षा  

मोदी युवा  

**प्रतिभा**  
1. भाषिक विषय 25 अंक  
2. भाषिक तत्त्व 25 अंक  
3. भाषिक माध्यम तथा विकास (अधि वर्ष 1700 शै: उट) 20 अंक  
4. भाषी भाषा सामग्री 10 अंक  
5. माध्यम से तृप्ति 10 अंक  

**वेलिघ**  
1. संपुष्ट विभेद (पंजी) विभक्तिति मिश्रित, पक्षविशेष विशेष, भाषा पुलिटेरियिटि, जैकीताड़ु  
   (विन्यास बड़ी: भेद वेनी, बांट तत्त्व चेक, बांट अवतर चेक, बांट वर्तिक मिश्रित, जैकी विभक्ति)  
2. मूचिता मात्र व वाणी, मंद मिश्र में, अपर बूंब सए, सिववार्त  

**प्रतिभा भाष बिया**  
1. (ध) संपुष्ट विभेद, लगायत पुलिटेड विशेष पुलिटेड माध्यम विशेष (डे डिशें डिच) 10 अंक  
   (आ) लगायत पुलिटेड विशेष विशेष आँग्ना-सेहु वीम सामाजिक विवृति (डे डिशें डिच) 10 अंक  
2. (ध) 'मूचिता मात्र व वाणी' तत्त्व तथा रजनीवार्ति आंग्ना दी विभिन्न पुलिटेड विशेषविभिन्न (डे डिशें डिच)  
   (आ) तत्त्व दी माध्यमिक पुलिटेड (माध्यमिक पुलिटेड विशेष, विशेष, पुलिटेड तथा पुलिटेड विशेष) 10 अंक  
   संपुष्ट विभेद पुलिटेड सामाजिक विवृति (डे डिशें डिच)  
3. बांट विभेद तथा रजनीवार्ति रजनी पुलिटेड धेरे पुलिटेड (आंग्ना पुलिटेड डिशें डिच) 2x5 = 10 अंक  
   (पुलिटेड पुलिटेड डिश वर्तिक मन तृप्ति वांड़ दें छोटा ना दें)  

4. भाषिक माध्यम तथा विकास (अधि वर्ष 1700 शै: उट)  
   5 x 4 = 20  
   वाक्यवर्त, अधि अवतर केन बुलिटेड माध्यम विशेष विकास तथा संगीत (पुलिटेड पुलिटेड हाले पुलिटेड) (डे डिशें डिचें छोटा चेक -- पुलिटेड 50 मासक्र में छोटा ना दें)  
5. भाषी माध्यम-विकास: वीडी माध्यम विकास (डे पुलिटेड विशेष विकास विवृति) 10 अंक  
6. माध्यम से तृप्ति: संगीतम्मा, मंदिर, वाणी, विभिन्न, लौग, सीज़वार्ति (डे पुलिटेड विशेष विकास विवृति) 10 अंक  

-------------------------------
B.A./B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

भाषा़ (विविध विषय)
बीते जनवरी माह अपूर्ण/ भाष 2018 में विभिन्नता लटी

मानक पेशें

के।

प्रामो

1. पुस्तक भाषा़ वाणि
2. भाषा़ विषयों लं आधारभूत
3. भाषा़ मान्यता लं डिप्लोमा (भाष वाणि 3' इन 1700 शी: उंग)
4. पेड़मध्ये वाणि मान्यता
5. बाणि डिप्लोमा

वेतन

1. समस्त मद्देन्द्र. (जोग) एकीकरण मिश्र, वनस्पतीवाद विषय, पणस्त पुलिसवाणि, केंद्रीयसिद्ध
2. एकीकरण पुरस्कर, (;जोग) विशेष मिश्र विषय, पुलिसवाणि विषय, पुलिस वाणि, केंद्रीयसिद्ध

प्रश्न भाषि

1. ( स) समस्त मद्देन्द्र, वाणि पुस्तक विषय पुस्तक मान्यता डिप्लोमा
2. ( ए) वाणि पुस्तक विषय पद्धर लं सम्पादन विषय
3. वाणि पुस्तक विषय पद्धर लं सम्पादन विषय (बाणि पुस्तक विषय पद्धर लं सम्पादन विषय)
4. वाणि मान्यता लं डिप्लोमा (भाष वाणि 3' इन 1700 शी: उंग) : बुध, बंग हो भाष (5x4 = 20 अंक)
5. वाणि मान्यता लं डिप्लोमा (भाष वाणि 3' इन 1700 शी: उंग) : (ए) भाषामय त्वम भाषामय निर्नयान (ब) संक्षिप्तमय विषय
6. वाणि डिप्लोमा : बाणि डिप्लोमा ही पद्धर, चर्चा हो अतः विभिन्न विषय (भाष डिप्लोमा, बाणि डिप्लोमा ही मान्यता विभिन्न विषय) (2x5 = 10 अंक)
मतालिव पुस्तकें:
1. पंजाबी मातिर सा विद्वान, पंजाब पुर्तीवलिमिटी, इंडियन।
2. पंजाबी मातिर सा विद्वान, पंजाब पुर्तीवलिमिटी, पटिभाषा।
3. पूर्वविद्वान सिद्धू से विद्वान सिद्धू सिद्धू के विद्वान’, लोटे एल्बम मान, भारत।
4. शोग्न सिद्धू उपकृत, पंजाबी समूहिता के निभान, सीध पुर्तीवलिमिटी, पंजाब।
5. तस्विर, पंजाबी की सिद्धू (डा.), ‘भारत विद्वान पुर्तीवलिमिट’, पंजाबीविज्ञान सिद्धू, पंजाब पुर्तीवलिमिटी, पटिभाषा, 1998।
6. दिविलदर सिद्धू, भारतीय से भारतीय, बुद्ध वर्तमान पुर्तीवलिमिटी, भारतमहत
7. पंजाबी, पंजाब सिद्धू (डा.), उप विद्वान में पंजाबी पाक उचला, भारत पंजाबीविज्ञान, पंजाब पुर्तीवलिमिटी, पटिभाषा, 2002।
8. पंजाबी, पंजाब पुर्तीवलि सिद्धू (डा.) ‘विद्वान पुर्तीवलिमिट’, भारत पंजाबीविज्ञान, पटिभाषा, 2002।
9. पंजाब, पंजाब सिद्धू (डा.), ‘पंजाबी पुर्तीवलिमिट के निभान’, भारत मान, पन्चकेमल, भारतमहत 2012।

विशेष नोट: मानक पाठ्य कथी चढ़े चढ़े लिख 6+6= 12 पृष्ठकाठ।

---------------------------------------------
URDU (ELECTIVE)
SEMESTER-V

Theory 90 Marks
Internal Assessment 10 Marks
Time: 3 Hours

Paper-A

Unit-I

Explanation of prose passage from following lessons: 30 Marks
1.
- Ek khuda parast shahzadi (Meer Amman)
- Shahzade ke pahle safar ka aaghaz (Rajab Ali Baig Suroor)
- Guzra hua zamana (Sir Syed Ahmed Khan)
- Qatil ki maa (Prem Chand)

Unit-II

2. (i) Explanation of Verses from following ghazals 30 Marks
   - Jo is shor se Meer rota rahega (Meer Taqi Meer)
   - Maqdur nahin uski tajalli ke bayan ka (Sauda)
   - Tohmaten chand apne zimme dhar chale (Khawaja Mir Dard)
   - Dil-e-nadan tujhe hua kya hai (Mirza Asdullah Khan Ghalib)
   - Tamannaon mein uljhaya gaya hun (Shad Azimabadi)
   - Duniya meri bala jane, mahngi ya sasti hai (Fani Badayuni)
   - Na jane ashk se aankhon mein kyon hain aaye hue (Firaq Gorakhpuri)
   - Mauje gul, mauje saba, mauje sehar lagti hai (Jam Nisar Akhtar)

   (ii) Explanation of verses from following nazams
   - Daastan shehzade ke ghayab hone ki (Meer Hassan)
   - Aadmi Nama (Nazeer Akbar Abadi)
   - Badli Ka Chand (Josh Malihabadi)
   - Raat aur rail (Asrar-ul Haq Majaz)
   - Kutte (Faiz Ahmed Faiz)

Unit-III

3. Summary of a lesson or a poem from Unit I and II 15 Marks

Unit-IV

4. Question on the basis of the following forms of prose and poetry 15 Marks

Books Prescribed:
Shaoore Adab: Intikhab Nasar-o-nazam, Maktaba Jamia, New Delhi
URDU (ELECTIVE)
SEMESTER-VI

Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 Hours

Paper-B

Short story and literary history of Urdu literature

Unit-I

1. Urdu adab ki ibtida aur irtiqa 30 Marks
2. Fort William College Ki adabi khidmaat

Unit-II

Contribution of Urdu Poetry with special reference to: 30 Marks
- Asadullah Khan Ghalib
- Brij Narayan Chakbast
- Allama Iqbal
- Faiz Ahmad Faiz

Unit-III

Contribution of Urdu prose with special reference to: 15 Marks
- Sir Syed Ahmed Khan
- Altaf Husain Hali
- Quratulain Haider
- Ismat Chughtai

Unit-IV

Urdu Afsane Inshaiye 15 Marks
- Bholi
- Hajj e Akbar
- Manzoor
- Election

Book Prescribed:
Tarikh-e-Adab Urdu by, Dr.Ram Babu Saxena
Afsane Inshaiye aur drame, compiled by Mohammad Qasim Siddiqui,
Education Book House Aligarh

Books Recommended:
Tarikh-e-Adab Urdu, by Aijaz Hussain
PERSIAN (ELECTIVE)
SEMESTER-V

There will be two Paper Setters/Examiner.

PAPER-A : PROSE

Marks: 90
TIME : 3 Hrs
Internal Assessment : 10

1. Translation of text pieces into English, Hindi, Urdu, Panjabi or Persian. 20 Marks
2. Explanation of text pieces into English, Hindi, Urdu, Panjabi or Persian 20 Marks
3. Summary or central idea of the text prescribed as in Dastanha-ye- Kuath 20 Marks
4. Simple direct questions on the life works of the authors 20 Marks
5. Short notes. 10 Marks

Total:- 90 marks

Books prescribed:

Nisabe Jadide Farsi (Published By Jayyad Ballimaran, Delhi) Only following portion from Prose Section.

(i) Intekhab Sarzamin-e-Hindi-Ali Asghar Hikmat,P.33-60
(ii) Dastanha-ye-Kutah:-
   (a) Azzan-e- Maghrib by Saeed Nafisi.
   (b) Khukushi By Mohd. Hijazi.

........................
PERSIAN (ELECTIVE)
SEMESTER-VI

Paper-B                        POETRY                     Marks   90
Time    3 Hours
Internal Assessment   10

1. Translation of text pieces into English, Hindi, Urdu, Panjabi Or Persian. 20 Marks
2. Explanation of text pieces into English, Hindi, Urdu, Panjabi or Persian 20 Marks
3. Central idea of the poem 20 Marks
4. Simple direct questions on the life works of the Poets 20 Marks
5. Short notes. 10 Marks

Total: 90 Marks

Books Prescribed:
Nisabe Jadide Farsi(Published by Jayyad Ballimaran, Delhi). Only following portions form poetry section:-

Az Gzalliyat-e-Hafiz:
Agar Aan Turke Shirazi Be Dast Aarad Dile Maara.
Saaqi Benur Badah Bar Afrooz Jam-e-Maa.
Doosh Deedam Keh Malayek Dare Maiykhaneh Zadand.

Gazalliyat-e-Khdsrow:
Jan Ze Tan Burdi-o-Dar Jaani Hunooz.
Madeh Pandam Ke Man Dar Seeneh Saudayee Digar Daram.

Masanaviy-e-Maulana Rum:
Deed Musa Yek Shabani Rah Be Rah.
Wahi Aamad Suy-e-Musa Az Khusa

Wassayad-e-Urfi
Dar Wasf-e-Kashmir

..........................
FRENCH (ELECTIVE)
B.A. /B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS, 2017-2018
SEMESTER-5TH

INTRODUCTION TO FRENCH DRAMA, POETRY AND PROSE

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3Hours

I Literary Master Pieces Drama, La Femme du Boulang er by Marcel Pagnol. 25 Marks
Questions on character sketches and Critical appreciation of the drama to be asked and answered in French.

II Selected Reading-Poetry 25 Marks
Questions, explanations of stanzas of poems and central ideas, critical appreciation and summaries of the poems to be asked and answered in French.

(a) General questions to be based on the prescribed text.(4 questions of 5 marks each) 20 Marks
(b) Questions on French civilization in the form of fill in the blanks, multiple choice multiple choice and short answers of 1-2 sentences. 20 Marks

I Courses of Reading :

Drama : Marcel Pagnol La Femme du Boulang er, Presses, Pocket

II Poetry :

1. Le Pont Mirabeau Apollinaire (Alcools)
2. Horloge Baudelaire (Fleurs du mal)
3. Les animaux malades de la peste La Fontaine
4. La jeune Veuve ; La Fontaine
5. Le Vase brisé Sully Prudhomme.
Text Books for Reference:


Choice to be given in all questions.

Note for Private Candidates: - The theory paper would be marked proportionately out of 100 as there is no internal assessment.
FRENCH (ELECTIVE)

SEMESTER-6

FRENCH POETRY, APPLIED GRAMMAR, CREATIVE WRITING AND VIVA-VOCE

Max. Marks : 100
Theory : 60 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

1. Summary, explanation and analysis of prescribed poems 20 Marks
2. A composition on a topic with in the textbook of about 200-300 words 15 Marks

4. Viva-Voce:
   1. Dictation of an unseen passage of about 100 words. 10 Marks
   2. Conversation (general) 10 Marks
   3. Reading (Unseen passage) 10 Marks

Courses of Reading:

Poetry: The following five poems are to be studied:

1. Le Lac Lamartine
2. La Grasse matinée Jacques Prévert
3. Le colloque sentimental P. Verlaine
4. Le manteau impérial V. Hugo
5. Le Déjeuner du Matin J. Prévert

Comprehension, explanation, literary, appreciation and criticism of the poems to be studied.

Note : 1. The latest syllabus should be strictly followed.
2. Choice should be given in questions.
Text Books for Reference:


Courses of Reading:


N.B. : (1) The latest syllabus to be followed strictly and the question paper should be of B.A.III level.
(2) Choice in questions must be given.
(3) Eight periods of one hour weekly – Six hours for text and two hours for composition.
(4) The composition and the unseen passages should be based on the vocabulary and grammar covered till B.A. III.
(5) The paper will be set and answered in French (except Translation).

Note for Private Candidates: - The theory paper would be marked proportionately out of 70 as there is no internal assessment.
GERMAN (Elective)
Semester - V

Summary

Max. Marks : 100 marks(Total)
Paper – A (Theory) : 90 marks
Internal Assessment: 10 marks

Paper A - Theory : 90 marks

Time: 3 hours

Note: Use of dictionary is allowed

i. Explanation and interpretation of any two poems or three stanzas : 30 marks
   from the prescribed book "German Verse" (Kulkarni & Chapekar)

   i. Hyperions Schicksalslied (Hölderlin)
   ii. Der Karussel (Rilke)
   iii. Des Schiffers Traum (Arndt)
   iv. Der Zauberlehrling (Goethe)
   v. Ganymed (Goethe)
   vi. Einkehr (Uhland)

ii. Characterization / Literary questions (2) on the prescribed drama "Andorra" (Max Frisch) : 30 marks

iii. Translation of unseen text/s from German into English : 30 marks

5.2 Internal Assessment : 10 marks (Total)
   - Continuous Evaluation
   - Attendance

Note:
1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbook:

i. "German Verse" (Kulkarni & Chapekar)

ii. "Andorra" (Max Frisch)

---------------------
GERMAN (Elective)
Semester - VI

Summary

Max. Marks: 100 marks (Total)
End-semester Exam Paper-B (Theory) : 60 marks
Oral (viva-voce) examination : 30 marks
Internal Assessment : 10 marks

Paper B - Theory : 60 marks (Total)

Time : 3 hours

Note: Use of dictionary is allowed

i. Translation of unseen text/s from German into English : 20 marks
ii. Translation of unseen text/s from English into German : 10 marks
iii. Characterization / Literary questions (2 out of 3) on the prescribed novel "Der Verdacht" (Dürrenmatt) : 30 marks

Oral (viva-voce) Examination : 30 marks (Total)

i. Conversation in German
ii. Reading of a simple unseen text and answering questions there-on.

Internal Assessment : 10 marks (Total)
- Continuous Evaluation
- Attendance

Note:

1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination and, wherever applicable, total of both written & oral examination (e.g. in Paper B)

Prescribed Textbooks:

i. “Deutsche Texte zum Übersetzen”, Max Hueber Verlag.
ii. "Der Verdacht" (Dürrenmatt)
Russian (Elective)

SEMESTER - V

Paper –Option (i) (General Translation & Grammar): Written
Maximum Time : 3 hrs.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Translation from simple Russian into English/Hindi/Punjabi.</td>
<td>35</td>
</tr>
<tr>
<td>2. Translation from simple English/Hindi/Punjabi into Russian</td>
<td>35</td>
</tr>
<tr>
<td>3. Applied grammar: 4 questions out of 6 (5 marks each)</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Use of dictionaries is allowed.

OR

Paper: Option(II) (Scientific & technical Translation & Grammar): written
Maximum Time : 3 hrs.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Translation from simple Russian (Scientific &amp; technical material) into English/Hindi/Punjabi. (about 120 words)</td>
<td>35</td>
</tr>
<tr>
<td>2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words)</td>
<td>35</td>
</tr>
<tr>
<td>3. Applied grammar: 4 questions out of 6 (5 marks each) Cases (Nouns, Pronouns, Adjectives, numerals (Singular and plural), Verb aspects, Direct and indirect narration, Verbal-adverbs, Participles, Gerund, Verbs of Motion (with and without prefixes).</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Use of dictionaries is allowed.

Extra material to be provided by the department.
RUSSIAN (ELECTIVE)
SEMESTER - VI

Paper : Written (Literature)
Maximum Time : 3 hrs.
Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
(For regular students)

1. Biographies of Russian writers from prescribed text books
   Biographies 2 out of 4 (10 marks each)
   A.S.Pushkin
   N.V.Gogol
   A.P.Chekhov
   M.Gorky
   Leo Tolstoy
   Chigiz Aitmatov
   Konstantin Paustovsky

2. Literary works
   (2 Question out of 4(10 marks each) on the following works:
   20 marks
   Tolstii I Tonki: A.P. Chekhov
   ‘Belaya Raduga’ Konstantin Paustovsky (page 76) Dorogi
   ‘Goluboi Zeleony Yuri Kazakov: (page 20-29) do
   Posle Bala Leo Tolstoy

3. a/ Reference to the context (Poetry):
   10 marks
   a) Nyane A.S.Pushkin
   b) V Sibri A.S.Pushkin
   c) Parus M.V.Lermontov

   Poetry paragraph from the text studied (1 out of 2)

b/ Reference to the context (Prose):
   10 Marks
   Tolstii I Tonki: A.P. Chekhov
   ‘Belaya Raduga’ Konstantin Paustovsky (page 76) Dorogi
   ‘Goluboi Zeleony Yuri Kazakov: (page 20-29) do
   Posle Bala Leo Tolstoy

   Prose paragraph from the text studied (1 out of 2)
iii) Oral/Practical

Practical (Dissertation: Independent translation of about 2500 words from Russian literary, socio-political, popular science texts into English/Hindi/Punjabi)

OR

Verbal Narration in Russian on any two of the following topics:

General Conversation

Books Recommended for additional reading

N.S.Burlakov & C.N. Chakravarti: A Cherstomathy of Russian Literature. 1970
Dictionaries: English-Russian dictionary.
Russian-English dictionary
B.I.Balin and R.M. Bakaya: An Introductory Russian course for students of Science and technology, Asia publishing house, Delhi (For Scientific & technical Translation group)

Note: Extra materials to be provided by the department.
FOLLOWING SUBJECTS ARE KEPT IN ABYANCE

1. ARABIC (ELECTIVE)
2. BENGALI (ELECTIVE)
3. TAMIL (ELECTIVE)
4. KANNADA (ELECTIVE)
5. MALAYALAM (ELECTIVE)
6. TELUGU (ELECTIVE)
PHYSICAL EDUCATION

B.A. /B.Sc. (GENERAL) FIFTH SEMESTER EXAMINATION (2017-18)

Time : 3 Hrs.                      Max. Marks : 65
Theory : 60 marks
Internal Assessment : 05 marks

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS:

(i) There shall be nine questions in all, spread over five units.

(ii) First question/unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.

(iii) Rest of the paper shall contain four units for descriptive questions. Each unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each unit.

(iv) All questions/units will carry equal marks.

(v) Private candidates and the students of the University School of Open Learning will not be allowed to take this subject.

UNIT-I 12 Marks

Entire syllabus given in the Unit-II to V will be covered to set six short answer type questions in first question/unit of the question paper which is compulsory.

UNIT-II 12 Marks

Play:

– Meaning and Definition of Play.
– Various theories of play and their significance in Physical Education and Sports.

Recreation:

– Meaning, definition, characteristics, aim, objectives and types of recreation and recreational activities.
– Significance of recreation in the modern society.
– Recreation providing agencies.

UNIT-III 12 Marks

Competitions:

– Meaning, importance and conduct of intramural and extramural competitions.
– Meaning and types of tournament and their merits and demerits.
– Draw of fixtures of various tournaments.
Camps:
- Meaning, aim and objectives of the camp.
- Advantages of camping/outdoor education.
- Types and agencies promoting camping.
- Organization of camps and factors affecting its organization.
- Educative values of a camp.

Athletic Meet:
- Organization of an athletic meet.
- Importance/significance of an athletic meet.

UNIT-IV 12 Marks

Posture:
- Meaning, types and importance of a good posture.
- Causes, preventive and remedial measures of a poor posture.

Postural Deformities:
- Postural deformities (Kyphosis, lordosis, scoliosis and flat foot), their causes, preventive and remedial measures.

Physical Activities and their effects on various physical parameters and vice versa:
- Physical activities/training and their effects on aging, body composition, and obesity.
- General problems of obesity.
- Health related risk factors of obesity.
- Obesity and physical activity.
- Causes, preventive and remedial measures of obesity.

UNIT-V 12 Marks

Massage:
- Brief history of massage.
- Meaning and definition of massage.
- Principles/guidelines for massage.
- Types of massage and their benefits.
- Effects of massage on skin, blood circulation, nervous system and muscles.

Basics of Cricket:
- History of the game
- Basic fundamentals
- Equipment and specifications
- Marking / layout of field
- Rules and regulations (number of players, duration of game, number of officials required and general rules of play)
- Major tournaments and Arjuna awardees of the game.
References:

PRACTICAL

Max. Marks : 35 Marks
Practical : 30 Marks
Internal assessment : 5 Marks

ATHLETICS

(a) History of athletics
(b) List of track and field events
(c) Marking of standard track, width of lanes and starting points for various races.

1. THROWS:
   Throws (Shot-put or Discuss Throw or Javelin Throw) and one event of the choice of the student.
   (a) Shot-put (The holding the stance, the glide, the delivery and the reverse or the recovery).
   OR
   Discuss Throw (The handhold, the initial stance, the preliminary swings, turn the delivery and the reverse or the recovery).
   OR
   Javelin Throw (The grip, the carry, the run way approach, the last five strides, the delivery, the reverse or the recovery).
   (b) Measurements of equipment and the throwing circles or the approach run, the arc and the throwing area/the sectors.

2. PHYSICAL FITNESS TESTS: More emphasis shall be given on variety of physical exercises for the development of Flexibility and strength components of physical fitness.

Test 1- Flexibility: Sit and reach test

Test 2- Strength: Medicine Ball Throw.

Division of Practical Marks: Marks for each activity shall be divided as under:

Athletics and Physical fitness 15 marks, Participation and achievement in sports/games 5 marks, viva voce/ practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester which will be assessed by the teacher concerned.

Note: 1. Polevault, Hammer Throw Hurdles, Relay Races and steeple chase men are not included in the practical syllabus/course due to the fact that these events are highly technical. Moreover in the absence of proper facilities required for the events mentioned above may prove to be injurious /fatal to the students.

2. 12 periods per week (6 periods each for theory and practical) shall be allotted to a class.

3. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
4. The theory and practical papers shall consist of 65 and 35 marks each.

5. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.

6. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.

7. A student is required to prepare a practical notebook on athletics with complete marking of standard track and starting points for various races and an event (long jump) mentioned in the syllabus.

**Mandatory Instructions for the Colleges:**

1. *Admission Criteria:*

   (i) Any student opting to have Physical Education as an Elective Subject irrespective of the background of the students (sports or non-sports students) must appear in the physical fitness test. Ranking should be prepared and the top 60-80 students should be offered this subject.

   (ii) This subject should be offered to the normal students (not to disabled one).

   (iii) To measure Physical Fitness through Cardiovascular Fitness Test, Cooper’s 9 Minutes or 12 Minutes Run-Walk Test should be conducted.

   (iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.

2. *Periodical Physical Inspections:*

   The University/Authorities with the collaboration of the Department of Physical Education, Panjab University, shall make Periodical Physical inspections of the various colleges to ensure that the teacher student ratio is maintained by all the affiliated colleges for this subject as per the University Guidelines, and for them to ensure that infrastructure (facilities), equipment, books/professional journals and groundmen, a game boy are provided as per the requirements of the subject and directions of the Panjab University, Chandigarh.

3. *Strength of Students :*

   For imparting effective teaching, the strength of students in a theory class shall be between 60-80 while it shall be 30-40 students in practical class.

4. *Infrastructure/facilities and Supporting personnel:*

   For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements:

   (i) A track atleast of 200 mtrs., it should, however, preferable be raised to 400 mtrs. track.
(ii) Bare minimum two Malies-cum-Groundmen for maintenance of the grounds and other infrastructure facilities etc.

(iii) A game boy to supply the sports equipments and water to the students/teachers on the ground/playfield/arena.

(iv) A store-keeper for the proper maintenance/accountability of sports equipments in the stores.

5. Number of Periods:

The number of periods for theory and practical shall be 12 periods per week (6 periods each for theory and practical) for classes i.e. B.A. First to sixth semester.

Practical period shall be projected in the college time table itself.

6. Teaching Work Load:

(i) As per the Panjab University Calendar Chapter XX (Page 298) Volume-III, 1996, the Maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.

(ii) Teachers who are preparing 6 teams for the Panjab University Inter College Competition, their work load shall be counted by including six periods per week in the teaching load of concerned teachers in Physical Education.

7. Division of Marks (Theory and Practical):

65% and 35% weightage shall be given to each theory and practical papers.

Note: STRICT ACTION SHALL BE TAKEN BY THE UNIVERSITY AGAINST THE COLLEGE(S) THAT VIOLATES THE ABOVE INSTRUCTIONS.
PHYSICAL EDUCATION

B.A. / B.Sc. (GENERAL) SIXTH SEMESTER EXAMINATION (2017-18)

Time : 3 Hrs.                  Max. Marks : 65
Theory : 60 marks           Internal Assessment : 05 marks

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS:

(a) There shall be nine questions in all, spread over Five Units.
(b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks.
(c) Rest of the paper shall contain four units for descriptive questions. Each unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each unit.
(d) All questions/units will carry equal marks.
(e) Private candidates and the students of the University School of Open Learning will not be allowed to take this subject.

UNIT-I

Entire syllabus given in the Unit-II to V will be covered to set six short answer type questions in first question/unit of the question paper which is compulsory.

UNIT-II

Nervous System:

– Meaning of Nervous System.
– Main organs of Nervous System and their functions.
– Reflex action and Reciprocal Innervations.
– Functional classification of Nervous System.

Excretory System:

– Meaning of Excretory System.
– Main organs of Excretory System and their structure and functions.

Endocrine System:

– Meaning of Endocrine System.
– Meaning of Glands, their location and functions/Harmones produced by them.
UNIT-III 12 Marks

Sports Training,

– Meaning, definition, aim, objective, characteristics and principles of sports training.

General Physiological concept:

– Physiological concepts such as vital capacity, second wind, stitch in the side and its causes.
– Definition of oxygen debt/excess post exercise oxygen consumption (EPOC) and its implication.
– Meaning definition and types of fatigue.
– Muscular contractions such as isotonic, isometric, eccentric and isokinetic.
– Meaning of Blood pressure, Hypertension: Its causes, effects and treatment, exercise and Hypertension.

Effects of Physical Exercise / Training on body systems:

– Effects of Physical exercise/Training on muscular, respiratory and circulatory systems of the body.

UNIT-IV 12 Marks

Carrier aspects in Physical Education:

– Carrier options in Physical Education.
– Different avenues in Physical Education.
– Self assessment for carrier choices.
– Courses and institutions available for Physical Education profession.

UNIT-V 12 Marks

Coach:

– Coaching, coaching philosophy, definition of a coach.
– Qualification and characteristics of a coach.
– Responsibilities of a coach.

Basics of Table Tennis:

– History of the game
– Basic fundamentals
– Equipment and specifications
– Marking / layout of T.T Table
– Rules and regulations (number of players, duration of game, number of officials required and general rules of play)
– Major tournaments and Arjuna awardees of the game
References:


PRACTICAL

Max Marks : 35
Practical : 30
Internal assessment : 5

GAMES
(Badminton or Hockey and any other one game of the choice of the student).

Badminton:
(a) Measurement (Badminton Court, Net, Racket and Shuttle cock) for singles and doubles.
(b) Number of players and officials.
(c) Holding the racket and shuttle cock.
(d) Types of Service: High and Low.
(e) Types of Strokes: fore hand, back hand, over head.
(f) Shots: Smash, Lob shot, net shot, dive shot.
(g) Rules and regulations of the game.

Hockey:
(a) Measurements (Hockey ground, goalpost, hockey stick, ball and flags) for men and women.
(b) Number and position of players and officials.
(c) Fundamental skills (grip, hitting, stopping dribbling, push, scoop and flick).
(d) Rules and regulations of the game.

Division of Practical Marks: Marks for each activity shall be divided as under:
Game 10 marks, participation and achievement in sports/games 5 marks, Physical fitness 5 marks, viva voce/practical file 10 marks and internal assessment 5 marks based on overall performance of a student during the current semester which will be assessed by the teacher concerned.

Note:
1. 12 periods per week (6 periods each for theory and practical) shall be allotted to a class.
2. The theory and practical class shall consist of 60-80 students and 30-40 students respectively.
3. The theory and practical papers shall consist of 65 and 35 marks each.
4. As per the Panjab University Calendar, Chapter XIX (Page 324) Volume III, 1990, the maximum teaching work load for an Assistant Professor in Physical Education for B.A. Pass Course is 24 periods per week, which includes theory as well as practical.
5. The choice of games by the students shall be confined to games approved by the Association of Indian Universities.
6. A student is required to prepare a practical notebook of a game given in the syllabus and any one game of choice.
Mandatory Instructions for the Colleges:

1. Admission Criteria:

(i) Any student opting to have Physical Education as an Elective Subject irrespective of the background of the students (sports or non-sports students) must appear in the physical fitness test. Ranking should be prepared and the top 60-80 students should be offered this subject.

(ii) This subject should be offered to the normal students (not to disabled one).

(iii) To measure Physical Fitness through Cardiovascular Fitness Test, Cooper’s 9 Minutes or 12 Minutes Run-Walk Test should be conducted.

(iv) The date of Physical Fitness Test must be mentioned in the prospectus of the College.

2. Periodical Physical Inspections:

The University/Authorities with the collaboration of the Department of Physical Education, Panjab University, shall make Periodical Physical inspections of the various colleges to ensure that the teacher student ratio is maintained by all the affiliated colleges for this subject as per the University Guidelines, and for them to ensure that infrastructure (facilities), equipment, books/professional journals and groundmen, a game boy are provided as per the requirements of the subject and directions of the Panjab University, Chandigarh.

3. Strength of Students:

For imparting effective teaching, the strength of students in a theory class shall be between 60-80 while it shall be 30-40 students in practical class.

4. Infrastructure/facilities and Supporting personnel:

For the introduction/to continue with this subject, a college must fulfil the following mandatory requirements such as:

(i) A track atleast of 200 mtrs., it should however, preferable be raised to 400 mtrs. track.

(ii) Bare minimum two Malies-cum-Groundmen for maintenance of the grounds and other infrastructure facilities etc.

(iii) A game boy to supply the sports equipments and water to the students/ Assistant Professors on the ground/playfield/arena.

(iv) A store-keeper for the proper maintenance/accountability of sports equipments in the stores.

5. Number of Periods:

The number of periods for theory and practical shall be 12 periods per week (6 periods each for theory and practical) for classes i.e. B.A. First to sixth semester.

Practical period shall be projected in the college time table itself.
6. **Teaching Work Load:**

   (i) As per the Panjab University Calendar Chapter XX (Page 298) Volume-III, 1996, the maximum teaching work load for a Assistant Professor in Physical Education for B.A. Pass course is 24 periods per week which includes theory as well as practical.

   (ii) Teachers who are preparing 6 teams for the Panjab University Inter College Competition, their work load shall be counted by including six periods per week in the teaching load of concerned teacher in Physical Education.

7. **Division of Marks (Theory and Practical):**

   65% and 35% weightage shall be given to each theory and practical papers.

*Note:* STRICT ACTION SHALL BE TAKEN BY THE UNIVERSITY AGAINST THE COLLEGE(S) THAT VIOLATES THE ABOVE INSTRUCTIONS.
EDUCATION
B.A. / B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2017-18
SEMESTER –V

Paper- : INDIAN EDUCATION

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER :

The question paper will consist of five Units : I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective unit of the syllabus and will carry 18 marks each. Unit V will consist of eight short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks. The students are required to attempt 6 short answer type questions out of 8 in unit V which will be compulsory. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit for answer (300-350 words for units I, II, III, IV and 75 words for each short answer question in unit V).

GENERAL INSTRUCTIONS FOR THE CANDIDATE :

The students will be required to attempt one question each from Unit I, II, III and IV. Unit V will be compulsory. The students are required to attempt 6 short answer type questions out of 8 in Unit V. The words limit will be 300-350 words for unit I, II, III and IV and 75 words for each short answer question in unit V.

Objectives :

1. To enable the students to know about History of Indian Education.
2. To enable the students to understand the problems of pre-primary Education.
3. To make the students familiar with the concept of Universalization of Elementary Education and its problems.
4. To make the students familiar with the constitutional provisions of Education and role of different agencies in Education.

Course Contents :

UNIT-I : Education in the ancient and medieval period of Indian History.

UNIT-II : Current status and problems of pre-primary education. Public schools and their future.
UNIT-III : Importance of Elementary Education. Universalization of Elementary Education. Problems of Elementary Education and Role of the State in Elementary Education. Sarav Sikhiya Abhiyan – Concept, Objectives & Implementation.


Books Recommended:


7. Govt. of India : *Seventh Five Year Plan*, New Delhi.


-------------------
PAPER : MODERN INDIAN EDUCATION

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER:

The question paper will consist of five Units: I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Unit of the syllabus and will carry 18 marks each. Unit V will consist of eight short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks. The students are required to attempt 6 short answer type questions out of 8 in unit V which will be compulsory. The question paper should preferably carry internal division of marks for all the sub-questions of one main question. Preferably set the words limit for answer (300-350 words for units I, II, III, IV and 75 words for each short answer question in unit V).

INSTRUCTIONS FOR THE CANDIDATE:

The students will be required to attempt one question each from Unit I, II, III and IV. Unit V will be compulsory. Students are required to attempt 6 short answer type questions out of 8 in unit V. The words limit will be 300-350 words for unit I, II, III and IV and 75 words for each short answer question in unit V.

Objectives:

1. To make the students familiar with the structure of Secondary Education in India.
2. To enable the students to know about different policies of education.
3. To make the students familiar with the problems of education for 21st century.
4. To enable the students to know about the need and importance of vocationalisation of education.
5. To enable the students to know about Adult, Continuing and Environmental Education.

Course Contents:


RMSA(Rashtriya Madhmi Shiksha Abhiyan) – Concept Objectives and Implementation.

Education in the Twelveth Five Year Plan.

Problems and Prospects of Education for the 21st century.


Aims, Objectives and Problems of Secondary Education.

Role of different Agencies – NCERT, NCTE AND DIET.

UNIT-IV: Adult, Continuing and Distance Education.

Environmental Education, ICT in Education.

Books Recommended:

9. Govt. of India : Seventh Five Year Plan, New Delhi.

------------------------
ADULT EDUCATION

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018

Max. Marks : 100
Theory : 40 marks
Internal Assessment : 10 marks
Time : 3 hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND FOR THE CANDIDATE:

The question paper will consist of five Units: I, II, III, IV and V. Units II, III, IV and V will have two questions from the respective units of the syllabus and will carry 8 marks each. The students are requested to attempt one question from each Unit i.e. (II, III, IV and V). Unit I will consist of eight short answer type questions which will cover the entire syllabus and is compulsory and carrying one mark for each question.

OBJECTIVES OF THE COURSE:

The objectives of the paper are:

1. To expose students to the concept, importance and scope of continuing education.
2. To acquaint students with the basis of life skills education, its concept, meaning and its various forms.
3. To expose students with life long learning and its future perspectives.
4. To equip students with role of universities in adult and continuing education programs.
5. To explain students extension as third dimension.

ADULT EDUCATION
SEMESTER-V

THEORY:

UNIT-I

Adult and Continuing Education:
(a) Adult Literacy in reference to National Literacy Mission 1985, its objectives.
(b) Continuing Education : Concept, Importance, Scope and Objectives
UNIT-II

Saakhshar Bharat Mission 2009.
(a) Saakhshar Bharat Mission 2009, its targets and specific objectives.
(b) Flexi Approach to Saakhshar Bharat Mission 2009 and Continuing Education.

UNIT-III

Life Long Learning
(a) Life Long Learning - Concept, Needs, Scope, Strategies.
(b) Its Implications and Future Perspectives.

UNIT-IV

Extension Education
(a) Extension Education – The Third Dimension.
(b) Its Major Thrust Areas, Programs and Activities.

PRACTICAL/FIELD WORK

1. Organisation of Two Awareness Generating Programs and Report Writing.

The break up of 50 marks allotted to practical is as under:

<table>
<thead>
<tr>
<th></th>
<th>External</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Viva- Voice</td>
<td>10 marks</td>
<td>3</td>
</tr>
<tr>
<td>ii) Written Questions Based on the Project</td>
<td>20 marks</td>
<td>2</td>
</tr>
<tr>
<td>iii) Project Report</td>
<td>10 marks</td>
<td>5</td>
</tr>
</tbody>
</table>

-------------------------
ADULT EDUCATION
SEMESTER-VI

UNIT-I
Adult and Continuing Education:
(a) Different types of Programs in Continuing Education
(b) Role of Universities in Adult & Continuing Education.

UNIT-II
Life Skills
(a) Life Skill Education – its meaning and Concept.
(b) NCERT CORE LIFE SKILLS
   Problem-Solving, Decision-Making, Empathy, Creative-Thinking, Critical-Thinking, Stress
   Management, Time Management, Emotional Security, Communication Skills, Recreation Skills

UNIT-III
(a) National Policy on Skill and Entrepreneurial Development 2015, its objectives and targets.
(b) Its Policy Frame Work, Governance and Financing.

UNIT-IV
Extension Education
(a) Swachh Bharat Mission-Objectives, Targets.
(b) Women Empowerment Challenges and Issues, Its Need and Importance.

PRACTICAL/FIELD WORK 50 marks

The break up of 50 marks allotted to practical is as under:

<table>
<thead>
<tr>
<th>Activity</th>
<th>External</th>
<th>Internal</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Viva- Voice</td>
<td>10 marks</td>
<td>3</td>
</tr>
<tr>
<td>ii) Written Questions Based on the Project</td>
<td>20 marks</td>
<td>2</td>
</tr>
<tr>
<td>iii) Project Report</td>
<td>10 marks</td>
<td>5</td>
</tr>
</tbody>
</table>
Books Recommended

1. Singh, Madan: Companion to Adult Educators
   National Literacy Mission
   Director of Adult Education
   Ministry of Human Resource
   Development,
   Dept. of Adult Education, New Delhi, 1999
2. Suriakanthi, A. : Perspectives of Continuing Education, Dept. of Adult,
   Continuing Education & Extension,
   Gandhi Gram Rural University,
   Gandhi Gram, 2007
3. Parthasarathy, K. : Facets of Adult and Continuing Education, School of Education,
   Centre for Adult, Continuing Education & Extension,
   Bharathidasan University
   Trichirappatti, 2006
4. Parthasarathy, K. : Population Education and Youth Development, School of Education,
   Centre for Adult, Continuing Education and Extension,
   Barathidasan University,
   Trichirappatti, 2007
5. Alan Rogers : Teaching Adults, Sterling Publishers Pvt. Ltd., New Delhi, 1989
6. Mohanty J. : Adult & Non formal Education,
   Deep Publications, New Delhi, 1993
7. U.G.C. Guidelines. (X and XI Plan) : University Grants Commission,
   for Adult, Continuing Education and Extension New Delhi
MUSIC (Vocal)

SEMESTER-V

General Instructions:-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There should not be more than eight students in a batch for practical examination.
3. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
4. The candidate can take vocal music along with instrumental music.
5. The candidate can also take instrumental music with tabla.
6. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
7. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 02 marks each.
8. There would be upto ten students in one section in practical class

Paper-A: THEOREY (3 Hours duration) : 45 marks
(Duration 45 minutes 06 practical+ 02 Theory periods per week)

Paper-B: Practical (20 minutes duration) : 45 marks
(i) Viva : 35 marks
(ii) Harmonium : 05 marks
(iii)Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 +05) : 10 marks

Total : 100 marks

Paper-A: THEORY (Duration 45 minutes 02 Theory per week)

UNIT-I

1. Explain the following Gayan Shaillies:-Tappa, Dharupad, Tarana.
2. Special features of time Theory of Indian Ragas
3. Raganga Paddhti

UNIT-II

Detailed study of the following:-
1. Manch- Pradarshan
2. Professions in Music
3. Lok Sangeet of Punjab
UNIT-III

Contribution in detail and life sketches in brief of the following: -

1. Pt. Kumar Gandharv
2. Smt. Gangu Bai Hangal
3. Ustad Bade Gulam Ali Khan Sahib

UNIT-IV

Description and Notation of the prescribed Ragas:-

1. To write notation of Vilambit / Drut khyal in the prescribed Ragas with Alaps and Taans : -Vrindavani Sarang, Asavari
2. To write notations of Talas in Ekgun & Dugun of :- Jhumra, Sultala
3. To write the description of Ragas:- Non-detailed Ragas:Des, Jaunpuri

NOTE: Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Drut Khayal with Alaps & Tanas in each of the following Ragas: -Vrindavani Sarang & Asavari
2. One Vilambit Khayals in any two of the prescribed Ragas in the course with extempore –alaps and tanas.
3. Ability to sing one Dharupad in proper style.
4. Ability to sing notations (in swaras) of Drut Khayals in each of the prescribed Ragas.
5. Ability to play Jhaptal on Tabla.
6. Ability to recite the following Talas in Thah, Dugun by hand:-Jhumra, Sultala
7. Ability to sing any two Drut Khayals of your course on Harmonium.
8. Knowledge of non-detailed Ragas:
   Ability to sing their Arohas, Avrohas and Pakad with the help of Tanpura : Des, Jaunpuri.
9. Tuning of Tanpura.

Books Recommended:

MUSIC (Vocal)

SEMESTER-VI

General Instructions:-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There should not be more than eight students in a batch for practical examination.
3. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
4. The candidate can take vocal music along with instrumental music.
5. The candidate can also take instrumental music with tabla.
6. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
7. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.
8. There would be upto ten students in one section in practical class

Paper-A: THEORY (3 Hours duration) : 45 marks
(Duration 45 minutes 06 practical+ 02 Theory periods per week)

Paper-B: Practical (20 minutes duration) : 45 marks
(iv) Viva : 35 marks
(v) Harmonium : 05 marks
(vi)Tabla : 05 marks

Internal Assessment (Theory + Practical) (05 +05) : 10 marks
Total : 100 marks

Paper-A: THEORY (Duration 45 minutes 02 Theory per week)

UNIT –I

1. General History of Indian Music i.e. from Bharat to Sharangdev
2. Explain the following Gayan Shaillies: - Dhamar, Bhajan, Shabad, Thumri
3. Varieties of Kanth Sadhna

UNIT –II

Contribution in detail and life sketches in brief of the following great masters:-
1. Ustad Vilayat Hussain Khan
2. Smt. Siddheshwari Devi
3. Pt. V. N. Patvardhan
UNIT-III

Detailed study of the following:-

1. Role of Akashwani and Doordarshan towards the popularisation of Indian Classical Music
2. Role of Electronic mediums (Basic Instruments) i.e Electronic, Tabla, Tanpura
3. Sansthagat Sangeet Shikshan Pranali

UNIT-IV

Description and Notations of the prescribed Ragas and Talas :-

1. To write in notation of Vilambit gat / drut khyal in the prescribed Ragas with Alap & Taans:--
   Madhuwanti & Darbari- kanada.
2. To write in notations of talas: - Deepchandi, Dhamar (Single + Double)
3. To write the description of Ragas: - Non detailed Ragas: Multani, Adana

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/
      description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions
   (covering entire syllabus i.e. theory and practical) out of which students have to
   attempt 09 questions of carry 02 marks each.

Paper-B : PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Drut Khayal with Alaps & Tanas in each of the following Ragas: Madhuwanti & Darbari Kanhada
2. One Vilambit Khayals in any two of the prescribed Ragas in the course with extempore –alaps and
tanas.
3. Ability to sing one Dhamar in proper style.
4. One Tarana in any of the detailed Ragas prescribed in the course.
5. Ability to sing notations (in swaras) of Drut Khayals in each of the prescribed Ragas.
6. Ability to play Chartala on Tabla.
7. Ability to recite the following Talas in Thah, Dugun by hand: Deepchandi & Dhamar
8. Ability to sing any two Drut Khayals of your course on Harmonium.
9. Knowledge of non-detailed Ragas :
    Ability to sing their Arohas, Avrohas and Pakad with the help of Tanpura : Multani & Adana
10. Tuning of Tanpura.

Books Recommended:

1. **Hamare Sangeet Ratna** : Sangeet Karyalayas, Hathras.
2. **Sangeet Sar Part III** : Mrs. Veena Mankaran.
3. **Folk Instruments of Punjab** : Prof. Anil Narula.
7. **Sangeet Shastra Vigyan** : Panna Lal Madan.
8. **Sangeet Kala Ka Itihas** : Panna Lal Madan

-----------------------
GENERAL INSTRUCTIONS:-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to ten students in one section in practical class.
3. There should not be more than eight students in a batch for practical examination.
4. Harmonium can be used while singing Alankars.
5. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.
6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. The candidate can take vocal music or Tabla along with instrumental music.

Paper-A: THEORY (Instrumental) (3 hrs. duration) : 45 marks
(Duration 45 minutes 06 practical + 02 Theory periods per week)

Paper-B: PRACTICAL (20 minutes duration) : 45 marks
(i) Viva : 35 marks
(ii) Gayan : 05 marks
(iii) Tabla : 05 marks

Internal Assessment (Theory + Practical) : 05+05 = 10 marks

Total: 100 marks

Paper-A: THEORY (Duration 45 minutes 02 theory periods per week)

UNIT-I

1. Explain & define the different Vadan Shaillies (Styles) of your own instrument.
2. Historical development of Indian Musical Scale.
3. Varieties of Tana / Tora

UNIT-II

1. Importance of Laya and Tala in Music
2. Folk Instruments of Punjab.
UNIT-III

Brief life sketches and their contributions:-
1. Ustad Bismillah Khan
2. Ustad Hafiz Ali Khan
3. Pt. Nikhil Banerji

UNIT-IV

Notations and Description of ragas and Talas:- Multani, Jai Jaiwanti

1. To write one Maseetkhani Gat with Todas
2. To write Razakhani Gat with Todas of ragas Multani, Jaijaiwanti
3. To write single and double of Tala :- Deepchandi, Tilwada
4. Non- detailed raga:- Madhuwanti, Chhayanat

NOTE: - Both the questions from this part must contain one notation of Raga alongwith the notation of Talas/ Description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Razakhani Drut Gat with Alaps and Toras & Jhalas in each of the following Ragas : Multani, Jaijaiwanti
2. One Maseet Khani (Vilambit) Gats with Alap-Jod and Toras in any of the prescribed ragas.
3. Knowledge of the following non-detailed ragas:-Madhuwanti, Chhayanat
4. Ability to demonstrate by hands in Ekgun and Dugun layakaries of the following talas : Deepchandi, Tilwada,
5. Ability to play Dhamar on Tabla.
6. One Dhun.
7. Ability to play techniques of your Instruments: Meend, Kan, Krintan,Ghaseet.
8. Ability to sing shudh, komal and tivra swaras with the help of harmonium.

Books Recommended:

1. Sangeet Kala Ka Itihas : Dr. Panna Lal Madan
2. Sangeet Shastra Vigyan : Dr. Panna Lal Madan
4. Folk Instruments of Punjab : Prof. Anil Narula (Published by Punjabi University, Patiala).
7. Sangeet Granth atey Bharti Sangeet Da Itihas : Chander Kanta, Khosla
MUSIC (Instrumental)
SEMESTER-VI

GENERAL INSTRUCTIONS:-

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to ten students in one section in practical class.
3. There should not be more than eight students in a batch for practical examination.
4. Harmonium can be used while singing Alankars.
5. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.
6. In Instrumental Music, the candidates have the option to take any one of the following instruments: Sitar, Sarangi, Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shahnai, Santoor.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. The candidate can take vocal music or Tabla along with instrumental music.

Paper-A: THEORY (Instrumental) (3 hrs. duration) : 45 marks
(Duration 45 minutes 06 practical + 02 Theory periods per week)

Paper-B: PRACTICAL (20 minutes duration) : 45 marks

(i) Viva : 35 marks
(ii) Gayan : 05 marks
(iii) Tabla : 05 marks
Internal Assessment (Theory + Practical) : 05+05 = 10 marks

Total: 100 marks

Paper-A: THEORY (Duration 45 minutes 02 theory periods per week)

UNIT-I
1. General History of Indian Music i.e. from Bharata to Sharangdeva
2. Notational System, origin and development
3. Knowledge of Uttari and Dakshani Sangeet Paddhati

UNIT-II
1. The life Sketches and contributions of the following great musicians :-
   (i) Dr. Lal Mani Mishra
   (ii) Dr. Panna Lal Ghosh
   (iii) Smt. Sharan Rani
UNIT-III

Essays:-
(i) Chitrpat Sangeet Mein Vadyon Ki Bhoomika.
(ii) Role of the Akashvani and Doordarshan in popularizing Instrumental Music.
(iii) Manch Pradarshan

UNIT-IV

Notation and Description of the prescribed Ragas and Talas:-

1. Ragas:- Mian-Ki-Todi, Mian Malhar.
2. Talas :- Sultal, Adachartal
3. Non detail Raga :- Gujri -Todi, Bahar
   - To write one maseetkhna Gat with todas in any prescribed rag
   - To write a Razakhani Gat with Todas
   - To write single and double of prescribed Talas
   - To write the description of detailed and non detailed raga

NOTE: - Both the questions from this part must contain one notation of Raga along with the notation of Talas/ description of Ragas.

UNIT-V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B: PRACTICAL (Duration 45 minutes 06 practical periods per week)

1. One Razakhani Drut Gat with Alaps and Toras & Jhalas in each of the following Ragas: Mian-Ki-Todi, Mian- Malhar
2. One Maseet Khani (Vilambit) Gats with Alap-Jod and Toras in any of the prescribed ragas.
3. Knowledge of the following non-detailed ragas: Gujri-Todi, Bahar
4. Ability to demonstrate by hands in Ekgun and Dugun layakaries of the following talas : Adachautal, Sultal.
5. Ability to play Tilwada on Tabla.
6. One Sitarkhani gat with toras in any prescribed ragas.
7. Ability to play techniques of your Instruments: Meend, Kan, Krintan, ghaseet.
8. Ability to sing shudh, komal and tivra swaras with the help of harmonium.

Books Recommended:

1. Sangeet Kala Ka Itihas : Dr. Panna Lal Madan
2. Sangeet Shastra Vigyan : Dr. Panna Lal Madan
4. Folk Instruments of Punjab : Prof. Anil Narula (Published by Punjabi University, Patiala).
7. Sangeet Granth atey Bharti Sangeet Da Itihas : Chander Kanta, Khosla

---------------------
General Instructions:-

1) In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2) There will be up to eight students in one section.
3) Candidate can take any other instruments along with Tabla i.e. Sitar, Sarangi Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shehnai.
4) The candidate can take Vocal Music along with Instrumental Music
5) The candidate can also take Instrumental Music with Tabla
6) In all, 9 questions will be set. The question paper will be divided into five units. Four units contain 2 questions each. The candidates are required to attempt 4 questions selecting at least one question from each unit. The 5th unit based on the notation shall be compulsory.

Paper-A: THEORY (3 Hours duration) : 45 marks
Paper-B: PRACTICAL (20 minute’s duration) : 45 marks

(i) Viva : 30 marks
(ii) Harmonium : 05 marks
(iii) Tabla : 05 marks
(iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5+5) : 10 marks

Total : 100 marks

Paper-A Theory

UNIT-I

(a) Classification of Musical Instruments.
(b) Brief study of following south Indian Instruments:-
   Mridangam, Ghatam, Tabil

UNIT-II

(a) Origin and development of Tabla Instrument.
(b) Playing techniques of Tabla

UNIT-III

(a) Comparison between Uttari and Dakshini Tala System.
(b) Comparative study of different talas having equal matras:
   (i) Teental –Punjabi Tala (Addha Tala)
   (ii) Roopak – Tivra

UNIT-IV

(a) Development & Importance of Tabla Gharana.
(b) Life sketches and contributions of the following:
   (i) Mian Kadar Baksh
   (ii) Pt. Ram Sahai

UNIT-V

Ability to write in notation of Quaida, Paran, Gat, Tihais & Peshkar in Teentala, Jhaptal, Roopak Talas
Paper-B: PRACTICAL

a) Playing of Talas prescribed in the course:- Ada Chautal, Tilwara and Punjabi Tala
b) Playing proper Badhat of Ada-Chautal, Teentala
c) Playing all the prescribed Talas with Vocal and Instrumental performances as well as solo items.
d) Tuning of Tabla/Pakhawaj
e) Practical knowledge of the following in the prescribed Talas:
   (i) Ada chartala:- simple Paran, Mukhra, Mohra, Uthan
   (ii) Rupak/Teevra:- Peshkar, Quaida, Palta, Rela, Paran.

Books Recommended:

1. Tala Parichya Part I, II &III : G.C. Srivastav
2. Bhartiya Taalon ka Shastriya Vivechan : Arun Kumar Sen
3. Taal Maartand : B.S. Sharma
4. Bhartiya Sangeet Vadya : L.M. Mishra
5. Harmare Sangeet Ratna : Sangeet Karyalay, Hathras
   Tala Vadya Shastra : Manohar Bhalchand Marathe

...............
TABLA (Instrumental Music)

SEMESTER-VI

General Instructions:-

1) In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2) There will be up to eight students in one section.
3) Candidate can take any other instruments along with Tabla i.e. Sitar, Sarangi Veena, Sarod, Dilruba, Violin, Guitar, Bansuri, Shehnai.
4) The candidate can take Vocal Music along with Instrumental Music
5) The candidate can also take Instrumental Music with Tabla
6) In all, 9 questions will be set. The question paper will be divided into five units. Four units contain 2 questions each. The candidates are required to attempt 4 questions selecting at least one question from each unit. The 5th unit based on the notation shall be compulsory.

Paper-A: THEORY (3 Hours duration) : 45 marks

Paper-B: PRACTICAL (20 minute’s duration) : 45 marks

i) Viva : 30 marks
ii) Harmonium : 05 marks
iii) Tabla : 05 marks
iv) Padhant on Hand : 05 marks

Internal Assessment (Theory & Practical) (5+5) : 10 marks

Total : 100 marks

Paper-A Theory

UNIT-I

a) Folk Tala Instruments of Punjab.
b) Brief study of following south Indian Instruments:- Morchang, Kanjeera, Manjeera.

UNIT-II

a) Origin and development of Pakhawaj
b) Playing technique of Pakhawaj
c) Basic principle of Tabla / Pakhawaj accompaniment

UNIT-III

a) Comparative study of Bhatkhande and Paluskar Tala Notation System.
b) Comparative study of different talas having equal matras:
   (i) Deepchandi –Jhoomra
   (ii) Jhaptal – Sooltal
   (iii) Ektal-Chautal
B.A./B.Sc.(General) Third Year (Semester System) Syllabus

UNIT-IV

a) History of Delhi, Punjabi & Banars Gharana of Tabla
b) Life sketches and contributions of the following:
   (i) Ustad Allarakha Khan
   (ii) Pt. Kishan Maharaj
   (iii) Pt. Anokhe Lal Mishra

UNIT-V

Ability to write in notation of Quaida, Paran, Gat, Tihais & Peshkar in Pancham, Sawari & Adachautal

Paper-B: PRACTICAL

a) Playing of Talas prescribed in the course: Dhamar, Pancham- Sawari, Vilambit Ektala
b) Playing proper Badhat of Dhamar: Pancham,- Sawari Talas
c) Playing all the prescribed Talas with Vocal and Instrumental performance as well as solo item.
d) Tuning of Tabla/Pakhawaj
e) Practical knowledge of the following in the prescribed Talas:
   (i) Dhamar: Chakardar Paran, Farmaishi Paran, Tukra
   (ii) Tilwara: Vilambit, Theka with accompaniment in Vocal

Books Recommended:

1. Tala Parichya Part I, II &III : G.C. Srivastav
2. Bhartiya Taalon ka Shastriya Vivechan : Arun Kumar Sen
3. Taal Maartand : B.S. Sharma
4. Bhartiya Sangeet Vadya : L.M. Mishra
5. Harmare Sangeet Ratna : Sangeet Karyalay, Hathras
6. Tala Vadya Shastra : Manohar Bhalchand Marathe

--------------
INDIAN CLASSICAL DANCE
SEMESTER – V

GENERAL INSTRUCTIONS:

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance music along with vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

Paper-A: THEORY (3 hours duration) : 45 Marks

(Duration 45 minutes, 02 Theory periods per week)

PAPER-A THEORY

Unit – I

1. Definition the following terms: Kataksh, Ang, Upang, Pratyanga, Hela.
3. Technique of Indian Ballet.

Unit–II

1. Dance and Nature
2. Brief study of Natya Shastra
3. Brief study of Natak Bheda

Unit–III

1. Essential characteristics of Mohini Attam.
2. Brief note on Bhave.
3. Brief note on Folk Dances of Rajasthan.

Unit–IV

1. Description of Teen Tala anad Sawari and Dhamar
2. Notation of Theka, Bol Tatkar, thaat, Amad, Chakardar, Tora, Tihai and Premelu and Nagma in Teen Taal.
3. Notation of Theka, Bol, Tatkar, Tihai, Amad, Paran, Chakardar, Paran, Tukra, Kavit and Nagma in Sawari Tala.
4. Notation of Theka, Bol -Tatkar and Tihai in Dhamar.
Unit – V

1. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

PAPER-B PRACTICAL (Duration 45 minutes 06 periods per week)

Unit - I

1. Swari Tala
   b) Theka
   c) Bol Tatkar
   d) Tukra - 2
   e) Amad - 1
   f) Chakardar Paran - 1
   g) Tihai - 1
   h) Paran - 1
   i) Nagma - 1
   j) Kavit - 1

   Teen Taal:

2. Teen Tala (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Thaat - 1
   d) Amad - 1
   e) Chakardar Tora - 1
   f) Tihai - 1
   g) Premula - 1
   h) Nagma - 1

3. Dhamar Taal:
   I Tatkar
   II Tihai

4. a) Knowledge of Folk Dance of Rajasthani practically
    b) Play Theka of Sawari on Tabla
    c) Gat Nikas of Ghungat and Matki
    d) All the practical work on Hand

..........................
GENERAL INSTRUCTIONS:

1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. There would be up to ten students in one section in practical class.
3. There would not be more than eight students in a batch for practical examination.
4. No electronic instruments will be allowed for lehra in practical examination.
5. The candidate can take Dance music along with vocal music.
6. The candidate can also take instrumental music with Dance.
7. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also be sent.
8. In all, nine questions will be set. The question paper will be divided into five Units. Four Units will contain two questions each and the candidates are required to attempt four questions selecting at least one question from each Unit. The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of 01 marks each.

Paper-A: THEORY (3 Hours duration) : 45 Marks

(Duration 45 minutes, 02 Theory periods per week)

Paper-A Theory

Unit-I

1. History of Kathak Dance.
2. Brief study of Nayika Bheda.

Unit-II

1. Essential characteristics of Odissi.
2. Loka Dharmi and Natya Dharmi.
3. Life sketch of Achhan Maharaj Ji.

Unit III

1. Brief study of Abhinaya Darpan.
2. Dance and Fine Arts.
3. History of Stage.

Unit IV

1. Description of Dhamar with Theka, Two Toras, Tihai, Amad and Pakshiparan.
2. Notation of Theka, Amad, Tihai, Tora, Kavit and Chatusjati paran in Teen Taal.
3. Notation of Theka, Paran, Chakardar Paran, Tisarjati Paran, Kavit in Sawari Taal.
4. Nagma, Bol Tatkar in Dhamar, Teen Taal and Sawari.
Unit – V

1. The ninth question of unit v is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

Paper-B Practical (Duration 45 minutes, 06 periods per week)

Unit-I

1. Dhamar (Matra 14)
   a) Bol Tatkar
   b) Theka
   c) Toras-
   d) Tihai-1
   e) Pakshiparan
   f) Amad

2. Swari Tala (Matra 15)
   a) Theka
   b) Bol Tatkar
   c) Paran-1
   d) Chakardar Paran-1
   e) Tisarjati Paran-1
   f) Kavit-1

3. Teen Tala (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Amad -1
   d) Tihai -1
   e) Tora - 2
   f) Kavit -1
   g) Chatusjati paran

4. a) Knowledge of Sammi Dance practically
    b) Play Theka of Dhamar on Tabla
    c) Gat Nikas of Murli and Ghungat
    d) All the practical work on Hand
    e) Gat Bhava (Panghat ki Chhed Chhaad).
BOOKS RECOMMENDED:

1. Kathak : Sunil Kothari
2. Bhartiya Sanskriti mein Kathak Parampara : Mandavi Singh
3. Bharatiya Nritya Kala : Keshav Chander Verma
4. Dance in Thumri : Projesh Banerji
5. Dances of Asia : Kiets Sakakibera
8. Natya Shashtra of Bharatmuni :
9. Abhinaya Darpan aur Geet – Gobind : Dr. Laxmi Narayan Garg
10. Abhinaya Darpan : Dr. Aarohi Walia
11. Nritya Abhigyan : Shobha Koser
13. Bhartiya Lok Nritye Mein Haryana aur Rajasthan :
14. Etihasik Paripeksh Mein Kathak Nritya : Maya Tak
15. Kathak :
16. Bhartiye Sangeet Vadya : Lal Mani Mishra
17. Kathak Kalpdrum : Dr. Chetna Jyotshi
18. Indian Art :
19. Indian Sculpture and Painting : E.B. Havell
20. Fine Art :
21. Indian Sculpture :
22. Sculpture in India :
23. Kala Wahegure di :

---------------------
B.A./B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

FINE ARTS

B.A./B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018

SEMESTER V

THEORY

Paper A: History of Art  
Max. Marks: 54  
Max. Time: 3 hrs

Objectives:

The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject-matter of these works.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

1. Each paper carries 54 marks.
2. The paper-setter is required to set nine questions in all. The candidate is to attempt five questions as per the instructions given in the question-paper.
3. The first question shall be of short-answer type containing nine questions spread over the whole syllabus. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a compulsory question.
4. Eight questions are to be set from the entire syllabus consisting of four units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt four questions in all out of eight questions. Each question would be of nine marks.

Unit I: History of Indian Painting
- Rajasthani Painting – Chavand Raagmala from Mewar, Raag-Raagini from Bundi and Nayika from Kishangarh
- Pahari Painting – Ramayana from Basohli, Gita-Govinda from Kangra

Unit II: History of Indian Sculpture
- Mahabalipuram – Maheshasuramardini
- Elephanta – Ardhanarishwara
- Chola Bronzes – Nataraja and Parvati Images

Unit III: History of Western Art
- Beginning of Modern Painting – Manet
- Impressionism – Monet
- Neo Impressionism-Seurat
- Post Impressionism-Van Gogh
Unit IV : Definition of Key terms, General Concepts and Techniques

• Form and Content, Art and Religion, Art and Society, Tradition, Modernity

Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.

Suggested Readings

FINE ARTS
SEMESTER VI

THEORY

Paper A : History of Art

Max. Marks : 54
Max. Time : 3hrs

Objectives:
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India and the West. The emphasis will be to make them aware of the different terms, concepts, forms and subject-matter of these works.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

1. Each paper carries 54 marks.
2. The paper-setter is required to set nine questions in all. The candidate is to attempt five questions as per the instructions given in the question-paper.
3. The first question shall be of short-answer type containing nine questions spread over the whole syllabus. Each question is to be answered in about 25-30 words. It shall carry 18 marks and shall be a compulsory question.
4. Eight questions are to be set from the entire syllabus consisting of four units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall attempt four questions in all out of eight questions. Each question would be of nine marks.

Unit I : History of Indian Painting
- Company Painting
- Folk Style – Kalighat and Maithili

Unit II : History of Indian Sculpture
- Khajuraho – Mother and Child
- Konark – Musician Figures
- Sravanbelgola – Bahubali

Unit III : History of Western Art
- Expressionism – Edvard Munch
- Fauvism-Matisse
- Cubism-Picasso

Unit IV : Definition of Key terms, General Concepts and Techniques
- Beauty, Rasa and Bhava, Gestures, Postures and Movements, Stained Glass, Cire-perdue (lost-wax casting)
Pedagogy:

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films. Visits to Museums, exhibitions and art galleries are a part of study.

Suggested Readings

HISTORY OF ART

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018

SEMESTER - V

History of Indian Painting (from ca. 1800 to the present times) and Sculpture
(from ca. 600 to 1300 A.D.)

Max.Marks: 100
Time: 3 Hr

NOTE 1: The paper carries 100 marks.

NOTE 2: The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.

NOTE 3: The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a Compulsory question.

NOTE 4: 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall be attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.

Objectives:
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in India. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.

History of Indian Painting

Unit-I
• Company painting.
• Early oil painters - Raja Ravi Verma.
• Bengal School with special reference to Abanindranath Tagore

Unit-II

History of Indian Sculpture

Unit-III
• Sculptures of Pala and Sena Period - Bengal, Bihar, Orissa

Unit-IV
• Pratihara Sculpture of Central and Western India.
• Chola Sculpture in Stone & Bronze
Pedagogy

The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings


- Appasamy, Jaya : Abanindranath Tagore and the Art of his Times, Lalit Kala Akademi, New Delhi, 1968.


- ......................... : Lalit Kala Monographs, Lalit Kala Akademi, Delhi.

- Journals and Periodicals : Lalit Kala Contemporary, Roopa-lekha, Marg.

- Parimoo, Ratan : The Paintings of the Three Tagores, Maharaja Sayajirao University, Baroda, 1973.


- Aggarwala, V.S. : Heritage of Indian Art, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.


.........................
HISTORY OF ART  
SEMESTER-VI

History of European Painting and Sculpture (from ca. 1850 A.D. onwards),  
and Theory and Principles of Art Appreciation.  
Max.Marks: 100  
Time: 3 Hrs

NOTE 1: The paper carries 100 marks.  
NOTE 2: The paper-setter is required to set 9 questions in all. The candidate is to attempt 5 questions as per the instructions given in the question paper.  
NOTE 3: The first question shall be of short answer type containing 14 questions spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 28 marks and shall be a Compulsory question.  
NOTE 4: 8 questions are to be set from the entire syllabus consisting of 4 units. Two questions will be set from each unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each unit. So in all, the candidate shall be attempting 4 questions in all out of 8 questions. Each question would be of 18 marks.  

Objectives:  
The aim of the paper is to introduce to the students various schools, styles and phases of the developments in painting and sculpture in the west. The emphasis will be to make them aware of the different terms, concepts, forms and subject matter of these works.  

History of European Painting and Sculpture  
Unit-I  
• Impressionism - Monet, Degas, Renoir.  
• Post-impressionism - Van Gogh, Cezanne, Gauguin.  
Unit-II  
• Cubism - Picasso, Braque  
• Expressionism - Munch, Nolde.  
• Abstract Art - Kandinsky  
• Abstract Expressionism - Jackson Pollock.  

Theory and Principles of Art Appreciation  
Unit-III  
• Function of Art.  
• A brief study of Indian and Western approaches to Art.  
Unit-IV  
Explanation of the term  
• Form, Content, Abstraction, Modernity, Contemporaneity, Pointillism, Collage, Lithograph, Etching and Ready-made with the help of relevant examples.
Pedagogy
The students are expected to familiarize themselves with the art forms as seen from the books, slides and related films.

Suggested Readings

- Aggarwala, V.S. : Heritage of Indian Art, Publications Division, Ministry of Information & Broadcasting, Govt. of India, New Delhi, 1976.

---------------------
ANCIENT INDIAN HISTORY, CULTURE AND ARCHAEOLOGY

SEMESTER V

Paper-V (VOCATIONAL) : EXCAVATIONS, MONUMENTS AND SCULPTURES IN STONE AND BRONZE

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10
marks Time : 3 Hours

Objectives:
The primary objective of this paper is to prepare the students to become professional archaeologists through the study of various excavated archaeological sites, monuments and antiquities such as stone and bronze sculptures. The study of this paper is also designed for preparing students to take higher and advanced study in the subject.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

1. The paper setter is required to set 9 questions in all. All questions shall carry equal marks.

2. The first question shall be short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each question shall be of 2 marks to be answered in 25-30 words each. OR A question on map. The map work shall consist of 12 marks for the map and 06 marks for the explanatory notes.

3. The map question shall have the following topics:
   (a) Location of important archaeological sites mentioned in Unit I.
   (b) Location of important monuments mentioned in Unit II.
   (c) Location/Provenance of important sculptures mentioned in Units III and IV.

4. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice, i.e. the candidate shall attempt one question from each unit. Each question shall carry 18 marks.

5. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I:
Excavations : (Note: Instructions will be confined only to the location of the site and important results obtained) Kalibangan, Lothal Mitathal, Sugh, Sanghol, Inamgaon, Atranjikhera, Sisupalgarh, Nagarjunkonda.

UNIT-II:
UNIT-III:

UNIT-IV:
Bronze: Sultanganj Buddha, Nalanda Image of Balarama and Buddha, Kurkihar Avalokitesvara, Indra and Padmapani from Nepal, Tanjore (Chola), Nataraja, Balakrishna Kaliyadamana and Somaskanda Murti,

Pedagogy of the Course Work:
It is expected to familiarize students with brief outline of the topics with the help of visual aids like slides and transparencies. Field work trips to museums and sites may also be undertaken.

Essential Readings:

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY
SEMESTER VI

Paper-VI: EPIGRAPHY AND NUMISMATICS

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:
This course makes the students aware of major scripts of Ancient India and their origin and development upto 6th century A.D. Antiquity and art treasure laws are also taught. It also provides knowledge about the origin and antiquity of Punchmarked coins; tribal coins; Yaudheyas, Kunindas, Agra, Audumbaras and Malavas; Kushana and Gupta coins.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

1. The paper setter is required to set 9 questions in all. All questions shall carry equal marks.

2. The first question shall be short answer type containing 15 short questions spread over the entire syllabus. The candidate is required to answer any 9 short answer type questions. Each question shall be of 2 marks to be answered in 25-30 words each. OR A question on map. The question on map shall consist of the location of the sites of important inscriptions of Asoka.

3. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidate will attempt one question from each unit. Each question shall carry 18 marks.

4. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper setter must put note (4) in the question paper.

UNIT-I:
(a) Epigraphy: Major scripts of Ancient India.
(b) Their origin and development up to 6th century A.D.

UNIT-II:
Rock and pillar edicts of Asoka.

UNIT-III:
(a) Origin and Antiquity of Punchmarked coins.
(b) Origin and date of Tribal coins: Yaudheyas, Kunindas, Agra, Audumbaras and Malavas.
UNIT-IV:
(a) Kushana Coins.
(b) Gupta Coins.

Pedagogy of the Course Work:
The students are to be taught with the help of slides, photographs and maps. In addition to it, special lectures, workshops, seminars, written assignments, class discussions, and term papers, should be included in the teaching work.

Essential Readings:


----------------------
INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENT

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper - NATIONAL SECURITY: CONCEPTIONAL ASPECTS

Objective:
This paper deals with the conceptual aspects of national security and the role of economy & military organizations in furthering national pursuits.

SECTION -I


SECTION -II

3. Collective Security Arrangements: Security Relevance of UN in the modern context, Role of NATO in the Post Cold War era.

SECTION -III

4. Regional groupings: SAARC, ASEAN and BIMSTEC (Aims and Objectives of the three Alliances to be discussed).

SECTION -IV

Books Recommended


Paper: PRACTICAL

Max. Marks: 20
Time: 1 hrs

Note:
1. There will be 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.
2. Practical exercise should be carried out on drawing sheets with explanatory notes or on computer.

SECTION –A Practical Test

Marks: 10

1. There will be three questions in all carrying 5 marks each and candidates will be required to attempt any two questions.
2. Examiners are required to set the question paper at least half an hour before the examination.

Course Contents for Practical

1. Relief features and their representation on Map.
2. Degree of Slopes, Gradients and Inter-visibility of Points.
3. Study of Field Craft with reference to the following:
   (a) Ground
   (b) Cover
   (c) Camouflage
   (d) Observation

SECTION-B

Marks: 10

1. Practical Record = 5 marks
2. Viva-Voce = 5 marks

(Students be asked to prepare on current topics of general interest)
DEFENCE & STRATEGIC STUDIES
SEMESTER –VI

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENT

1. There will be one-theory paper of 70 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 questions of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition to it there will be four sections of the question paper containing 2 questions each. The candidate will be required to attempt one question from each of the four sections. Theory paper will be of three hours duration.

2. Practical examination will be compulsory for regular and correspondence students. It will be of 20 marks. There will be 3 hours of teaching per week for practical and the number of students in one group shall not ordinarily exceed fifteen.

Paper: NATIONAL SECURITY OF INDIA

M. Marks: 70
Time : 3 hours

Objective - This paper covers the various factors related to National Security in India.

SECTION -I

1. India's Security Problems since 1947:
   (a) Geo-political effects of Partition: Boundaries and Frontiers.
   (b) Integration of States: J & K, Junagarh, Hyderabad and Goa.
   (c) An overview of India’s Security problems related to Pakistan and China.

SECTION -II

2. Indian Ocean and India's Maritime Security.

SECTION -III

4. Internal Dimensions of India's National Security with particular reference to Insurgency, Terrorism and Low Intensity Conflict.
5. Disaster Management in India and the role of Civil Defence.

SECTION -IV

7. Planning and Production for National Defence with particular reference to India’s Defence Production and DRDO.
8. Higher Defence Organization in India
Books Recommended

11. Panikkar, K.M.
   (i) Defence Problems of India.
   (ii) Role of Defence Production, Radiant, University of Michigan, 1984.
19. Subrahmanyam, K.
   (i) Indian Security Perspectives, ABC Publishing House, New Delhi, 1982
   (ii) Planning for Defence.

Paper: PRACTICAL

Max. Marks: 20
Time: 1 hrs

Note:
1. There will be 3 hours of teaching per week for practical. For practical classes, the number of students in one group shall not ordinarily exceed fifteen.
2. Practical exercise should be carried out on drawing sheets with explanatory notes or on computer.
SECTION –A Practical Test

Marks: 10

1. There will be three questions in all carrying 5 marks each and candidates will be required to attempt any two questions.
2. Examiners are required to set the question paper at least half an hour before the examination.

Course Contents for Practical

1. Tactical Formations: Section and Platoon.
2. Application of Fire: Fire Control, Fire Control Orders and Sequence of Fire Control Orders.

SECTION-B

Marks: 10

1. Practical Record = 5 marks
2. Viva-Voce = 5 marks
   
   (Students be asked to prepare on current topics of general interest)
HISTORY
SEMESTER- V

PAPER: HISTORY OF PUNJAB 1849-1966

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES:
The syllabus has been divided into four Units.

There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 18 marks.

1. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

2. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 10 Marks
   Explanatory Note : 08 Marks

   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

   Max. Marks : 100
   Theory : 90
   Internal Assessment : 10
   Time : 3 Hours

Objectives: To introduce the students to the impact of the colonial period on the region

Pedagogy: Lectures, library work and discussions.

UNIT-I:
1. British Administration: new structure; formation and achievements of Board of Administration
2. British Agrarian Policy: commercialisation of agriculture
3. Developments in Irrigation; transport and communication

UNIT-II:
4. Growth of Modern Education
5. Socio-Religious Reform- main ideas of Namdharis; Singh Sabha; Arya Samaj; Ad Dharam Movement.
6. Political awakening: agitation of 1907; Ghadar Movement
UNIT-III:

7. Growth of Political consciousness: Jallian wala bagh; Gurudwara Reform Movement
8. Circumstance leading to partition.
9. Rehabilitation and resettlement

UNIT –IV:

10. Punjabi Suba Movement and Reorganisation Act 1966
11. Agricultural development: Green Revolution; Land reforms

Reading List:


N.B. : The required detail and depth would conform to the treatment of the subject in the above survey. It would also form the basis for one to two sentence answer questions.

8. R.S. Johar, and J.S : Khanna
9. Monica Das Gupta, : T.N. Krishna & Lincon C. Chen

----------------------
HISTORY
SEMESTER-VI

PAPER: WORLD HISTORY 18TH- 20TH CENTURY

INSTRUCTIONS FOR THE PAPER – SETTER AND CANDIDATES:

The syllabus has been divided into four Units.

There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 18 marks.

1. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper-setter must put note (2) in the question paper.

2. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   Map : 10 Marks
   Explanatory Note : 08 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 5 places on map of 2 marks each and write explanatory note on any four of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

Paper: World History 1761 - 1956
Max. Marks : 100
Theory : 90
Internal Assessment : 10
Time : 3 Hours

Objectives: To introduce the students to the modern period in World history.

Pedagogy: Lectures, library work and discussions.

UNIT-I:

1. The American Revolution; causes and consequences
2. The French Revolution-causes and impact; Continental System of Napoleon
3. Congress of Vienna 1815-motives, provisions, significance
UNIT-II:

4. The Industrial Era - causes of origin, new inventions, impact on society
5. Unification of Italy and Germany
6. New Imperialism 1871-1914

UNIT-III:

7. World War I: Division of Europe into two blocks, causes, Paris Peace Conference
8. Russian Revolution 1917 - causes and impact

UNIT-IV:

10. Meiji restoration and modernization in Japan
11. World War II; causes and consequences

Suggested Readings

POLITICAL SCIENCE
SEMESTER - V

COMPARATIVE POLITICAL SYSTEMS (UK AND USA)

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Objectives: The purpose of this paper is to serve as an introduction to the field of comparative politics. It provides a broad overview of the field of comparative politics and examines some key approaches. The major part of the paper is devoted to understanding and analyzing the origins and working of two political systems, the UK and the USA. The student will not only become familiar with the working of these two political systems but also understand how the concepts of comparative politics can be used to understand real world politics.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

1. The syllabus has been divided into four units:
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 10-20 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit–4 in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (2) in the question paper.

Unit-I: Theoretical Framework
(i) Meaning, Nature and Scope of Comparative Government and Politics
(ii) Comparative Method.

Unit-II: U.K.
(i) The British Political System - Salient Features and Conventions.
(ii) Executive
   (a) Monarchy:- Difference b/w King and Crown, Powers of Crown, Nominal and Real position Justification of Monarchy
   (b) Features of Parliamentary/ Cabinet Government
   (c) Prime Minster:- Composition, Powers, Position and Role

Legislature
   (a) House of Lords:- Composition, Powers, Criticism & Utility
   (b) House of Commons:- Composition, Powers, Mutual relations between House of Lords and House of Commons

(iii) Judiciary
   (a) Organisation of Courts in U.K.
   (b) Rule of Law.
Unit-III : U.S.A.

(i) The Constitutional framework of U.S.
  (i) Salient features
  (ii) Separation of Powers & Checks & Balances

(ii) Executive
  (i) Elections of U.S. President
  (ii) Composition, Powers & Position of U.S. President.

Legislature/Congress
  (i) House of Representative- Composition, Power, House of Representative is the weakest chamber
  (ii) Senate – Composition, Powers, Most Powerful Second Chamber, Mutual relations b/w House of Representative & Senate

Judiciary
  (i) Supreme Court - Organisation, Composition, Powers & its Role.
  (ii) Power of Judicial review

Unit-IV

(i) Political Parties and Interest/Pressure Groups of U.K- Nature & Role.
(ii) Political Parties and Interest/ Pressure Groups of U.S.A. - Nature & Role.

Books Recommended :


...............
POLITICAL SCIENCE

SEMESTER-VI

INTERNATIONAL POLITICS : THEORY AND PRACTICE

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Objectives : This paper provides students with an overview of the broad theories and concepts used to understand international politics. It also examines key issues in contemporary global history from an international politics perspective.

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

1. The syllabus has been divided into four units:
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus to be answered in about 10-20 words each. The candidates are required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, and the candidate shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.
   The paper setter must put note (2) in the question paper.

Unit-I

2. Realist and Idealist approaches to International Politics.

Unit-II


Unit-III

1. Bipolar, Unipolar and Multi-Polar World.

Unit-IV

1. Regional Organisations : SAARC and EU.
Books Recommended:

ECONOMICS

B.A./B.Sc.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018
SEMESTER - V

ECONOMICS OF DEVELOPMENT

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Course Objective: The primary course objective is to introduce the students to the basic features, determinants, and theories and strategies of development of underdeveloped economies. It also introduces students to the theory of how control and direction of economic activity by a central public authority can be used as an alternative to market by the underdeveloped economies.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

Unit-I

Economic Growth and Development- Concept and Measurement. Main Features of an Underdeveloped Economy.

Unit-II


Unit-III

Unit-IV


Books Recommended:


Supplementary Readings:


.................
ECONOMICS
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018
SEMESTER- VI

INDIAN ECONOMY

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Course Objective: The objective of the paper is to familiarize the students with the features and characteristics of the Indian Economy. It also includes performance and problems of Industrial development, Indian tax structure, external trade and balance of payments, and objectives, strategy and performance of Indian planning. The course aims to develop analytical understanding of the students by exposing them to the basic issues of the Indian economy.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

Unit-I


Unit-II

Industry: Problems of Industrial Development; Public and Private Sector; Industrial Policy since 1956 with Special Emphasis on Recent Trends of Liberalization; Role and Problems of Small and Large Scale Industries in the era of Globalisation. Major Large Scale Industries: Iron& Steel, Cotton Textile, Petroleum & I.T.

Unit-III

Principal Features of Indian Tax Structure. Division of Financial Recourses between Centre and the States. Direction and Composition of Exports and Imports and Changes there in since Economic Reforms; Balance of Payment problems; Critical Evaluation of the Role of MNCs in India.
Unit-IV

Planning: Importance, Objectives, Strategy and Achievements of Indian Planning; Critical Evaluation of the Latest Five Year Plan (Plan wise details to be excluded); Major Indian Economic Problems: Inflation, Unemployment and Poverty; Introduction to Consumer Education and Consumer Protection (elementary ideas).

Books Recommended:

7. Singh, Chander Gupt : Bharti Arth Shastar (Punjabi University, Patiala).

Supplementary Readings:

SOCIETY IN INDIA

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER AND THE CANDIDATES:

(i) For written paper, the students will be required to attempt five questions in all. Question No. 1 will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e. 9 × 2 = 18 marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each unit with internal choice carrying 18 marks each i.e. 4 × 18 = 72 marks.

(ii) On an average, 15 hours are to be devoted to each unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective

The objective of this paper is to present a comprehensive view of Indian Society. The students are exposed to the tribal, rural and urban societies and are presented with the social structure and social institutions to understand these segments of Indian Society. Through this paper, the students are also introduced to the problems of the underprivileged in Indian Society.

Course Content

Unit-I

Tribal Society: Meaning, Characteristics; Classification of tribes.

Unit-II

Rural Society: Meaning; Characteristics.
Institutional Features : Family, Marriage; Economy and Polity (Village Panchayat); Changing Trends.

Unit-III

Urban Society: Meaning and characteristics, Concepts of urbanization and urbanism;
Institutional features; Urban family - features and changes; Economy; Voluntary associations; Slums.
Unit-IV

Under-privileged Sections—Women, Physically Disabled, Scheduled Castes and Scheduled Tribes: Measures to improve their status.

Essential Readings:


Further Readings:

SOCIOMETRY
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018
SEMESTER -VI

DISORGANISATION AND EMERGING PROBLEMS

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER SETTER AND THE CANDIDATES:

(i) For written paper, the students will be required to attempt five questions in all. Question No. 1 will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12 i.e. $9 \times 2 = 18$ marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each unit with internal choice carrying 18 marks each i.e. $4 \times 18 = 72$ marks.

(ii) On an average, 15 hours are to be devoted to each unit.

(iii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (iii) in the question paper.

Objective

This paper exposes the students to social disorganization, its levels and current problems. It helps students to understand social realities and also equips them to utilize their knowledge in various theoretical and practical exercises.

Course Content

Unit-I


Unit-II

Personal Problems: Problems of Adolescence; Alcoholism; Drug Addiction, Suicide.

Unit-III

Familial Problems: Domestic Violence, Violence against Children; Female Headed Households; Problems of Working Women.

Unit-IV

Societal Problems: Poverty; Corruption; Problems of the Aged, Cyber Crime
Essential Readings:


Further Readings:

Objective of the Paper:
The objective of the paper is to give the student an understanding of the concept, significance and evolution of local government in India. It would also acquaint them with the pattern and working of divisional and district administration. The key areas covered are the types, structure, functions, finances and personnel of rural and urban local governments. It would also include the concept of state control over local bodies, provincialisation and rural-urban relationship with reference to Punjab.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment. The Paper-Setter must put a note in question paper in this regard.
- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I
Meaning and Significance of Local Government
Evolution of Local Government since 1882
Role of Deputy Commissioner; Divisional Commissioner
Rural and Urban Development: Dimensions and Issues

Unit-II
The 73rd Constitutional Amendment – Provisions and its Impact
Gram Sabha – Composition Functions and Powers
Panchayati Raj Institutions in Punjab – Structure, Functions, Sources of Finances and Personnel

Unit-III
The 74th Constitutional Amendment – Provisions and its Impact
Urban Local Bodies – Structure, Functions and Sources of Finance
Mayor – Position, Functions and Powers
Municipal Commissioner – Position, Functions and Powers
Unit-IV

State Control over Local Bodies
State Finance Commission: Composition, Functions and Role
Provincialisation of Municipal Services
Rural-Urban Relationship – Challenges and Remedies

Essential Readings:

Further Readings
Government of India, Second Administrative Reforms Commission, 6th Report – Local Governance

........................
PUBLIC ADMINISTRATION

SEMESTER - VI

PAPER: DEVELOPMENT ADMINISTRATION (WITH SPECIAL REFERENCE TO PUNJAB)

Max. Marks : 100
Theory : 90 Marks
Internal assessment: 10 Marks
Time : 3 Hours

Objective of the Paper:

The objective of the paper is to give the student an in-depth understanding about the concept & significance of development administration, features of developed & developing countries, planning machinery at Centre & State level and the emergence of India as a welfare state. The paper would also give an understanding about the concept, forms, role and problems of public enterprises as well as the working of select Union Ministries and agencies in Welfare and Development Administration.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

➢ For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

➢ The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit-I

Development: Meaning, Features and Aspects
Development Administration: Meaning, Nature, Scope and Significance
Features of Developed and Developing Countries

Unit-II

India as a Welfare State.
Planning: Meaning, Objectives and Significance
Planning Machinery in India at National, State and Local

Unit-III

Public Enterprises: Concept and Forms
Role of Public Enterprises in Economic Development
Managerial Problems of Public Enterprises
Public Enterprise Reforms since 1991; Concept of Privatisation
Unit-IV

Administration of Rural Development at the local level
Education and Development; Role of State Administration in Primary and Secondary Education
Health and Development; Role of the Ministry of Health and Family Welfare
Role of Voluntary Sector in Development

Essential Readings


Website of Ministry of Health and Family Welfare: mohfw.gov.in/
Website of Planning Commission: planningcommission.nic.in/data/ngo,npvol07.pdf

Further Readings


--------------------------
Aims and Objectives:
This paper discusses the main epistemological and metaphysical issues as discussed in the various Indian Philosophical Systems.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:
The syllabus has been divided into four units.

1. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each unit – 4 in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (2) in the question paper.

Unit–I

1. Salient features of Indian Epistemology and Metaphysics.

2. Concept of Prama and Pramana according to Nyaya
   i) Pratyaksa
   ii) Anumana
   iii) Sabda
   iv) Upamana
   v) Arthapatti
   vi) Anuplabdhi

Unit–II

3. Materialism (Swabhava vada) of Charvakas.


5. Aryasatyas, Pratityasamutpada of Buddhism.

Unit–III


7. Advaita Vedanta : Sankara on Brahman and Maya.
Unit - IV

8. Samkhya: Theory of Causation. (Satkaryavada)
9. Vaisesika: Nature and kinds of Padartha (Categories)

Essential Readings:


Suggested Readings:


.............................
Aims and Objectives:
This paper aims at exposing the students to main epistemological and metaphysical theories and problems of western philosophy. It also deals with basic themes of existentialism, logical positivism and analytical philosophy.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.

1. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions and the candidates shall be given internal choice of attempting one question from each unit – 4 in all. Each question will carry 18 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (2) in the question paper.

Unit-I

2. Materialism : Mechanical and Dialectical.
3. Idealism : Objective (Plato), Subjective (Berkeley).

Unit-II

1. Nature of Knowledge : Knowing subject, Act of knowing and object of Knowledge.
2. Theories of Truth : Coherence, Correspondence and Pragmatic

Unit-III

3. Theories of Knowledge :
   (a) Rationalism.
   (b) Empiricism.
   (c) Transcendentalism of Kant.
Unit-IV

4. Universal and Particulars: Concept of Being (Parmenides) and Becoming (Heraclites).
5. Substance (Spinoza) Causality (Hume).

Essential Readings:


Suggested Readings:

OBJECTIVES:
(I) The course will enable the students to get an introductory knowledge about Clinical Psychology with emphasis on the dynamics of some of the behavioural disorders and therapies. Students will also have some knowledge about stress and coping; and will get acquainted with elementary inferential statistics.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

PAPER: CLINICAL PSYCHOLOGY

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
The syllabus has been divided into four units.

(a) There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit - 4 in all. Each question will carry 14 marks.

(b) The practical will be of 20 marks.

UNIT-I : Nature and Criteria of abnormality, Viewpoints Regarding Abnormality: Historical, Psychodynamic, Behavioural, Cognitive Behavioural, Humanistic and Interpersonal;

UNIT-II : Causes of Abnormal Behaviour: Biological, Psychological and Sociocultural Causes.

UNIT-III : Stress: Concept of Stress; Types of Stressors; Etiology of Stress; Coping Strategies: Problem Focussed and Emotion Focussed, Effects of Stress.


Note: The use of non-programmable calculators and statistical tables is allowed in the examination.
PSYCHOLOGY PRACTICALS

Max. Marks : 20
Time : 3 Hours.

Four practicals have to be performed out of the following:

1. The use of Biofeedback.
2. Presumptive Stressful Life Event Scale.
3. Adjustment Inventory.
4. Mental Health Inventory.
5. Sentence Completion Test.

Suggested Readings:


..........................
OBJECTIVES:
(I) This course will enable the students to get an introductory knowledge about Clinical psychology with emphasis on the dynamics of some of the behavioural disorders and therapies. Students will also have some knowledge about stress and coping; and will get acquainted with elementary inferential statistics.

(II) Pedagogy of the Course Work:
80% Lectures (including expert lectures).
20% Assignments, discussion and seminars and tests.

PAPER: BEHAVIOURAL DISORDERS

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>70</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
The syllabus has been divided into four units.

(a) There shall be 9 questions in all. The first question shall be short answer type containing 12 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 7 short answer type questions i.e. 2 marks of each. It shall carry 14 marks and shall be Compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit - 4 in all. Each question will carry 14 marks.

(b) The practical will be of 20 marks.

UNIT-I : Anxiety Based Disorders viz. Phobia; OCD; Panic; Generalized Anxiety Disorder. Conversion Disorders, Dissociative Disorders : Types, Symptoms and Etiology.

UNIT-II : Mood Disorders : Types, Symptoms and Etiology.


PSYCHOLOGY PRACTICALS

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

Four practicals have to be performed out of the following:
1. Clinical Interview.
2. TAT.
3. Depression Inventory (Beck).
4. State Trait Anxiety Inventory
5. Self Efficacy
6. Aggression Scale
Books Recommended:

Suggested Readings:


Reference Books


----------
GEOGRAPHY

SEMESTER-V

Paper-IX: WORLD REGIONAL GEOGRAPHY- I

Max. Marks : 70
Theory : 60
Internal Assessment : 10
Time : 3 Hours

Objectives:
To provide an understanding of the concept of world regions with respect to Land, People, Polity and Economy; the physical and human resource base and their interface with economic development; development problems and prospects.

Course Content:
Study of the following regions of the world in terms of constituent countries: strategic location, salient physical, demographic and economic features, cultural patterns, resource base, economic development, problems, prospects and issues related to Regional Groupings (European Union, North Atlantic Treaty Organization, North American Free Trade Agreement and Commonwealth of Independent States).

UNIT-I
(i) Anglo America (20 lectures)

UNIT-II
(ii) Latin America (20 lectures)

UNIT-III
(iii) Europe (20 lectures)

UNIT-IV
(iv) Russia & Commonwealth of Independent States (30 lectures)
(v) Oceania

Note:
1. Questions will be put on region(s) as a whole and not on individual country. The questions should focus on regional perspective.
2. A map based compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts in about 30 words each. Each part will carry 2 marks (Total 20 marks).
3. The whole syllabus will be divided into 4 units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. Each question will carry 10 marks. (Total 40 marks) These will be in addition to the compulsory question.
4. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours will be allowed.
5. Six hours theory classes in a week are compulsory.
6. Internal assessment will be based on (i) class tests, (5marks) (ii) academic activities, seminar, Project, Assignment (3 Marks) and (iii) attendance (2marks).
7. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper setter must put note 7 in the question paper.

Essential Readings:


Further Readings:


Pedagogy:
Teacher should involve maximum use of detailed maps of the countries and continents. Students should be encouraged to use atlas in classrooms. Video shows about culture, physiography and economy of these countries may be arranged if possible.
Paper - X: MAP PROJECTIONS

Max. Marks: 30
Time: 3 hours

Distribution of Marks:

(i) Written paper of three hours covering entire syllabus shall be held for students of USOL. 20 marks
    For others it shall be at respective colleges.
(ii) Practical Record relating to Map Projections and Viva voce on Practical Record relating to Map Projections. 10 marks

Objective:

• To provide an analytical understanding of use of common map projections.

Course Content:

Unit- I
Map Projections:
General introduction, classification of projections, general principles of identification and choice of projections. (6 lectures)

Unit- II
Construction, properties and limitations of following projections
Cylindrical : Simple, Equal area, Mercator’s (4 lectures, 6 lab. sessions)

Unit- III
Construction, properties and limitations of following projections
Conical : One Standard Parallel, Two Standard Parallel, Bonne’s, Polyconic and International (4 lectures, 6 lab. sessions)

Unit- IV
Construction, properties and limitations of following projections
Zenithals : Gnomonic, Stereographic, Orthographic, Equidistant and Equal Area (Polar cases only)
Conventional : Sinusoidal and Molleweide’s (normal cases only) (7 lectures, 7 lab. sessions)

Note:

1. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should not exceed 25 words. Each part will carry 1 mark (Total 4 Marks).

2. Practical exam at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of geography in the college.

3. Evaluation of Practical Record and Field Report will be done at the time of viva-voce examination. A minimum of 20 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

4. There will be no viva-voce examination for the candidates appearing through the USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).
5. For the students of USOL there will be an internal assessment of 10 marks in lieu of the viva-voce examination in practical record and field report. The marks obtained by the candidate will be added to the marks awarded by the internal and external examiners evaluating the Practical Record.

6. A fresh practical note book shall be prepared by failed/improvement candidates.

7. For Practical classes, the number of students in one group shall not exceed fifteen.

8. There will be 3 hours of teaching per week for this paper.

9. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

   The paper setter must put note 9 in the question paper.

**Books Recommended**

<table>
<thead>
<tr>
<th>Essential Readings</th>
<th>Books Recommended</th>
</tr>
</thead>
</table>

**Essential Readings**

<table>
<thead>
<tr>
<th>Essential Readings</th>
<th>Books Recommended</th>
</tr>
</thead>
</table>

**Pedagogy:**

Basic fundamentals of map projections are introduced by demonstration of construction exercises in class.
GEOGRAPHY
SEMESTER-VI

Paper-XI: WORLD REGIONAL GEOGRAPHY- II

Max. Marks : 70
Theory : 60
Internal Assessment : 10
Time : 3 hours

Objectives:
To provide an understanding of the concept of world regions with respect to Land, People, Polity and Economy; the physical and human resource base and their interface with economic development; development problems and prospects.

Course Content:
Study of the following regions of the world in terms of constituent countries: strategic location, salient physical, demographic and economic features, cultural patterns, resource base, economic development, problems, prospects and issues related to regional groupings (South Asian Association of Regional Cooperation, Association of South East Asian Nations, Organization of Petroleum Exporting Countries and Organization of African Unity).

UNIT-I
(i) East Asia

UNIT-II
(ii) South East Asia
(iii) South Asia.

UNIT-III
(iv) Middle East and North Africa

UNIT-IV
(v) Africa South of Sahara

Note:
1. Questions will be put on region(s) as a whole and not on individual country. The questions should focus on regional perspective.
2. A map based compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts in about 30 words. Each part will carry 2 marks (Total 20 marks).
3. The whole syllabus will be divided into 4 units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. Each question will carry 10 marks. (Total 40 marks) These will be in addition to the compulsory question.
4. Special credit will be given to suitable use of maps and diagrams. Use of unmarked stencils and colours will be allowed.
5. Six hours theory classes in a week are compulsory.
6. Internal assessment will be based on (i) class tests, (5marks) (ii) academic activities, seminar, Project, Assignment (3 marks) and (iii) attendance (2 marks).
7. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned. (The paper setter must put note 7 in the question paper.)
### Books Recommended

**Essential Readings:**


**Further Readings:**


### Pedagogy:
Teacher should involve maximum use of detailed maps of the countries and continents. Students should be encouraged to use atlas in classrooms. Video shows about culture, physiography and economy of these countries may be arranged if possible.
Paper - XII: FIELD SURVEY BASED REPORT

Max. Marks: 30
Time : 3 hours

- To acquaint the students with the importance of field work as one of the methodologies in geography.
- To familiarise the students about pre-field work and post-field work i.e. data processing and analysis and writing of field work report.

Distribution of Marks

i) Viva-Voce : 10 Marks
ii) Field Report: 20 Marks

Fieldwork (Theory):

(i) Role of fieldwork in Geography.
(ii) Scale of study and fieldwork methodology.
(iii) Methods of collecting primary data: Observation, Interview and Questionnaire and Measurement.
(iv) Methods of field study of: a farm, a village, and a town. (20 lectures)

Note: The teachers should familiarize the students in the class before collection of primary data for preparation of field work.

Fieldwork (Practical):

A field report of minimum 20 pages will be prepared based on primary data on problems such as (a) local market survey, (b) service area of school/ or hospital; (c) traffic flow, and (d) socio-economic characteristics of student’s village/ mohalla/ sector.

(25 lab. Sessions)

Note:
1. There will be no written paper for USOL and college students.
2. Practical exam at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher the Geography in the college.
3. Evaluation of Field Report will be done at the time of viva-voce examination. There will be no laboratory exercise at that time.
4. There will be no viva-voce examination for the candidates appearing through the USOL. They will be required to submit their Field Report with the University School of Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Field Report will be evaluated by two examiners (including at least one from the USOL).
5. For the students of USOL there will be an internal assessment of 10 marks in lieu of the viva-voce examination in field report. The marks obtained by the candidate will be added to the marks awarded by the internal and external examiners evaluating the Field Report.
6. All students are required to submit a practical record based on theoretical component listed as fieldwork (theory)
7. A fresh field report shall be prepared by failed /improvement candidates.
8. For Practical classes, the number of students in one group shall not exceed fifteen.
9. There will be 3 hours of teaching per week for this paper.
10. For USOL, reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper setter must put note 10 in the question paper.
Books Recommended

Essential Readings

Further Readings

Pedagogy:

The students need to be trained to collect primary data, its processing and cartographic representation through taking up field exercises.
GANDHIAN STUDIES
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018
SEMESTER-V
ECONOMIC THOUGHT OF MAHATMA GANDHI

Maximum Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 hours

Course Objectives:
The paper is designed to acquaint the students with the Economic Thought of Mahatma Gandhi.

Pedagogy of the Course Work
90% Lectures (including expert lectures)
10% Unit Tests, Snap Tests, assignments, attendance and class room participation

Note: 1. The Syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit-4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper

UNIT-I-Bases of Gandhian Economic Thought
1. Indian Influences on Gandhi’s Economic Thought
2. Western Influences on Gandhi’s Economic Thought
3. Fundamental Principles of Gandhi’s Economic Thought

UNIT-II-Critique of Mechanization
4. Gandhi’s Views on Machinery
5. Labour-Capital Relations
6. Theory of Trusteeship
7. Gandhi & Role of Corporate Social Responsibility

UNIT-III-Essence of Gandhian Economy
8. Doctrine of Swadeshi
9. Bread Labour
10. Concept of Wantlessness
11. Concept of Sarvodaya

UNIT-IV-Gandhi and Contemporary Idealogies
12. Gandhi’s Views on Communism
13. Gandhi on Capitalism
14. Gandhian Socialism
15. Relevance of Gandhi’s views in Globalized World
ESSENTIAL READINGS:


FURTHER READINGS


GANDHIAN STUDIES

SEMMETER-VI

Peace and Conflict Resolution

Course Objectives:
The paper is designed to acquaint the students with the understanding of the concept of Peace and different methods of Conflict Resolution

Pedagogy of the Course Work
90% Lectures (including expert lectures)
10% Unit Tests, Snap Tests, assignments, attendance and class room participation

Note:
1. The Syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit-4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper

UNIT-I-Understanding Peace

1. Meaning & basic components of Peace
2. Approaches to Peace
3. Obstacles to Peace
4. Gandhi’s approach to Peace

UNIT-II- Peace Movements

1. Social Movements-Environment, Women, Dalit
2. NGOs
3. Civil Right movements in United States

UNIT-III-Understanding Conflict

1. Concept of Conflict
2. Causes of Conflicts
3. Types of Conflicts

UNIT-IV- Methods and Agencies of Conflict Resolution

1. Pacific methods of Conflict Resolution
2. Peace making
ESSENTIAL READINGS:

### FURTHER READINGS:

JOURNALISM & MASS COMMUNICATION

B.A. / B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2017-18
SEMESTER V

MEDIA MANAGEMENT, ETHICS AND LAWS

Max. Marks: 100
Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:
The course will introduce the students to the basic structure of media organizations and the
regulatory framework and laws of the journalistic profession.

B. Pedagogy of the Course Work:
80% Lectures (including expert lectures)
20% assignments, discussion and seminars.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions
spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required
to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a
compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the
candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in
all. Each question will carry 14 marks.

Unit I
Types of ownership patterns: Sole Proprietorship, Partnership, Joint Stock Company,
Conglomerate, Chain, Trust/Societies/Associations, Cross Media Ownership

Unit II
Basic principles of Management given by Henry Fayol and their applications in media
organisations, Organisational structure of Large Daily Newspaper, Radio Station and TV Station.

Unit III
Freedom of speech and expression [Article 19(1)(a) and 19(2)] Press Council of India guidelines for Ethical
conduct.

Unit IV
Brief overview of: Right to Information Act, Copyright Act, Law of Defamation, Law of Obscenity,
Contempt of Court, Contempt of Legislature

PRACTICALS
Max. Marks : 20

1. Case study of any one type of ownership pattern of Indian media organizations. 20 Marks
ESSENTIAL READING

ADDITIONAL READING
4. Mackay Harvey(1988),Swim With the Sharks without Being Eaten Alive, Wm. Morrow & Co
JOURNALISM & MASS COMMUNICATION
SEMESTER- VI

ADVERTISING & PUBLIC RELATIONS

Max. Marks: 100
Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:
The course will make students conversant with strategic communication by imparting training in writing advertising copy and press releases amongst other tools.

B. Pedagogy of the Course Work:
80 % lectures (including expert lectures).
20 % assignments, discussion and seminars

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I
Definition & types of advertising; Place of Advertising in marketing mix; Advertising agency - structure and functions

Unit-II
Concept & definition of advertising copy; Elements of a typical advertisement; Basic principles of writing advertising copy;

Unit –III
Concepts & types of Public in PR; Brief introduction to Public Relations in Public & Private Sector; PR Agency: Structure & Functions

Unit – IV
Brief introduction to PR tools & Media Relations

PRACTICALS

Max. Marks : 20
1 Portfolio of five self-designed advertisements 10 marks
2 Prepare a file of PR tools used by anyone organization 10 marks
Books Recommended

ESSENTIAL READING

2. David Ogilvy, The Unpublished David Ogilvy
4. Subroto Sengupta, Cases in Advertising and Communication Marketing
5. Subroto Sengupta, (1990), Positioning (New Delhi, Tata-Mcgraw Hill
16. Rajendra, Lok Sampark (Haryana Hindi Granth Academy, Chandigarh)
17. Dilgir, H.S., Lok Sampark-Sanchar Atay Sandhan (Kala Darpan Prakashan Chandigarh)

ADDITIONAL READING


---------------
POLICE ADMINISTRATION
SEMESTER - V

Organisational Behaviour With Special Reference to Police Administration

(A) Course Objectives:
The objective of this course is to familiarize the students with the concept, nature and significance of organizational behavior with special reference to police administration. The course also aims to discuss the foundations and models of organisational behavior. In particular, the students would be taught the concepts such as motivation, morale, leadership, communication, decision-making, and transactional analysis. Further, the inputs regarding the concept and rationale of organizational change and organizational development would be imparted to the students.

(B) Pedagogy of the Course Work:
90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:

i. Internal Test-5%;
ii. Academic activities (Seminar, Project, Assignment)-3%;
iii. Attendance-2%

(C) Instructions for Paper Setters and Candidates:

- The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
- Time allowed will be 3 hours.
- There shall be 9 questions in all.
- The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks each (9x2 = 18 marks).
- Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks).

(D) Course Content:

Unit-I

Unit-II
Motivation: Concept; and Theories – Maslow’s Need Hierarchy and McGregor’s Theory X & Y. Morale: Concept; and Factors to Build-up Morale in India Police. Leadership: Concept, Theories – Trait and Situational; and Qualities.

Unit-III
Communication: Concept, Process, Types and Barriers. Communication Modes in Indian Police. Decision-Making: Concept; Types; and Simon’s Rational Comprehensive Theory. Transactional Analysis: Meaning; and Types of Transactions.

Unit-IV
Organizational Change: Concept; Rationale; and Resistance to Change. Organisational Development: Concept and Rationale.
Essential Readings:


Further Readings

Law and Police Administration

(A) Course Objectives:
The police system in India has to work within the ambit of legal framework laid down by the Constitution and by the enacted laws. The major responsibility of the police is to ensure the implementation of such laws. The course has been designed to impart knowledge to the students on the laws governing the ‘prevention and detection of crime’ which is laid down as the primary duty in the Indian Police Act 1861. The endeavour of the course is to familiarize the students with the main provisions of the Indian Penal Code 1860, the offences under it and the offences affecting the human body. In addition, meaning and definition of terms covered under Section 2 relevant to the police administration along with the powers of the police officer have been discussed.

(B) Pedagogy of the Course Work:
90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of:
   i. Internal Test-5%;
   ii. Academic activities (Seminar, Project, Assignment)-3%;
   iii. Attendance-2%

(C) Instructions for Paper Setters and Candidates:
• The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
• Time allowed will be 3 hours.
• There shall be 9 questions in all.
• The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9x2 = 18 marks).
• Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks).

(D) Course Content:

Unit-I
THE INDIAN PENAL CODE 1860: MAIN PROVISIONS
   (i) Jurisdiction (Sections 1-5)
   (ii) General Explanations (Sections 6-52-A)
   (iii) Punishments (Sections 53, 53A, 54, 55, 60, 63, 73)
   (iv) Joint & Constructive Liability Section 34 & Section149

Unit-II
Offences under the Indian Penal Code 1860
   (i) Abetment (Section 107 & 108)
   (ii) Criminal Conspiracy (Sections 120-A, 120-B)
   (iii) Offences against the State (Sections 121, 121-A, 124-A)
   (iv) Offences Against Public Tranquility (Sections 141-147)
Unit-III

Offences Affecting Human Body
- Culpable Homicide (Section 299) & Murder (Section 300)
- Causing death by rash and negligent act (Section 304A)
- Dowry Death (Section 304B)
- Hurt (Section 319), Grievous Hurt (Section 320)
- Wrongful Restraint and Wrongful Confinement (Sections 339, 340)
- Assault (Section 351)
- Sexual Harassment (Sections 354 A, 354 B, 354 C & 354 D)
- Kidnapping and Abduction (Sections 359-362)
- Rape (Sections 375, 376 A to D)

Unit-IV

Classification of offences in CRPC:
- Bailable and non-bailable offence;
- Cognizable and non-cognizable offence;
- Compoundable offences;
- Summons Case;
- Warrant Case;

Role of Police Officer:
- Lodging of First Information Report (Section 154) & Effects of Refusal to lodge FIR
- Police investigation
- Arrest (Section 41) & Rights of Arrested Persons
- Search (Section 165)

Essential Readings:

1. Tandon, Mahesh : The Indian Penal Code, Allahabad Law Agency,
2. Gandhi, B. M. : Indian Penal Code, Eastern Book Company, 2nd
   Edition.
3. Bhattacharya, T. : Indian Penal Code, Central Law Agency,
4. Mishra, S.N. : Indian Penal Code, Central Law Publications,
5. The Indian Penal Code : Bare Act with Short Notes, Universal

Further Readings

1. Lal, Rattan and
   Dhiraj Lal : Indian Penal Code
2. Vadackumchery, James : Indian Police and Miscarriage of Justice, A.P.H.

---------------------
WOMEN’S STUDIES

B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018

SEMESTER - V

PAPER: NATIONAL AND INTERNATIONAL INITIATIVES FOR WOMEN

Max. Marks : 100
Theory : 90 Marks
Int. Ass : 10 Marks
Time : 3 Hrs.

Objective: This course aims to conscientise the students about the efforts made by national and international organizations, both governmental and non-governmental, towards women’s empowerment and increased participation in social, economic and political life. The course exposes the student particularly to the U.N. initiatives in empowering women, putting an end to age old discrimination against them.

Course Contents

Unit I – Constitution of India and Women’s Rights:
- a) Fundamental rights and women’s rights: de jure and de facto position
- b) Directive Principles of State Policy and women’s rights with special reference to Articles 39, 42, 43 and 44
- c) Factors inhibiting effective implementation of Constitutional provisions

Unit II – Women and Law in India:
- a) Dowry Prohibition Act, 1961 (as amended in 1984 & 1986);
- b) Protection of Women from Domestic Violence Act, 2005,
- c) Women’s Rights in Property as Coparcener (as per 2005 Amendment of Hindu Succession Act, 1956)

Unit III – UN Conferences on Women:
- a) Mexico (1975)
- b) Copenhagen (1980)
- c) Nairobi (1985)
- d) Beijing (1995)
- f) Beijing +10 (2005)

Unit IV – UN Conventions for Women and Children:
- a) Convention on the Political Rights of Women 1952
- b) Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) 1979

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
- In this paper, the candidate will be assessed for 90 marks on the basis of a written examination and for 10 marks internal assessment.
- There shall be 9 questions in all. The first question shall be compulsory containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit- 4 in all. Each question will carry 18 marks.
Essential Readings:


Further Readings:


Readings in Hindi:


......................
OBJECTIVES: This paper focuses on the issues related to the process of development and its impact on women, particularly in the context of a developing nation like India. The attempt is to equip the student to understand the major aspects of critique of development through a gender lens in its global and local contexts.

COURSE CONTENTS

UNIT I – CONCEPT OF DEVELOPMENT
- Changing concept from Growth to Development;
- Human Centric Development;
- Why is gender a development issue?
- Indices of development: Human Development Index (HDI), Gender Development Index (GDI), Gender Empowerment Measure (GEM)

UNIT II – STRATEGIES FOR WOMEN’S DEVELOPMENT
- Women in Development (WID), Women and Development (WAD) and Gender and Development (GAD),
- Empowerment and Sustainable Development;
- Microcredit

UNIT III - POLICY INITIATIVES
- Changing approaches from welfare to development to empowerment with special reference to Five Year Plans (First to Eleventh Plan)
- National Policy for Empowerment of Women

UNIT IV – IMPLEMENTATION MACHINERY
- Social Welfare Boards,
- National Commission for Women (NCW),
- Ministry of Women and Child Development (MOWCD),
- National Institute of Public Cooperation and Child Development (NIPCCD)

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
- In this paper, the candidate will be assessed for 90 marks on the basis of a written examination and for 10 marks internal assessment.
- There shall be 9 questions in all. The first question shall be compulsory containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit-4 in all. Each question will carry 18 marks.
ESSENTIAL READINGS


Govt. of India, Five Year Plans (1st to 11th), Planning Commission, New Delhi.


South Asia Human Development Reports 2000 and 2004, Mahbub ul Haq Human Development Centre.


Further Readings


Jain, Devaki :  Development as if Women Mattered, Monograph, ISS, New Delhi, 1983.


U.K, Kushwah, K.J, (eds),

Readings in Hindi:


Sarawat, Sawapnal :  Mahila Vikas AK Paridrashay, Nayanprakashan, New Delhi,
HUMAN RIGHTS & DUTIES
B.A. / B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2017-2018
SEMESTER-V

PAPER: HUMAN RIGHTS RESPONSES TO SELECT PROBLEMS
INTERNATIONAL AND NATIONAL PERSPECTIVE

Max. Marks: 100 Marks
Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 Hours

Objective: The paper deals with a few select problems that have been addressed internationally through the UN
Conventions to ensure protection of human rights. The objective is to regard to problems such as racial discrimination;
custodial violence; and socially vulnerable groups including women, children, Specially-Abled and Internally Displaced
Persons.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

Note: (i) for written paper, the students will be required to attempt five questions in all. Question No. 1 will be
compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students
shall be required to attempt 9 short answer type questions out of 12 i.e. 9 x 2 = 18 marks. (ii) In addition to it, Question
Nos. II to IX will consist of long answer of long answer (easy) type questions i.e. two questions from each unit with
internal choice carrying 18 marks of each i.e. 4 x 18 = 72 marks.

UNIT-I

Racial Discrimination: International Convention and Related Mechanism
(b) International Convention on Elimination of All Forms of Racial Discrimination 1965.
(c) Refugees and the Refugee Convention, 1951

UNIT –II

Custodial Violence and Safeguards:
(a) Custodial Violence a
   (i) Torture and Death in Police Custody
   (ii) Fake Encounters and Enforced Disappearances
   (iii) Human Indignity against Women and Children

(b) Convention against Torture and Other Cruel and Human of Degrading Treatment or Punishment, 1984.

UNIT-III

Social Vulnerability and Protection –I: Women and Children
(a) Understanding Discrimination and Violence against Women and Children
UNIT- IV

Social Vulnerability and Protection- II: Aged, Specially-Abled and Internally Displaced Persons.

(a) Problems of Aged and specially – Abled Persons.
(c) International Mechanism for the Rights of the Aged.
(d) Internally Displaced Persons and Related Mechanism.

References:

Essential Readings:


Further Reading:


--------------------
Objective: The paper deals with key features of regional human rights standards and mechanisms. The objectives of the paper are twofold. Firstly, it is familiarize the students that regional initiatives complement the international initiatives in promoting and protecting human rights. Secondly, it is to train students to locate countries of the specific region on an outline map of the world.

INSTRUCTIONS FOR THE PAPER SETTER AND THE CANDIDATES: Note: (i) for the written appear, the students will be required to attempt five questions in all. Questions No. I will be compulsory comprising of 12 short answers type questions of 2 marks each and will cover the entire syllabus. The students shall be required to attempt 9 short answer type questions out of 12 i.e. 9x2 =18 marks. (ii) In addition to it. Questions Nos. II to IX will consist of long answer (essay) type questions i.e. two questions from each unit with internal choice carrying 18 marks of each i.e. 4x18=72 marks per Unit where students will be asked to located countries that are party to the Regional Conventions or have either ratified specific Conventions or have not ratified the given Conventions on the attached world outline map.

UNIT-I

Europe:
(b) European Social Charter (ESC), 1961 (Revised 1996)

UNIT-II

Americas:
(a) American Convention on Human Rights (ACHR), 1969.
(b) Inter-American Convention to Prevent and Punish Torture, 1985

UNIT-III

Africa and Arab
(a) African Charter on Human and Peoples’ Rights (Banjul Charter), 1981
(b) Convention Regarding the Specific aspects of Refugee Problem in Africa
(c) Arab Charter on Human Rights, 2004
UNIT-IV

South and South-East Asia

(a) SARC Conventions: (i) Conventions on Regional Arrangements for the Promotion of Child Welfare in South Asia and Convention on Preventing and Combating the Trafficking in Women and Children for Prostitution
(b) ASEAN Charter on Rights, 2007.

REFERENCES:

Essential Readings:


Further Readings:

COMPUTER SCIENCE

B.A./B.Sc. (GENERAL) FIFTH SEMESTER

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>FIFTH SEMESTER</th>
<th>Exam. Hr</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – A05</td>
<td>Theory</td>
<td>Business Data Processing and Data Base Management Software</td>
<td>3</td>
<td>65</td>
</tr>
<tr>
<td>Paper – PA05</td>
<td>Practical</td>
<td>Practical Based on Paper – A05</td>
<td>3</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of lab. record.

Paper-A05: Business Data Processing and Data Base Management Software

Objective:
The course enables the students to understand the basics of date processing, files, DBMS (concept & design). Any RDBMS tools such as Oracle/mySQL/MS-SQL may be used.

Note:
(i) The question paper will consist of Four units.
(ii) Examiner will set total of **Nine** questions comprising **Two** questions from each unit and **One** compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt **One** question from each unit and the compulsory question.
(iv) All questions carry equal marks unless specified.

UNIT-I

Introduction: Database vs File Oriented Approach, Advantages and Disadvantages of DBMS, Data models: Hierarchical, Network and Relational models, Entity Relationship model, Client-Server Architecture, Distributed databases, Data Independence, Normalization (1NF, 2NF, 3NF and BCNF)

UNIT-II


UNIT-III

SQL I: Data Definition Language (DDL): Create, rename, truncate, alter and drop tables. Data manipulation Language (DML): Insert, update and delete commands. Various forms of SELECT- simple, using special operators, aggregate functions, arithmetic functions, character functions, date functions, group by clause, Nested Queries, Joins.
UNIT-IV

SQL II: Introduction to VIEWs, Manipulating the Base table(s) through VIEWs, Rules of DML Statements on Join Views, Dropping a VIEW, Inline Views, Materialized Views. Database Security and Privileges, GRANT Command, REVOKE Command, Application Privileges Management, Sequences, Introduction to INDEXES, Creating simple, unique and composite INDEX, dropping INDEX, COMMIT and ROLLBACK, Backup and Recovery of the database.

Suggested Readings:

Essential:


Further Readings:


PAPER-PA05 : Practical : Practical based on Paper A05.
SIXTH SEMESTER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – PA06</td>
<td>Practical</td>
<td>Practical Based on Paper – A06</td>
<td>3</td>
<td>25</td>
<td>--</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of lab. record.

Paper – A06: Web Programming

Objective: The course provides fundamentals of Internet & Web Programming using HTML. It also focuses Front Page, Java script & Java.

Note:

i. The question paper will consist of Four units.

ii. Examiner will set total of NINE questions comprising of TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.

iii. The students are required to attempt ONE question from each unit and the compulsory question.

iv. All questions carry equal marks unless specified.

UNIT-I

1. Internet: Evolution of Internet, Future of Internet, Services provided on the Internet, Internet Access Methods.


4. Hypertext Markup Language: Introduction to HTML, Building Blocks of HTML, HTML Lists, HTML Links, Images in HTML.

UNIT-II


7. Developing Simple Website: Website development using latest website development open source tool.
UNIT-III


9. *Java Scripting* : Features, tokens, data types, variables, operators, control structs, strings, arrays, functions, core language objects, client side objects, event handling, application related to client side from validation.

UNIT-IV

10. *Fundamentals of Java Programming Language* : Java vs. C++, bytecode, java virtual machine, constants, variables, data types, operators, expressions, control structures, defining class, creating objects, accessing class members, constructors, method overloading, Implementation of following programs in Java:
   1. Program to identify whether entered number is prime or not.
   2. Program to show table of a given number upto given limit.
   3. Program to calculate factorial of a given number.
   4. Program for explaining application of classes and objects.
   5. Program explaining application of various types of constructors in Java.
   6. Overload method area to calculate area of different objects like rectangle, circle, cube and cylinder.

*Suggested Readings :*


PAPER-PA06 : Practical : Practical based on Paper A06.
ENVIRONMENT CONSERVATION (ELECTIVE)

SEMESTER-V

Paper: Biodiversity and Conservation

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical Hours</th>
<th>Theory marks</th>
<th>Internal Assessment marks</th>
<th>Practical marks</th>
<th>Practical Internal Assessment Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>65</td>
<td>10</td>
<td>20</td>
<td>5</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and Practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks (Internal Assessment) and 20 marks will be allotted to Laboratory practicals.

Instructions for paper setters:
There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each).

Paper : Biodiversity and Conservation

Section-I

Section-II

Section-III
Environmental Ethics: Role of religion in Environment Protection. Role of Indian tradition in environment conservation, Sustainable agriculture.

Different possible measures to make aware localities about environmental hazards and its remedies. Public Interest Litigation(PIL).

Section-IV
Cultivation Practices: Role of tree & plants in conservation; use of medicinal plants; cultivation methods (Aloe vera, Calotropis (AK), Mentha, Ocimum, Neem, Ricinus, Jatropha, Accacia, Khair (Katha).

Practical
Collection of local flora and fauna.
Study of vegetation of local area/college campus.
Collection of ten pests.
Identification of weeds.
Study of vegetation density by quadrat method
Plantation of medicinal plants.
Adaptation features of plants and animals.
Assignments/project as assigned by the teacher.
ENVIRONMENT CONSERVATION (ELECTIVE)

SEMESTER - VI

Paper: Public Awareness and Environment Issues

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical Hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
<th>Practical Internal Assessment Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>65</td>
<td>10</td>
<td>20</td>
<td>05</td>
<td>100</td>
</tr>
</tbody>
</table>

The number of hours for theory and Practical per week shall be 6 hours and 4 hours, respectively.

Note: The practical will include survey and its project reports carrying 5 marks (Internal Assessment) and 20 marks will be allotted to Laboratory practicals.

Instructions for paper setters:

There will be 9 questions in all, two each from section I to IV. All questions will carry equal marks (13 marks each). Question No. 1 will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from section I to IV and the first compulsory questions.

Paper: Public Awareness and Environment Issues

Section-I

Current Environment Issues: Climate Change, Global Warming, Population Explosion, Rain water harvesting, relaxation of mining areas, impact of green revolution on environment with special reference to Punjab, Tehri Dam, Narmada Project, Bhopa Gas Tragedy, River Cleaning Project of Sant B.S. Seechewal (Punjab).

Section-II

Environmental Protection: Role of Non-Governmental Organizations (NGOs) in environmental protection (Chipko movement, For a Living Ganga by WWF, Transformation DTC fleet to CNG driven transport, Earth Hour, Green Peace (Nitrate Pollution in Punjab), KVM, Jaito). Role of individual in environment protection. Role of environmental education.

Section-III


Section-IV

RS and GIS: Definition, Application in Environment.
Biostat: Mean mode, median, standard deviation, co-relation, Regression.
Practical

Public/Mass awareness programmes in different villages and their reports.
Survey report on different diseases based theory.
Visit to a dam to study its construction and working.
To visit any NGO working for environment.
To study various indoor pollutants in houses like LPG, AC, Paints, Polish, Cosmetics, Detergents, Shampoo, Hair dyes.
To study the different tools of stat in data interpretation.
Assignments/project as assigned by the teacher.

Books Recommended:

Singh, Oraon & Prasad. : Medicinal Plants, APH Publications, 2009
HOME SCIENCE

B.A./B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2017-18
SEMESTER- V

Scheme of Examination

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Paper</th>
<th>Theory No. of Papers</th>
<th>Time in hrs.</th>
<th>Marks allotted</th>
<th>Int. Ass.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Food, Nutrition and Child Development</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

Practical

<table>
<thead>
<tr>
<th>No. of Papers</th>
<th>Time in hrs.</th>
<th>Marks allotted</th>
<th>Int. Ass.</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
<td>100</td>
</tr>
</tbody>
</table>

Total: 100

Note: 1. Each Practical group will have 12-15 students.

FOOD, NUTRITION AND CHILD DEVELOPMENT (Theory)

Max. Marks : 50
Theory : 40
Int. Ass. : 10
Periods : 6 Hours/8 periods per Week

INSTRUCTIONS FOR THE PAPER SETTER:

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

SECTION-A

I. Importance and Functions of Food:
   (a) Physiological; (b) Psychological; (c) Social

II. Food Constituents: Carbohydrates, Proteins and Fats—Functions, sources, requirements and deficiency.

III. Methods of Cooking: Boiling, Steaming, Frying, Baking, Roasting and Microwave cooking.

SECTION B

IV. Functions, recommended allowances, deficiency, excess and food sources of the following nutrients:
   (a) Vitamins—A, B₁, B₂, B₃, Vit. C, Vit. D.
   (b) Minerals—Calcium, Phosphorous, Iron, Sodium, Iodine.
V. Balanced Diet
   (a) Concept
   (b) Classification of food based on the five/seven food groups.

SECTION-C

VI. Pregnancy

1. Signs and symptoms of pregnancy.
2. Discomforts and Complications.
3. Care during pregnancy
4. Preparation for delivery
5. Post natal care- Importance of breast feeding, bottle feeding, weaning and different types of weaning foods

VII. Methods of family planning

SECTION D

VIII Definition and importance of Child Development.
   (a) Differences between growth and development;
   (b) Principles of development.

IX Developmental tasks at various stages of development

PRACTICAL

Max. Marks : 50
Practical : 40
Int. Ass. : 10
Teaching Periods : 6 Periods/Week

I. Preparation of following dishes using various methods of cooking
   a. Soups- stimulating and nourishing (any two)
   b. Snacks- savory and sweet (two each)
   c. Salads- decorative and nutritious (two each)
   d. Bakery items (any two)
   e. Preparation with cereal pulse combination (any two)
   f. Desserts (any two)

II. Hot and cold beverages (at least two each).

III. Preparation of low cost nutritious recipes (at least two)

IV. Recipes- enhancing nutritive value (at least two)
V. Project

- Survey of Food Labels in order to study their nutritional facts
  OR
- Survey of eating habits of five students

Reports to be submitted

**List of Equipments for a practical group of 12-15 students:**

1. Gas Burners 15
2. Cooking Range 01
3. Ovens 05
4. Mixers and Grinders 05
5. Weighing Scales (for food) 05
6. Gas Lighters 15
7. Dustbin-Small 15-Big-1
8. Vegetable Racks 02
9. Plate Racks 15
10. Storage Jars and Containers 25
11. Refrigerator 01
12. Icing Sets 05

**Cooking Utensils**

1. Pressure Cooker 15
2. Patila with Lid 30
3. Kadahai 15
4. Parat 15
5. Tawa 15
6. Chakla-Belna 15
7. Grinding Stone 15
8. Saucepans 15
9. Karchhi 15
10. Palta 15
11. Poni 15
12. Soup Strainers 15
13. Sieves 15
14. Enamel Bowls 15
15. Baking Trays and Tins 15
16. Cookie Trays 15
17. Serving Trays 15
18. Cutting Knives 15
19. Peelers 15
20. Jelly Moulds 15

**Crockery and Cutlery**

1. Full Plates 30
2. Half Plates 30
3. Quarter Plates 30
4. Cups & Saucers 30
5. Soup Bowls 30
6. Glasses 36
7. Katoris (Vegetables Bowls) 30
8. Dongas 30
9. Forks 30
10. Table Knives 30
11. Table Spoons 48
12. Tea Spoons 48
13. Serving Spoons 24
14. Tea Sets 05
15. Dinner Sets 05
16. Borosil Bowls 15
17. Casseroles 15
HOME SCIENCE
B.A./B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2017-18
SEMESTER- VI

Scheme of Examination

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Paper</th>
<th>No. of Papers</th>
<th>Time in hrs.</th>
<th>Marks allotted</th>
<th>Int. Ass. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Food, Nutrition and Child Development</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

Practice

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>No. of Papers</th>
<th>Time in hrs.</th>
<th>Allocated Marks</th>
<th>Int. Ass. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
</tr>
</tbody>
</table>

Total: 100

Note: 1. Each Practical group will have 12-15 students.

FOOD, NUTRITION AND CHILD DEVELOPMENT (Theory)

Max. Marks: 50
Theory: 40
Int. Ass.: 10
Periods: 6 Hours/8 periods per Week

INSTRUCTIONS FOR THE PAPER SETTER:

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

SECTION-A

I Food Preservation:
(a) Definition, Importance & Principles.
(b) Causes of food spoilage.
(c) Household methods of food preservation—sun drying, use of salt, oil, spices, sugar & chemical preservatives.

II Meal Planning
(a) Definition
(b) Importance
(c) Principles of meal planning (physiological, psychological and economical)
SECTION-B

III. Therapeutic Diets & Modification of Normal Diet:
   (a) Principles of therapeutic diets.
   (b) Concept of soft, bland, liquid diets with examples.

IV. Therapeutic diets in the following conditions with principles involved:
   (a) Fever
   (b) Diarrhoea
   (c) High blood pressure/ Hypertension
   (d) Diabetes Mellitus.

SECTION-C

VI. Emotional Development of the child from infancy up to 6 years
   (a) Characteristics of children’s emotions.
   (b) Common childhood emotions—Fear, anger, jealousy, curiosity, love and affection.

VII. Language Development.
   (a) Stages of language development.
   (b) Factors affecting language development

SECTION-D

VIII. Play
   (a) Significance of play.
   (b) Types of play.
   (c) Play materials/equipment required for various age groups.

IX. Common behavioural problems and their remedies—Bed wetting, thumb sucking, nail biting, temper tantrums.

PRACTICAL

Max. Marks : 50
Practical : 40
Int. Ass. : 10
Teaching Periods : 6 Periods/week

I Planning & Preparation of diets for the following:
   (a) Pre-Schooler;
   (b) School going/packed lunch;
   (c) Adolescent;
   (d) Pregnant and lactating woman.
II  Cooking and serving of the following: Soft, liquid, fluid diets (two each)

III  Preservation—preparation of pickle, jam, chutney and squash (one each)

IV  Project

- Safety measures of play equipment
  OR
- Visit to a nursery school
  OR
- Preparation of any one play item

Reports to be submitted

- List of Equipments for a practical group of 15 students: SAME AS OF SEMESTER V

Reference Books:


7. *Diet and Nutrition*, Huma Zaidi


12. *Child Psychology*, Dr. Nisha Sharma

AGRICULTURE
B.A/B.Sc. 5th and 6th Semester System

SEMESTER-V

Paper-V: Agrodiversity and Physiology

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 05 Marks
Time : 3 Hours

Period per week: 1. THEORY – Six of 45 minutes duration each.
2. PRACTICAL – Two of three hours duration.

Instructions for the paper setter and the students:
1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question 1 shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Unit I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit – I
History of Agroforestry
Agroecological Zonification
Socioeconomic Aspects of Agroforestry
Agroforestry System for Small Holdings
Arid Land Agroforestry

Unit – II
Establishment of Orchard
Basic Cultural Practices
Elemental Role and Needs of Nutrients
Propagation – Principles and Techniques
Stock – Scion relationship and their incompatibility
Fruit Physiology

Unit – III
Respiration- Glycolysis, Citric Acid Cycle, Photorespiration
Photosynthesis – Light Reaction, Dark Reaction, C4 – Cycle, CAM Plants
Growth Hormones and their role in Agriculture
Enzymes and Vitamins
Vernalization
Photoperiodism
Unit – IV

Intellectual Property Right
Informatics in Agriculture
Seed Production and Technology
Indigenous Technical Knowledge in Agriculture
Introduction to Crop Biotechnology
Agrobiodiversity

PRACTICAL

Max. Marks : 25 Marks
Practical : 20 Marks
Internal Assessment : 05 Marks

Planning an Orchard
Study of Agroforestry of Local Area
Scion- Stock relationship study
Study the effect of temperature and light duration on various crop plants of an area
Role of computer in Agriculture
GM crops and techniques
Study of Agrobiodiversity of Punjab

BOOKS

AGRICULTURE

SEMESTER-VI

Paper-VI: Insect Pests and Diseases of Crop

Max. Marks : 75 Marks
Theory : 70 Marks
Internal Assessment : 5 Marks
Time : 3 Hours

Period per week:
1. THEORY – Six of 45 minutes duration each.
2. PRACTICAL – Two of three hours duration.

Instructions for the paper setter and the students:
1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question 1 shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit – I
Plant Protection
Crop diseases? How to control them?
Biological control, chemical control
Systemic fungicides
Weedicides
Compatibility of various fungicides and weedicides
Rodenticides

Unit – II
Diseases of Crop Plants
1. Crop-Wheat
Type of Disease | Name of Disease | Causal Organism
--- | --- | ---
Fungal | Loose smut of Wheat | Ustilago tritici
Bacterial | Tundu disease of Wheat | Corynebacterium tritici
Viral | Chloris striate mosaic | Chloris striate mosaic virus (CSMV)

2. Crop- Rice
Type of Disease | Name of Disease | Causal Organism
--- | --- | ---
Fungal | Blast of Rice | Piricullaria oryzae
Bacterial | Bacterial Blight of Rice | Xanthomonas oryzae
Viral | Rice Tungro disease | Rice tungro Bacilliform virus (RTBV)

3. Crop- Maize
Type of Disease | Name of Disease | Causal Organism
--- | --- | ---
Fungal | Black kernal rot | Lasiodiplodia theorbrome
Bacterial | Stalk rot of Maize | Erwinia cartovora
Viral | Maize chlorotic dwarf | Maize chlorotic dwarf virus (MCDV)
4. Crop-Citrus

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Citrus black spot</td>
<td><em>Guignardia citricarpa</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Citrus canker</td>
<td><em>Xanthomonas citri</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Citrus Yellow Mosaic</td>
<td>Badnavirus</td>
</tr>
</tbody>
</table>

5. Crop-Grapes

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Powdery Mildew of grapevine</td>
<td><em>Unicinula nectator</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Crown gall</td>
<td><em>Agrobacterium tumifaciens</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Cork bark</td>
<td>Grapevine virus B</td>
</tr>
</tbody>
</table>

6. Crop-Cotton

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Cotton Rust</td>
<td><em>Puccinia schedonnardii</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial Blight of Cotton</td>
<td><em>Xanthomonas citri</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Leaf curl</td>
<td>Bigeminivirus or Cotton Leaf curl virus (CLCuV)</td>
</tr>
</tbody>
</table>

7. Vegetables

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Late Blight of Potato</td>
<td><em>Phytopthora infestans</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial canker of Tomato</td>
<td><em>Clavibacter michiganensis</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Yellow vein mosaic of Bhindi</td>
<td>Yellow vein mosaic virus</td>
</tr>
</tbody>
</table>

8. Oil Crops: Mustard

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>White rust of crucifers</td>
<td><em>Albugo candida</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Black rot of crucifiers</td>
<td><em>Xanthomonas campestris</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Rai Mosaic virus</td>
<td>Yellow Mosaic Virus</td>
</tr>
</tbody>
</table>

9. Oil Crops: Groundnut

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungal</td>
<td>Tikka Disease of groundnut</td>
<td><em>Cercospora sp.</em></td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial wilt</td>
<td><em>Pseudomonas solanacearum</em></td>
</tr>
<tr>
<td>Viral</td>
<td>Groundnut crinkle</td>
<td>Groundnut crinkle virus</td>
</tr>
</tbody>
</table>
Unit – III

General account of Insects and pests
Classification of Insects
Parts of Insect body
Control measures of Insect pests and diseases of crop

Unit – IV

Insect and nematode diseases of Cereal (Wheat, Maize, Rice) crops; Oil (Sunflower, Groundnut, Mustard) crops; Fruit (Mango, Guava, Citrus) crops

Vegetable crops

<table>
<thead>
<tr>
<th>Rabi Crops</th>
<th>Kharif Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Peas</td>
<td>Chilli</td>
</tr>
<tr>
<td>Chick Peas (Cicer arientinum)</td>
<td>Okra</td>
</tr>
<tr>
<td>Onion (Allium cepa)</td>
<td>Bitter Gourd</td>
</tr>
<tr>
<td>Tomato (Solanum lycopersicum)</td>
<td>Bottle Gourd</td>
</tr>
<tr>
<td>Potato (Solanum tuberosum)</td>
<td>Brinjal</td>
</tr>
</tbody>
</table>

PRACTICAL

Max. Marks : 25 Marks
Practical : 20 Marks
Internal Assessment : 05 Marks

Study of all the diseases mentioned in theory
Symptoms and their control measures

Books

Indian Crop Pests - Kumar and Nigam, 2007 – Emkay Publishers, Allahabad

--------------
MATHEMATICS

SEMESTER V

Paper I : ANALYSIS - I

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Countable and uncountable sets.
Riemann integral, Integrability of continuous and monotonic functions, Properties of integrable functions, The fundamental theorem of integral calculus, Mean value theorems of integral calculus.
Beta and Gamma functions.

Unit-II

Improper integrals and their convergence, Comparison tests, Absolute and conditional convergence, Abel’s and Dirichlet’s tests, Frullani’s integral.
Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

References:
Paper II: MODERN ALGEBRA

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Groups, Subgroups, Lagrange’s Theorem, Normal subgroups and Quotient Groups, Homomorphisms, Isomorphism Theorems, Conjugate elements, Class equation, Permutation Groups, Alternating groups, Simplicity of $A_n$, $n \geq 5$ (without proof).

Unit-II

Rings, Integral domains, Subrings and Ideals, Characteristic of a ring, Quotient Rings, Prime and Maximal Ideals, Homomorphisms, Isomorphism Theorems, Polynomial rings.

References:

Paper III: PROBABILITY THEORY

Max. Marks: 30
Time: 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

SECTION A

Review of notion of Probability, conditional Probability and independence, Bayes’ Theorem.
Random Variables: Concept, probability density function, cumulative distribution function, discrete and continuous random variables, expectations, mean, variance, moment generating function, skewness and kurtosis.
Discrete Random Variables: Bernoulli random variable, binomial random variable, negative binomial random variable, geometric random variable, Poisson random variable.

SECTION B

Continuous Random Variables: Uniform random variable, exponential random variable, Beta random variable, Gamma random variable, Chi-square random variable, normal random variable.
Bivariate Random Variables: Joint distribution, joint and conditional distributions, Conditional Expectations, Independent random variables, the correlation coefficient, Bivariate normal distribution.

References

MATHEMATICS
SEMESTER VI

Paper I: ANALYSIS - II

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Double and triple integrals: Double Integral over A Rectangle, Repeated Integrals in \( \mathbb{R}^2 \), Double Integrals over Bounded Non-rectangular Regions, Area of Bounded Regions in Plane, Double Integrals as Volumes, Change of Variables in Double Integrals, Change to Polar Coordinates, Area in Polar Coordinates, Triple Integral in Rectangular Coordinates, Triple Integrals over General Regions in \( \mathbb{R}^3 \), Repeated Integrals in \( \mathbb{R}^3 \), Volume of a Region in \( \mathbb{R}^3 \), Change of Variables in a Triple Integral to Cylindrical and Spherical Coordinates


Unit-II

Sequences and series of functions: Pointwise and uniform convergence, Cauchy criterion for uniform convergence, Weierstrass M-test, Abel’s and Dirichlet’s tests for uniform convergence, uniform convergence and continuity, uniform convergence and Riemann integration, uniform convergence and differentiation, Weierstrass approximation theorem (Statement only), Abel’s and Taylor’s theorems for power series.

Fourier series: Fourier expansion of piecewise monotonic functions, Fourier Series for Odd and Even Function, Half Range Series, Fourier Series in the Intervals \([0, 2\pi]\), \([-1, 1]\) and \([a, b]\).

References:

Paper II : LINEAR ALGEBRA

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

Unit-I

Vector Space : Definition and Examples of Vector Spaces, Subspaces, Algebra of subspaces, Linear span, Linear dependence and independence of vectors, Basis and dimension of a vector space, Basis and dimension of subspace, Direct sums and complements
Linear transformations, Rank and Nullity of a linear transformation, Vector space of linear transformations

Unit-II

Linear transformations and matrices, Change of basis.

References:

4. I. N. Herstein, Topics in Algebra (Delhi Vikas).
5. V. Bist and V. Sahai, Linear Algebra (Narosa, Delhi).
Paper III : NUMERICAL ANALYSIS

Max. Marks : 30
Time : 3 hrs.

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

SECTION A

Interpolation: Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulas using Difference.
Numerical Differentiation.
Numerical Quadrature: Newton-Cote’s Formulas, Gauss Quadrature Formulas, Chebychev’s Formulas.

SECTION B

Linear Equations: Direct Methods for Solving Systems of Linear Equations (Gauss Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, Gauss-Seidel, Relaxation Methods).

References

Note: 1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a Subject in B.A./B.Sc.
2. A candidate shall offer these subjects in B.A./B.Sc. Third year only if he/she had taken up the corresponding subject in B.A./B.Sc First and Second years.
3. There are two papers with codes 301 and 302 in the subject of Statistics in B.A./B.Sc. Semester -V. These are to be taught simultaneously throughout the Semester.
4. For theory, 8 lectures (of 45 minutes each) per week and for practical 4 lectures (of 45 minutes each) per week, amounting to 12 lecturers per week for theory and practical, shall be allotted for the teaching.

Paper 301: DEMOGRAPHY AND ECONOMIC STATISTICS

Maximum Marks : 75
Theory : 65
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of this course is to acquaint students with the basis concepts of Microeconomic theory and the analysis of Statistical concepts used in the context of economic set up. They will also be exposed to the basic concepts in Demography.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit - I
Sources of demographic data-census, vital statistical registers, adhoc surveys and hospital records. Measurement of mortality - crude death rate, specific death rates, standardized death rate, infant mortality rate and cause of death rate, complete life Table and its description. Measurement of fertility - crude birth rate, general fertility rate, total fertility rate, gross reproduction rate and net reproduction rate.
Economic time series, its different components, illustrations, additive and multiplicative models, determination of trend, growth curves (exponential and modified exponential), analysis of seasonal fluctuations, construction of seasonal indices.

Unit - II
Index numbers, definition, Methods to construct price, quantity and value index numbers. Problems involved in the construction of index numbers, use of averages, simple aggregative and weighted average methods. Laspeyre’s, Paasche’s, Edgeworth - Marshall and Fisher’s index numbers. Time and factor reversal tests of index numbers. Chain Base index numbers, Cost of living index number, interpretation and applications of index numbers.
Static laws of demand and supply, price elasticity of demand, Pareto distribution, log normal distribution and their properties.
References:


Additional References:


Paper-302 PRACTICAL

Marks : 25
Time : 3 Hours

(Viva voce: 5 marks; record of the year: 5 marks; Final Exam: 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.


2. Construction of Index Numbers by Laspeyre’s, Paasche’s, Edgeworth-Marshall’s and Fisher’s methods.

3. Determination of trend, construction of seasonal indices in a time series

......................
Note:  
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. A candidate shall offer these subjects in B.A./B.Sc. Third year only if he/she had taken up the corresponding subject in B.A./B.Sc First and Second years.
3. There are two papers with codes 303 and 304 in the subject of Statistics in B.A./B.Sc. Semester VI. These are to be taught simultaneously throughout the semester.
4. For theory, 8 lectures (of 45 minutes each) per week and for practical 4 lectures (of 45 minutes each) per week, amounting to 12 lecturers per week for theory and practical, shall be allotted for teaching.

Paper 303: STATISTICAL QUALITY CONTROL AND COMPUTATIONAL TECHNIQUES

**Maximum Marks** : 75
**Theory** : 65
**Internal Assessment** : 10
**Time allowed** : 3 hours

**Objective:** This course teaches the applications of Statistics to maintain quality in Engineering or industrial set up. Linear programming with applications in the management and administration of military, government, commercial, and industrial systems, is used to maximize the utility of limited resources. The objective is to acquaint the students with different techniques for optimization.

**Notes:**
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. **Simple non-programmable calculator is allowed.**
3. **Statistical tables and log tables will be provided on request.**

**Unit - I**

Importance of Statistical methods in industrial research and practice, meaning of quality, quality assurance and process control. General theory of control charts, causes of variations in quality, control limits, sub-grouping summary of out of control criteria. Charts for variables - $\overline{X}$ and R charts. Charts for attributes - np, p, c and u - charts.

Principle of acceptance sampling- problem of lot acceptance, stipulation of good and bad lots, concepts of producer’s and consumer’s risks, AQL, LTPD, AOQL, ATI, ASN and OC functions. Single and double sampling plans and their ATI, ASN and OC functions.

**Unit - II**


Linear Programming: elementary theory of convex sets, definition of general linear programming problems (LPP), formulation of LPP, examples of LPP. Graphical and simplex methods of solving an LPP, artificial variables, duality of LPP, Transportation problem (non-degenerate and balanced cases), initial basic feasible solution through North-West Corner Rule, Matrix Minima & VAN method.
References:


Additional References:


Paper 304 : PRACTICAL

Marks : 25
Time : 3 Hours

(Viva voce: 5 marks; record of the year: 5 marks; Final Exam: 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.

1. Drawing of $\bar{X}$ - R, np, p,c and u – charts, Drawing of OC, AOQ and ATI curves for single and double sampling plans for attributes.
2. Construction of difference tables, use of Newton, Lagrange and divided difference interpolation formulae, numerical evaluation of integrals using Trapezoidal and Simpson one-third formulae, solution of system of linear equations by Gauss – Seidel iterative method.
3. Formulation of LPP’s and their duals. Solving LPP’s by graphical and Simplex methods, solution of transportation problem.
APPLIED STATISTICS
FIFTH SEMESTER

Note:

1. This course shall not be opted for along with courses in B.A./B.Sc Mathematics and/ or B.A./ B.Sc. Statistics.

2. The candidate opting for this course will not be eligible for admission to M.A./M. Sc. Statistics.

3. There is one paper with code 301AS in the subject of Applied Statistics in B.A./B.Sc. Semester-V, having a total of 100 marks.

4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching

Paper- 301AS: ESTIMATION AND TESTING OF HYPOTHESIS

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of the course is to provide

(i) a systematic account of testing and closely related theory of point estimation and confidence sets, together with their applications.

(ii) exposure to various statistical designs leading to the analysis of variance, elimination of heterogeneity of the data and construction of designs.

(iii) an insight into Multivariate Techniques.

Notes:

1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

UNIT -I

Estimators and estimates, unbiased, consistent, efficient estimators. Methods of moments, maximum likelihood estimators for the parameters of Binomial, Poisson and normal distributions, confidence intervals.

Tests of a statistical hypothesis, two types of errors, power of a test. Tests for the parameters of Binomial, Poisson and normal distributions, Chi-squared tests of goodness of fit. Wilcoxon and sign test.
UNIT -II

Analysis of variance, one and two way classifications. Estimates of main effects, tests of significance for equality of effects.

Principles of design of experiments- Randomization, replication and local control. Completely randomized and randomized block designs.

Multivariate Techniques (upto 4 variables only). Estimators of mean vector and variance-covariance matrix of multivariate (upto 4) normal distribution, multiple regression, multiple correlation and partial correlation.

Book Recommended


Additional references:


APPLIED STATISTICS

SIXTH SEMESTER

Note:

1. This course shall not be opted for along with courses in B.A./B.Sc. Mathematics and/or B.A./B.Sc. Statistics.

2. The candidate opting for this course will not be eligible for admission to M.A./M.Sc. Statistics.

3. There is one paper with code 302AS in the subject of Applied Statistics in B.A./B.Sc. Semester VI, having a total of 100 marks.

4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching

Paper- 302AS: ECONOMICS AND INDUSTRIAL STATISTICS

Maximum Marks: 100
Theory: 90
Internal Assessment: 10
Time allowed: 3 hours

Objective: The objective of the course is to provide an idea about different sampling methods, use of index numbers and time series. It also provides exposure to the knowledge about controlling quality in industry. Different measures used in demography are described.

Notes:

1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

4. 4 to 5 lectures (40 minutes each) per paper per week amounting in all to 9 lectures for two papers shall be allocated for the teaching.

UNIT-I

Sampling: Simple random and stratified sampling, optimum allocation in stratified sampling. Ratio and regression estimates.

Index Numbers: Index Numbers-as weighted averages, Price Index numbers, Quantity index numbers, Fisher’s tests for index numbers.

Time Series: The four components of a time series, moving average, the Slutsky Yule effect, determination of trend by curve fitting and moving average methods.
UNIT –II


Books Recommended


Additional References:

PHYSICS

B.Sc. (GENERAL) THIRD YEAR (5th and 6th Semester) EXAMINATION, 2017-18

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the theory papers is allocated 25 marks including 3(three) marks for the Internal assessment. The Practical examination is of 50 marks including 5 (Five) marks for the Internal assessment and will be held along with the sixth semester examination.

2. The number of lectures per week will be three for each theory paper and six for practicals.

3. The examination time for each theory paper will be three hours and it will be four hours for practicals.

4. Each theory paper will consist of seven questions comprising of three sections. First two sections will comprise of three questions from each of Units I and II of syllabus, and the third section will comprise of one compulsory question of ten short answer type parts covering whole syllabus. The question paper will be set for 44 marks - All the questions in first and second sections will carry 9 (nine) marks each and the compulsory question will carry 8 marks. Student will attempt two questions from each of the first two sections and any eight parts of the compulsory question. After evaluation of the answer books out of 44 marks, the marks will be given out of 22 marks.

5. The numerical problems /exercises in the question paper should be 25-30%.

6. The use of Non-programmable calculators will be allowed (paper setters should explicitly mention this on the question paper) in the examination centre but these will not be provided by the University/College. Mobile phones and pagers are not allowed in the examination hall.
PHYSICS

SEMESTER – V

Papers, marks and teaching hours allocation:

<table>
<thead>
<tr>
<th>Paper</th>
<th>Subject</th>
<th>Total Teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Condensed Matter Physics - I</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>Electronics and Solid State Devices - I</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>Nuclear &amp; Particle Physics - I</td>
<td>30</td>
</tr>
</tbody>
</table>

Physics Practicals

Total Teaching hours 45

Paper A: CONDENSED MATTER PHYSICS - I (30 Hrs.)

UNIT-I

Crystal structure: Symmetry operations for a two dimensional crystal. Two dimensional Bravais lattices, Three dimensional Bravais lattices, Basic primitive cells, Crystal planes and Miller indices, Diamond and NaCl structure. Crystal diffraction: Bragg’s Law, Determination of crystal structure, Laue equations, Reciprocal lattices of SC, BCC and FCC, Bragg’s law in reciprocal lattice, Brillouin zones and its derivation in two dimensions, structure factor and atomic form factor.

UNIT-II

Band Theory of solids, periodic potential and Bloch theorem, Kronig-Penney model, band gaps, band structures in conductors, direct and indirect semiconductors and insulators.

Free electron theory of metals, effective mass, drift current, mobility and conductivity (carrier concentration and mobility of carriers) and their variation with temperature in semi-conductors, Fermi level positions in intrinsic and extrinsic semiconductors, Wiedemann-Franz law, Hall effect in metals and semiconductors.

Recommended Books:

Essential Readings:

1. Introduction to Solid State Physics, C. Kittel, Wiley Eastern

Further Readings:

Paper-B : ELECTRONICS AND SOLID STATE DEVICES - I (30 Hrs.)

UNIT-I

Concepts of current and voltage sources, Thevenin’s theorem, Norton’s theorem, Source conversion.
CRO, Block diagram, construction and principle of working, Use of CRO for frequency, time period, special features of dual trace, phase measurements.

Energy band diagrams in semiconductors, Direct and indirect semiconductors, Formula to calculate Position of Fermi level in p and n semiconductors, Barrier formation, energy band diagram of p-n junction, Formula for Depletion width, Qualitative ideas of current flow mechanism in forward and reverse biased diode, v-i characteristics, static and dynamic resistance, Depletion and diffusion capacitance, zener diode, LED, photodiode and solar cell.

(Book 1, Book 3)

UNIT-II

Diode circuits, Clipping circuits, Rectification: half wave, full wave and bridge rectifiers, filter circuits (C, LC and π filters), rectification efficiency and ripple factor in LC filter, voltage regulation circuit using zener diode, voltage multiplier circuits.

Bipolar Junction transistors : Structure and working, different currents in transistor, switching action. Characteristics of CB, CE and CC configurations, Active, cutoff and saturation regions.

Load line analysis of transistors, Q-point, Transistor biasing and stabilization of operating point, fixed bias, collector to base bias, bias circuit with emitter resistor, voltage divider biasing circuit.

Working ans analysis of CE amplifier using h-parameters, current, voltage and power gain, input and output impedance. Class A, B and C amplifiers.

(Book 1, Book 2)

Recommended Books :

Essential Readings :

Further Readings :
3. Foundations of Electronics, D. Chatopadhyay, P.C. Rakshit, B. Saha, and N.N. Purkit, New Age International
Paper-C : NUCLEAR AND PARTICLE PHYSICS - I

(60 Hrs.)

UNIT-I

General properties of Nuclei : Constituents of nucleus and their intrinsic properties, Quantitative facts about nuclear size, mass, density, binding energy and its variation with mass number, Wave mechanical properties of nucleus, angular momentum, parity; magnetic moment and electric moments of the nucleus.
properties of nuclear forces and saturation, meson theory of nuclear forces
Nuclear Models : Liquid drop model, semi-empirical mass formula, most stable isobar.
Evidence for nuclear shell structure, Nuclear shell model, concept of mean field.

UNIT-II

Radioactive decay, Units of radioactivity (Ci and Bq), Successive disintegration, Natural radioactivity, Radioactive series, Carbon dating.
Alpha decay, energetic, alpha spectrum, Gamow’s theory of alpha decay, Geiger-Nuttal rule.
Beta decay, Qualitative discussion of beta spectrum, Evidence of existence of Neutrino, Conservation of nuclear energy in Beta minus, Beta plus and Electron capture decays.
Gamma-ray emission, selection rules, Internal conversion.

Nuclear Reactions: Types, Concept of compound and direct (pickup and stripping) reactions, Reaction differential and integral cross section, units, conservation laws and kinematics, Q-value equation, Coulomb (Rutherford) scattering cross section and distance of nearest approach.
Energy classification of neutrons, Nuclear fission in reactors, Reactor facilities available in India, Nuclear fusion in stars.

Recommended Books :

Essential Readings:


Further Readings :

1. An Introduction to Nuclear Physics, M.R. Bhiday, and V.A. Joshi, Orient Longman.
2. Concepts of Nuclear Physics, B.L. Cohen, Tata McGraw Hill
3. Fundamentals of Nuclear Physics, J. Verma, CBS.
PHYSICS PRACTICALS

The students are required to perform all the Nine experiments from each of the Units I and Unit II. The Practical examination will be held along with the sixth semester examination.

The aim of the project work is to develop the scientific and technical temper in the students and as such it may consist of development of a laboratory experiment, fabrication of a device or electronic circuit etc. The student will prepare a project report of about 10 pages. Assessment of the project work will be done on the basis of the effort put in the execution of the project, report prepared and viva-voce.

General Guidelines for Physics Practical Examinations:

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The distribution of marks is as follows:</td>
<td>Total : 50 marks</td>
</tr>
<tr>
<td>(i) One full experiment out of section–A requiring the student to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error).</td>
<td>20</td>
</tr>
<tr>
<td>(ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester</td>
<td>7</td>
</tr>
<tr>
<td>(iii) Viva-Voce and Record (Practical file)</td>
<td>10</td>
</tr>
<tr>
<td>(iv) Project</td>
<td>8</td>
</tr>
<tr>
<td>(v) Internal Assessment</td>
<td>5</td>
</tr>
</tbody>
</table>

Note for Examiners:

2. The marks scored under each head must be clearly written on the answer sheet.

3. There will be one session of 3 hours duration. The paper will have two sections. Section–A will consist of 4 experiments from each of Units I and Unit II, out of which an examinee will mark 3 experiments from either of units and one of these is to be allotted by the external examiner.

4. Section–B will consist of exercises/computer based activities which will be set by the external examiner on the spot. The length of the exercises should be such that any of these could be completed in one hour.

5. The examiner should take care that the experiment allotted to an examinee from section-A and exercise allotted from section–B are not directly related to each other.

6. Number of candidates in a group for practical examination should not exceed 12.

7. In a single group, no experiment be allotted to more than three examinees in the group.

List of Experiments:

Note: Each student should perform at least Nine experiments in the laboratory.
UNIT-I

I CONDENSED MATTER PHYSICS:

(i) Measurement of reverse saturation current in p-n junction diode at various temperatures and to find the approximate value of energy gap.
(ii) To draw forward and reverse bias characteristics of a p-n junction diode and draw a load line.
(iii) Study of a diode as a clipping element.
(iv) To measure the magnetic susceptibility of FeCl₂ solution by Quincke’s method.

II ELECTRONICS AND SOLID STATE DEVICES:

(v) To study the response of RC-circuit to various input voltages (square, sine and triangular).
(vi) To measure the efficiency and ripple factors for (a) Half-wave, (b) Full wave, and (c) Bridge rectifier circuits.
(vii) To study the reduction in the ripples in the rectified output with RC, LC and π-filters.
(viii) To draw the characteristics of a Zener diode and LED using constant current source.
(ix) To study the stabilization of output voltage of a power supply with Zener diode.
(x) To set up an oscillator and study its output on CRO for different V values.
(xi) To study the characteristics of a thermistor and find its parameters.

Exercises:
1. Any one exercise based on the above given experiments.

Computer Based Activities: Elementary C language programs.
1. Print a 2D array in spiral form.
2. To find determinant of a given matrix.
3. To find inverse of a given matrix.
4. To interpolate the data values from the given set.

UNIT-II

I CONDENSED MATTER PHYSICS:

(i) To trace the B-H curves for different materials using CRO and find the magnetic parameters from these.
(ii) To find the conductivity of a given semi-conductor crystal using four probe method.
(iii) To determine the Hall coefficient for a given semiconductor.

II ELECTRONICS AND SOLID STATE DEVICES:

(iv) To measure and plot Common Emitter Characteristics of a transistor (pnp or npn).
(v) To plot Common Base Characteristics and determine h-parameters of a given transistor.
(vi) To draw output and mutual characteristics of an FET and determine its parameters.
(vii) To study the gain of an amplifier at different frequencies and to find band-width and gain-band-width product.
III NUCLEAR PHYSICS:

(viii) To draw the Plateau of a GM counter and find its dead time.
(ix) To study the statistical fluctuations using GM counter.
(x) To study the absorption of beta-particles and determine the end point energy using GM counter. Also determine the absorption co-efficient (for aluminium) from it.
(xi) Verification of Rutherford Scattering experiment-mechanical analogue.

Exercises:
1. Any one exercise based on the above given experiments.

Computer Based Activities: Elementary C language programs.
1. To solve simultaneous equations by elimination method.
2. Fitting a straight line or a simple curve of a given data.
3. Convert a given integer into binary and octal/hexadecimal system and vice versa.

Text and Reference Books:
2. "B.Sc. Practical Physics" by C.L. Arora, S. Chand & Co. (2014)
3. "Numerical Analysis" by C. Dixon
4. Programming with C, Byron Gottfried & Jitender Chhabra, Schaum series

-------------------
PHYSICS

SEMESTER – VI

Papers, marks and teaching hours allocation:

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Title</th>
<th>Total Teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Condensed Matter Physics - II</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>Electronics and Solid State Devices - II</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>Nuclear &amp; Particle Physics - II</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Physics Practicals</td>
<td>45</td>
</tr>
</tbody>
</table>

Paper A : CONDENSED MATTER PHYSICS - II (30 Hrs.)

UNIT-I

Lattice Dynamics: Lattice vibrations and phonons, Scattering of photons by phonons, Dynamics of a linear chain of similar atoms and chain of two types of atoms, optical and acoustic modes, Density of modes, Einstein and Debye theories of specific heats of solids.

Magnetic classification of materials (Dia, para, ferro, ferri, antiferro), Langevin theory of dia and paramagnetism, Quantum theory, Weiss’s theory of Ferromagnetism, temperature dependence, hysteresis of ferromagnetic materials.

UNIT-II

Dielectric constant & polarizability, electric susceptibility, Clausius Mosotti equation, frequency dependence, ferroelectrics and Piezoelectrics.

Liquid crystals, various types and properties. Applications.

Superconductivity: Meisner effect, London’s equation and penetration depth, critical magnetic field and temperature, DC and AC Josephson effect, BCS theory (formation of cooper pairs), ground state and energy gap.

Basic ideas of materials at nanoscale: Difference from bulk material properties, Nanoparticles, introduction to fabrication and characterization techniques, Carbon Nanostructures - nanotubes, grapheme. Applications of nanotechnology in various fields.

Recommended Books :

**Essential Readings :**

1. *Introduction to Solid State Physics,* C. Kittel, Wiley Eastern

**Further Readings :**

Paper-B : ELECTRONICS AND SOLID STATE DEVICES - II  

(30 Hrs.)

UNIT-I

Structure and working of JFET, characteristics, drain and transconductance curve, FET amplifier and its voltage gain, Structure and working of MOSFET.
Feed back in amplifiers, voltage gain of negative feedback amplifier, advantages of negative voltage feedback, negative current feedback circuit, emitter follower.

(Book1 , Book2)

UNIT-II

Operational amplifier (black box approach) : Characteristics of ideal and practical opamp 741, open-loop and closed-loop gain, characteristics and applications - inverting and non-inverting amplifiers, adder, subtractor, differentiator and integrator, Comparator, Timer IC555, pin diagram and its applications as astable and monostable multivibrator.  

(Book1, Book2)

Analog and digital circuits, binary numbers, decimal to binary conversions, AND, OR, NOT gates, NAND NOR gates as universal gates, XOR and XNOR gates.
De Morgan’s theorem, Simplification of logic circuit using Boolean algebra, Minterms and Maxterms, Conversion of a truth table into an equivalent logic circuit by Sum of products method.  

(Book 3)

Analog and digital communication systems, Amplitude and Frequency modulation, Power in AM wave, generation and detection, Brief account of Satellite communication, Sky-wave communication, and mobile communication.

Recommended Books :

Essential Readings :


Further Readings :

3. Foundations of Electronics, D. Chatopadhyay, P.C. Rakshit, B. Saha and N.N. Purkit, New Age International
Paper-C : NUCLEAR AND PARTICLE PHYSICS - II  

UNIT-I
Interaction of nuclear radiation with matter: Energy loss due to ionization (Bethe Bloch formula), Range and energy stragglng, Energy loss of electrons and positrons, radiation loss by fast electrons, Bremsstrahlung, electron-positron annihilation, production of Cerenkov radiation, Gamma-ray interaction with matter, photoelectric effect, Compton scattering, pair production (qualitative description).
Detectors for nuclear radiation: Gas-filled detectors, Ionization chamber, proportional counter, G.M. counter, Scintillation detector and Photomultiplier tube, Brief account of Semiconductor detectors.

UNIT-II
Particle Physics : Particle interactions : basic features and their exchange particles, Classification of elementary particles, properties, decay modes of leptons and mesons, Antiparticles, charge conjugation Symmetries and Conservation principles, Lepton number, baryon number, Isospin, Hypercharge, Strangeness and charm, Gellmann Nishijima formula
Concept of the quark model, color quantum number and gluons.
Origin and composition of Cosmic rays, Secondary cosmic rays, Effect of magnetic field of earth, Van Allen belts.
Particle accelerators: Cockcroft-Walton accelerator, Van-de Graaff generator, Tandem accelerator Linear accelerator, Cyclotron. Brief account of Synchrtron, Accelerator facilities available in India.

Recommended Books :

Essential Readings:
4. An Introduction to Nuclear Physics, M.R. Bhiday, and V.A. Joshi, Orient Longman.

Further Readings :
1. Concepts of Nuclear Physics, B.L. Cohen, Tata McGraw Hill
2. Fundamentals of Nuclear Physics, J. Verma, CBS.

PHYSICS PRACTICALS

The Practical examination will be held along with the sixth semester examinations. General Guidelines for Physics Practical Examinations and syllabus is given in syllabus for Semester V.
## CHEMISTRY
### SEMESTER-5<sup>th</sup>
**Scheme of Teaching and Examination**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVII</td>
<td>Inorganic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVIII</td>
<td>Organic Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIX</td>
<td>Physical Chemistry-A</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XX</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

**Total** 15 periods/week  100

### SEMESTER-6<sup>th</sup>
**Scheme of Teaching and Examination**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXI</td>
<td>Inorganic Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXII</td>
<td>Organic Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIII</td>
<td>Physical Chemistry-B</td>
<td>30 3 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIV</td>
<td>Laboratory Practicals</td>
<td>6 periods per week</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

**Total** 15 periods/week  100

**Total Marks**

<table>
<thead>
<tr>
<th></th>
<th>SEMESTER-5-100</th>
<th>SEMESTER-6-100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>
CHEMISTRY
SEMESTER-5th
Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVII</td>
<td>Inorganic Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XVIII</td>
<td>Organic Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XIX</td>
<td>Physical Chemistry-A</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XX</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

Paper-XVII: INORGANIC CHEMISTRY-A

Time : 3 Hrs
Max. Marks: 22+3
30 Hrs. (2 Hrs/Week)
3 Periods/Week

Objective of the course

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)

Metal – Ligand Bonding in Transition Metal Complexes:

Limitations of valence bond theory, an elementary idea of crystal – field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal – field parameters, Spectro chemical Series.

UNIT-II (7 Hrs.)

Thermodynamic and Kinetic Aspects of Metal Complexes :

A brief outline of thermodynamic and Kinetic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes.

UNIT-III (8 Hrs.)

Organometallic Chemistry:

Definition, nomenclature and classification of organometallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li, Al, Hg, Sn and Ti, a brief account of metal – ethylenic complexes and homogeneous hydrogenation, mononuclear carbonyls and the nature of bonding in metal carbonyls.
UNIT-IV  
(7 Hrs.)

Bioinorganic Chemistry:

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-XVIII: ORGANIC CHEMISTRY-A

Time : 3 Hrs
Max. Marks : 22+3
30 Hrs. (2 Hrs/Week)
3 Periods/Week

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I  
(7 Hrs.)

Electromagnetic Spectrum: Absorption Spectra –I:
Ultraviolet (UV) absorption spectroscopy – Absorption laws (Beer – Lambert Law), molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. UV spectra of conjugated enes and enones.
Woodward Fieser Rules and their applications in calculating maximum values of conjugated alkenes (cyclic as well as acyclic) and conjugated carbonyl compounds.
UNIT-II  
(7 Hrs.)

Electromagnetic Spectrum: Absorption Spectra-II:

Infrared (IR) absorption spectroscopy – Molecular vibrations, Hooke’s law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds.

Problems pertaining to the structure elucidation of simple organic compounds using UV, IR and PMR spectroscopic techniques.

UNIT-III  
(8 Hrs.)

Spectroscopy:

Nuclear magnetic resonance (NMR) spectroscopy.  
Proton magnetic resonance (1H NMR) spectroscopy, nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, area of signals, interpretation of PMR spectra of simple organic molecules such as ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone.

UNIT-IV  
(8 Hrs.)

Carbohydrates:


Structure of ribose and deoxyribose.

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I

Elementary Quantum Mechanics-I:

Black-body radiation, Planck’s radiation law, photoelectric effect, heat capacity of solids, Bohr’s model of hydrogen atom (no derivation) and its defects, Compton effect.

De Broglie hypothesis, the Heisenberg’s uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance, physical interpretation of the wave function, postulates of quantum mechanics, particle in a one dimensional box.

Schrodinger wave equation for H-atom, separation into three equations (without derivation), quantum numbers and their importance, hydrogen like wave functions, radial wave functions, angular wave functions.

UNIT-II

Elementary Quantum Mechanics-II:

Molecular orbital theory, basic ideas – criteria for forming M.O. from A.O., construction of M.O.’s by LCAO – H₂⁺ ion. Calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of σ, σ*, π, π* orbitals and their characteristics. Hybrid orbitals – sp, sp², sp³; calculation of coefficients of A.O.’s used in these hybrid orbitals.

Introduction to valence bond model of H₂, comparison of M.O. and V.B. models.

UNIT-III

Photochemistry-I:

UNIT-IV

(7 Hrs.)

Photochemistry-II:

Qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions – energy transfer processes (simple examples). Photochemistry of carbonyl compounds and alkenes.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper – XX: LABORATORY PRACTICALS Max. Marks: 22+3

INORGANIC CHEMISTRY

Synthesis and Analysis: 6 Periods/ week

(a) Preparation of sodium trioxalatoferrate (III), Na₃[Fe(C₂O₄)₃] and determination of its composition by permaganometry.
(b) Preparation of copper tetraammine complex [Cu(NH₃)₄]SO₄.
(c) Preparation of cis-and trans-bisoxalatodiaqua chromate (III) ion.

Instrumentation
Solvent Extraction
Separation and estimation of Mg(II) and Fe(II).

PHYSICAL CHEMISTRY

Electrochemistry

(a) To determine the strength of the given acid conductometrically using standard alkali solution.
(b) To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically.
(c) To study the saponification of ethyl acetate conductometrically.
(d) To determine the ionization constant of a weak acid conductometrically.
(e) To study the distribution of iodine between water and CCl₄.
(f) To study the distribution of benzoic acid between benzene and water.

Molecular Weight Determination

(a) Determination of molecular weight of a non – volatile solute by Rast method.
(b) Determination of the apparent degree of dissociation of an electrolyte (e.g. NaCl) in aqueous solution of the substance.

General Instruction to the Examiners:

Note: Practical examination will be of four hours duration & shall consist of the following questions:

Q.No. 1*. Preparation of an inorganic complex : 7 marks
Q.No. 2. Physical Chemistry : 7 marks

Students shall be allowed the choice to opt for one experiment out of the three offered. The candidate will write theory, short procedure and calculations of that experiments in the next 10 minutes. Note – Book / Books is/are not allowed during writing.
Q.No. 3. Viva-Voce : 5 marks

Minimum of four questions (2 marks each) be asked on the background of practical course.

Q.No. 4. Note Book : 3 marks

*If a question on preparation is asked, then the students shall be required to give Equation, requirements & short procedure in the first 10 minutes. Note Books are not allowed during writing.

Books Suggested (Laboratory Courses)

CHEMISTRY

SEMESTER-6th

Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXI</td>
<td>Inorganic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXII</td>
<td>Organic Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIII</td>
<td>Physical Chemistry-B</td>
<td>30</td>
<td>22+3 internal assessment</td>
</tr>
<tr>
<td>XXIV</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22+3 internal assessment</td>
</tr>
</tbody>
</table>

Total 15 periods/week 100

Paper-XXI: INORGANIC CHEMISTRY-B

Time : 3 Hrs
Max. Marks : 22+3
30 Hrs. (2 Hrs/Week)
3 Periods/Week

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (7 Hrs.)

Silicones and Phosphazenes:
Silicones and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.

UNIT-II (8 Hrs.)

Hard and Soft Acids and Bases (HSAB):
Classification of acids and bases as hard and soft Pearson’s HSAB concept, acid-base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness.

UNIT-III (8 Hrs.)

Electronic Spectra of Transition Metal Complexes:
UNIT-IV

Magnetic Properties of Transition Metal Complexes:

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. Correlation of \( \mu_s \) and \( \mu_{\text{eff}} \) values, orbital contribution to magnetic moments, application of magnetic moment data for 3d-metal complexes.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


Paper-XXII: ORGANIC CHEMISTRY-B

Objective of the course

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.
UNIT-I  (8 Hrs.)

**Amino Acids, Peptides, Proteins and Nucleic Acids:**

Classification, structure and stereochemistry of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Preparation and reactions of α-amino acids.


UNIT-II  (7 Hrs.)

**Synthetic Polymers:**

Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler – Natta polymerization and vinyl polymers.

Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes.

Natural and synthetic rubbers.

UNIT-III  (7 Hrs.)

**Organic Synthesis via Enolates:**


UNIT-IV  (8 Hrs.)

**Organometallic Compounds:**

Organomagnesium Compounds: The Grignard reagents – Formation, structure and chemical reactions.

Organozinc Compounds: Formation and Chemical reactions.

Organolithium Compounds: Formation and Chemical reactions.

**Instructions for paper setters and candidates:**

1. *Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.*
2. *The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.*
3. *Compulsory question carries six marks and remaining all questions carry four marks each.*

**Books suggested**

Objective of the course
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester system) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (7 Hrs.)
Solid State-I:
Definition of space lattice, unit cell and Miller Indices

UNIT-II (8 Hrs.)
Solid State-II:
X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl and CsCl (Laue’s method and powder method). Applications of Powder diffraction for structure determination, Thermal and photochemical reaction in solid state

UNIT-III (8 Hrs.)
Spectroscopy:
Introduction: Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom.
Rotational Spectrum:
Diatomic molecules. Energy levels of a rigid rotor (semi – classical principles), selection rules, spectral intensity, determination of bond length, qualitative description of non-rigid rotor, isotope effect.

UNIT-IV (7 Hrs.)
Vibrational Spectrum:
Electronic Spectrum:
Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative description of selection rules and Franck- Condon principle.
Qualitative description of $\sigma$, $\pi$ – and n M.O., their energy levels and the respective transitions.
Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


Paper – XXIV: LABORATORY PRACTICALS

ORGANIC CHEMISTRY

Laboratory Techniques
Column Chromatography
Separation of fluorescein and methylene blue.
Separation of leaf pigments from spinach leaves.

Synthesis of Organic Compounds

(a) Aliphatic electrophilic substitution.
Preparation of iodoform from ethanol and acetone.

(b) Aromatic electrophilic substitution.
Nitration
Preparation of m-dinitrobenzene
Preparation of p-nitroacetanilide
Preparation of p-iodoaniline from aniline.
Preparation of methyl orange from N,N-dimethyl aniline and sulphanilic acid.
Halogenation
Preparation of p-bromoacetanilide
Preparation of 2,4,6 – tribromophenol
(c) Oxidation
Preparation of benzoic acid from toluene.
(d) Reduction
Preparation of aniline from nitrobenzene
Preparation of m-nitroaniline from m - dinitrobenzene

**Stereochemical study of Organic Compounds via Models**
R and S configuration of optical isomers.
E, Z configuration of geometrical isomers
Conformational analysis of cyclohexanes and substituted cyclohexanes.

**General Instruction to the Examiners:**
Note: Practical examination will be of four hours duration & shall consist of the following questions:

1. Q.No. 1*. Preparation of an organic compound : 7 marks
2. Q.No. 2. Experiment based on Laboratory Technique : 7 marks

Students shall be allowed the choice to opt for one experiment out of the three offered. The candidate will write theory, short procedure and calculations of that experiments in the next 10 minutes. Note – Book / Books is/are not allowed during writing.

1. Q.No. 3. Viva-Voce : 5 marks

Minimum of four questions (2 marks each) be asked on the background of practical course.

1. Q.No. 4. Note Book : 3 marks

*If a question on preparation is asked, then the students shall be required to give Equation, requirements & short procedure in the first 10 minutes. Note Books are not allowed during writing.

**Books Suggested (Laboratory Courses)**

**BOTANY**

**B.Sc. (General) Botany Fifth and Sixth Semester Syllabus**  
*(Examinations, 2017-2018)*

<table>
<thead>
<tr>
<th>Fifth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Plant Physiology-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Plant Ecology</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
</tbody>
</table>

One practical pertaining to entire syllabus included in both theory papers  
3 hrs. 18 02 20  
20

<table>
<thead>
<tr>
<th>Sixth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int Assess.</th>
<th>Max Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Plant Physiology-II</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B: Economic Botany</td>
<td>3 hrs</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
</tbody>
</table>

One practical pertaining to entire syllabus included in both theory papers  
3 hrs. 18 02 20  
20

**Total**  
200

**Note:**

1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.
2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.
THEORY PAPER- A: PLANT PHYSIOLOGY-I

Objectives: The basic aim of this paper is to familiarize the students with various concepts of functions and metabolism of plants. The course material of this paper would enable the students to correlate structural diversity of various plant forms with functional differentiation and its biological aspects including biological nitrogen fixation and mineral nutrition. In practicals, students will be familiarize with the various experiments pertaining to theory syllabus.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc.

UNIT-I

Plant Water Relations: Importance of water to plant life; physical properties of water; imbibition, diffusion, osmosis, plasmolysis and deplasmolysis, concept of osmotic potential, water potential and pressure potential; absorption of water, active and passive mechanism of water absorption; transport of water, mechanism and theories to explain ascent of sap; transpiration types, mechanism of opening and closing of stomata, mechanism of transpiration, factors affecting transpiration, antitranspirants.

UNIT-II

Mineral nutrition: Hydroponics and its importance; essential macro-and micro elements, essentiality criteria, deficiency symptoms and their role; mineral uptake; mechanism of mineral uptake (active, passive absorption and modern concepts).

UNIT-III

Nitrogen Metabolism: Biological nitrogen fixation; importance of nitrate reductase and its regulation; ammonia assimilation.

Lipid Metabolism: Structure and function of lipids; β – oxidation; saturated and unsaturated fatty acids.

UNIT-IV

Proteins: Classification, role and structure (primary, secondary and tertiary) of proteins.

Basics of enzymology: Discovery and nomenclature; classification, structure, properties, factors affecting enzyme activity, mechanism of enzyme action.
Suggested Readings:


PAPER-B: PLANT ECOLOGY

Objective: The basic objective of this paper is to make students aware about the role of environment in causing structural and functional variation in plants. Since the present day problems of varied nature like pollution, Global Warming etc. are directly or indirectly related to ecology, it is more than desired to provide the students with knowledge of basic concepts of ecology.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Definition, scope, relationship with other sciences.

Plant Environment: Climatic, edaphic, topographic and biotic factors affecting growth and distribution of plants.

UNIT-II

Ecosystem: Concept, structure; abiotic and biotic components; trophic levels, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles of carbon, nitrogen and water.
UNIT-III

Community Ecology: Community characteristics, frequency, density cover, life forms, biological spectrum; ecological succession – Hydrosere and Xerosere.

UNIT-IV

Applied Ecology :

a) Air, water and soil pollution and their control.

b) Conservation and management of natural resources. (renewable and non-renewable)

Suggested Readings


Suggested laboratory exercises:

Plant Physiology:

1. To determine osmotic pressure of cell sap by plasmolytic method.
2. To demonstrate imbibition pressure using:
   i) Imbibition pressure apparatus.
   ii) Plaster of Paris cone.
3. To demonstrate osmosis through animal membrane/potato osmoscope.
4. To demonstrate plasmolysis and deplasmolysis.
5. To demonstrate mechanical and electrical adsorption.
6. To demonstrate the measurement of transpiration using simple potometer.
7. To demonstrate transpiration pull.
8. To study the effect of light intensity, and wind velocity on the rate of transpiration using Ganong’s potometer.
9. To compare the rate of transpiration from the two sides of a leaf using:
   i) Vaseline method
   ii) Cobalt chloride method
10. To demonstrate the mechanism of opening and closing of stomata.
11. To demonstrate the path of ascent of sap.

*Plant Ecology:*

1. Study of ecological adaptations in external characters of:
   *Hydrilla, Potamogeton, Ceratophyllum, Vallisneria, Lemna, Eichhornia Nelumbium, Calotropis, Nerium, Acacia, Zizyphus, Casuarina, Capparis, Asparagus, Ruscus, Opuntia, Euphorbia royleana.*
2. To prepare permanent stained slide to show ecological adaptations in the internal structure of the following:
   a) T.S. stem of *Hydrilla*
   b) T.S. leaf of *Potamogeton* and *Vallisneria*
   c) T.S. leaf and petiole of *Eichhornia*
   d) T.S. leaf and petiole of *Nelumbium*
   e) T.S. leaf of *Nerium*
   f) T.S. stem of *Casuarina* and *Capparis*
4. To determine water holding capacity of soil.

**Guidelines for Botany Practical Examination**

<table>
<thead>
<tr>
<th>Max. Marks:</th>
<th>Practical: 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. Assess.</td>
<td>02</td>
</tr>
<tr>
<td>Time:</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner. 6
2. Identify and cut T.S. of stem, leaf or petiole (to be announced by the examiner) of specimen B. Make its permanent stained slide and show it to the examiner. Draw its labelled diagram and write its morphological and anatomical characters of ecological importance. 6
3. Practical note-book 3
4. *Viva-voce* 3
PAPER-A: PLANT PHYSIOLOGY-II

Objectives: The main objective of this paper is to familiarize the students with growth and metabolic processes of the plants. It also deals with the plant development, differentiation and their regulatory mechanism along with basic concepts in tissue culture.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students will be familiarize with the various experiments pertaining to theory syllabus.

UNIT-I

Photosynthesis: Significance, historical aspect; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems, cyclic and non- cyclic photophosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration; factors affecting photosynthesis; transport of organic substances: Mechanism of phloem transport, source-sink relationship, factors affecting translocation.

UNIT-II

Respiration: ATP – The biological energy currency; aerobic and anaerobic respiration; Krebs cycle; electron transport mechanism (Chemi-osmotic theory); redox potential; oxidative phosphorylation; pentose phosphate pathway; respiratory quotient.

UNIT-III

Growth and development: Definitions; phases of growth and development; kinetics of growth, factors affecting growth; plant movements; the concept of photoperiodism, physiology of flowering; florigen concept; roles of plant hormones– auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery.

UNIT-IV

Biotechnology: Functional definition; basic aspects of plant tissue culture, its applications and somatic hybridization.
Suggested Readings:


PAPER-B: ECONOMIC BOTANY

Objective: The basic objective of this paper is aimed to give an insight into plant wealth such as medicinal plants; crop plants; beverages; spices; condiments; sugar; fiber; pulp & oil yielding plants of commercial & economic importance. Both the aspects of this paper give a sound basis of ecology and economic botany so that students can venture into fields like Environmental Biology, Conservation Biology, Forestry, Agriculture, Horticulture and Crop production etc.

Teaching Methodology: Teaching methodology includes series of lectures making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of:

i) Cereals (Wheat, Rice and Maize)
ii) Fibres (Cotton)
iii) Vegetables (Potato)
UNIT-II

Crop production: Area of cultivation, soil requirement, cultivation practices and high yielding varieties of:

i) Fruits (Mango, Grapes, Lemon)
ii) Sugar-yielding plants (Sugarcane)
iii) Oil-yielding plants (Groundnut, Mustard)

UNIT-III

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance):

i) Wheat, Maize, Rice, Moong, Gram (Food).
ii) Teak, Shisham, Deodar, Sal (Timbers).
iii) Cotton, Jute, Coir, Flax (Fibres).
iv) Fennel, Coriander, Turmeric, Ginger, Mint, Clove (Spices and Condiments).

UNIT-IV

Elementary knowledge of the following plants (Botanical names, families, parts used and economic importance):

i) Bamboo, Eucalyptus (Pulp plants).
ii) Liquorice, Belladona, Aconite, Ashwagandha, Arjun, Poppy, Amla (Medicinal plants).
iii) Tea and Coffee (Beverages).

Forestry: Forest conservation, wood seasoning and its preservation.

Suggested Readings

Suggested laboratory exercises:

**Plant Physiology:**

1. To demonstrate that chlorophyll is necessary for photosynthesis.
2. To demonstrate that light is necessary for photosynthesis.
3. To demonstrate that CO2 is essential for photosynthesis.
4. To demonstrate evolution of oxygen during photosynthesis in an aquatic plant.
5. To study the effect of light intensity and CO2 concentration on the rate of photosynthesis using an aquatic plant.
6. To demonstrate aerobic respiration using flask method.
7. To demonstrate anaerobic respiration in germinating seeds or yeast.
8. To demonstrate the activity of amylase.
9. To demonstrate the activity of catalase in plant tissue (germinating seeds).
10. To demonstrate phototropism.
11. To demonstrate geotropism using clinostat.
12. To test for the presence of starch, proteins, amino acids, and reducing sugars in plant material.

**Economic Botany:**

Identification and morphology of economically important part/s of crop plants mentioned below:

- Cereals (wheat, rice)
- Fibres (cotton)
- Vegetables (potato)
- Fruits (mango, grapes, lemon)
- Sugar-yielding plants (sugarcane)
- Oil-yielding plants (groundnut, mustard)

Guidelines for Botany Practical Examination

<table>
<thead>
<tr>
<th>Max. Marks: 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical: 18</td>
</tr>
<tr>
<td>Int. Assess. 02</td>
</tr>
<tr>
<td>Time: 3 hours</td>
</tr>
</tbody>
</table>

1. Write material required, procedure and precautions for physiology experiment A (to be announced by the examiner). Perform the experiment, record observations, calculations if any, and results and show the experiment to the examiner. 6
2. Identify and write illustrated morphological notes on specimens B & C giving their economic importance. 6
3. Practical note-book 3
4. Viva-voce 3

-------------------
OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Semester V, in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Seashores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.

PAPER I: DEVELOPMENTAL BIOLOGY (ZOO-501)

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

UNIT-I

Gametogenesis with particular reference to differentiation of spermatozoa. Vitellogenesis, role of follicle/subtesticular cells in gametogenesis.

Egg maturation : egg membranes : polarity of egg.

UNIT-II

Fertilization, parthenogenesis.

Cleavage : Types of cleavage patterns depending upon amount and distribution of yolk and position of spindle. Blastula and types of blastula.

Fate maps of chick and frog embryos.
UNIT-III

Induction: cell to cell interactions: juxtacrine, paracrine, gap junctions; basic concepts of organizers and inducers and their role. Determination and differentiation.

Development up to three germ layers in *Herdmania, Amphioxus*, frog, chick and rabbit.

UNIT-IV

Foetal membranes, their formation and role.

Mammalian placenta – its formation, types and functions.

Metamorphosis in *Herdmania* and *Rana* (frog)

**Note:** Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

**Books Recommended**


**Practical based on Theory Paper**

1. Study of the development of frog from permanent slides.
2. Window preparation and identification of stages of development in chick egg.
3. Study of the development of chick embryo from permanent slides up to 96 hours.
4. Study of the following permanent slides:
   a. Stages of gametogenesis, structure of egg and sperm of a mammal.
   b. Larva of *Herdmania.*
Paper II: APPLIED ZOOLOGY-I

Max. Marks : 40
Theory : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note: Students are required to opt any one of the following:

1. Medical Zoology and Medical Laboratory Technology-I
2. Economic Entomology and Pest Management-I
3. Inland Fisheries & Aquaculture-I

OPTION I: MEDICAL ZOOLOGY & MEDICAL LABORATORY TECHNOLOGY-I
(ZOO-502A)

UNIT-I

Introduction to parasitology (pertaining to various terminologies in use).
Brief introduction to pathogenic microbes. Viruses, Rickettsiae, Spirochaetes and Bacteria.
Epidemic diseases, such as typhoid, cholera, small pox; their occurrence and eradication programmes.

UNIT-II

Brief accounts of life history, mode of infection and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment:

Pathogenic protozoans: Entamoeba, Trypanosoma, Leishmania, Giardia, Trichomonas; and Plasmodium.

UNIT-III

Pathogenic helminthes: Fasciolopsis, Schistosoma, Echinococcus, Ancylostoma, Trichinella, Wuchereria, Dracunculus and Oxyuris.

UNIT-IV


Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.
**Books Recommended**


**Practicals based on Theory Paper** ZOO-502A (ZOO-352A)

1. Demonstration of parts of microscope, its functioning and care.
2. Study of permanent slides and specimens of parasitic protozoans, helminthes and arthropods mentioned in theory syllabus.

**OPTION-II: ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT-I (ZOO-502B)**

**UNIT-I**

Development of Insects: Different type of metamorphosis along with a study of different kinds of larvae and pupae.

Systematic position, habits and nature of damage of the following pests of crops and vegetables:

I. **Sugarcane**:
   1. Sugarcane leaf hopper (*Pyrihiperpusila*) alongwith life cycle and control measures.
   2. Sugarcane top borer (*Scirphaganiella*)
   3. Sugarcane stem borer (*Chilotreainfuscatellus*)

II. **Cotton**:
   1. Pink bollworm (*Pectinophoragossypiella*) alongwith life cycle and control measures.
   2. Red cotton bug (*Dysdercuscinglulatus*)
   3. Cotton grey weevil (*Myllocerusalmaculosus*)
   4. Surface grasshopper (*Chrotogonustrachypterus*)
   5. Cotton jassid (*Empoascadevastans*)

**UNIT-II**

III. **Paddy**:
   1. Rice Gundhy Bug (*Leptocorisavaricornis*) alongwith life cycle and control measures.
   2. Rice grasshopper (*Hieroglyphyusbanian*)
   3. Rice Hispa (*Dicladispaarmigera*)

IV. **Wheat**:
   1. Wheat stem borer (*Sesamiainferens*) alongwith life cycle and control measures.
   2. Termites (*Microtermesobesi*)
   3. Aphids (*Macrosiphummiscanthi*) Jassids (*Amrasca sp.*)
V. **Vegetables**:
1. Red pumpkin beetle (*Aulacophorafoveicollis*)
2. Pumpkin fruit fly (*Dacus cucurbitae*) along with life cycle and control measures.
3. Hadda beetle (*Epilachnavigintioctopunctata*)

**UNIT-III**

VI. **Pests of Stored Grains**: Systematic position, habits and nature of damage of the following pests of stored grains:
1. Pulse Beetle (*Callosobruchus maculatus*) along with life cycle and control.
2. Rice weevil (*Sitophilus oryzae*)
3. Khapra beetle (*Trogoderma granarium*)
4. Rust red flour beetle (*Tribolium castaneum*)
5. Lesser grain borer (*Rhizoperthadominica*)
6. Rice moth (*Corcyra cephalonica*)

**UNIT-IV**

Systematic position, disease caused and control of the following insects of Medical and Veterinary importance:
1. Mosquitoes (*Aedes*, *Anopheles*, *Culex*)
2. Sand fly (*Phlebotomus minutus*)
3. House fly (*Musca domestica*) along with life cycle of house fly.
4. Horse fly (*Tabanus striatus*)
5. Blow fly (*Calliphora erythrocephala*)
6. Warble fly (*Hypoderma lineatum*)
7. Poultry louse (*Menopon gallinae*)
8. Sucking louse (*Haematopinus sury sternus*)
9. Fleas (*Xenopsylla cheopis*)

**Note:** Nine questions are to be set. Question No. 1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

**Books Recommended**

Practicals based on Theory Paper ZOO-502B (ZOO-352B)


2. External morphology and identification marks of the following stored grain pests: *Sitophilus oryzae* (Rice weevil), *Tribolium castaneum* (Rustred flour beetle), *Rhizopertha dominica* (Lesser grain borer/susri), *Trogoderma granarium* (Khapra beetle), *Callosobruchus smaculatus* (Pulse beetle/Dhora).

3. External morphology and identification marks of the following insects of Medical/Veterinary importance—Mosquitoes (*Culex, Anopheles and Aedes*), house fly (*Musca domestica*), blow fly (*Calliphora erythrocephala*), warble fly (*Hypoderma lineatum*), and horse fly (*Tabanus striatus*).

4. A study of different types of larvae and pupae of insects through slides, charts etc.

OPTION III: INLAND FISHERIES & AQUACULTURE-I (ZOO-502C)

**UNIT-I**

- Morphology of a typical fish (Carp, Catfish, Eel, Perch)
- Culturable fishes: Characters of culturable fishes, Indian major carps, saltwater fishes, exotic species and air breathing fishes.

**UNIT-II**

- Structure of mouth of different fishes in relation to feeding habits
- Bionomics of *Labeorohita, Catla Catla, Cirrhinusmrigala, Wallago attu*.
- Food value of Fish (Vitamins, Amino acids, Minerals etc.)

**UNIT-III**

- Exotic fishes: History, their introduction, morphology, their role in fish culture and impact on native fish fauna.
- Induced Breeding: History, technique, chemicals involved in induced breeding and impact on fish culture.

**UNIT-IV**

- Pond culture: Construction of pond, types of pond, hydrobiological factors of water and soil of a fish pond, fertilization of pond, maintenance of pond.
- Aquatic weeds and their control both biological and chemical.

**Note:** Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.
Books recommended


Practicals based on Theory Paper ZOO-502C (ZOO-352C)


2. Morphometric and meristic characters of a typical fish.

3. Identification of the following fishes using keys to the species: *Notopterus notopterus*, *Labeo rohita*, *L. colbasu*, *L. bata*, *Cirrhinus mrigala*, *Catla catla*, *Puntius sarana*, *Tor putitora*, *Schizothorax richardsonii*, *Aorichthys seenghala*, *Wallago attu*, *Bagarius bagarius*, *Heteropeustus fossilis*, *Channamaruluis*, *C. striatus*, *Xenentodon cancila*, *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Colisa fasciatus*, *Mastacembelus armatus*.

For the identification of the fishes, the students can use already prepared keys or can prepare their own keys.

4. Determination of maturity stages (both male and female) of any commercial fish (preserved specimens) through slides/charts etc.

5. Preparation of permanent slides of phytoplanktons and zooplanktons which constitute the food of commercial fishes. Their identification and study of important characters.

6. Identification of common aquatic weeds of a fish pond.

7. Study of various exotic fishes (*Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Cyprinus carpio*, *Gambusia affinis*, *Salmo trutta fario*, *salmo gairdneri*, *gairdneri*) with respect to the purpose with which they were introduced.

8. Study of endemic culturable fish species (*Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*)
Guidelines for the conduct of Practical Examinations:

Max. Marks : 20 marks
Practical Exam : 18 marks
Internal Assessment : 2 marks
Time : 4 hours

1. Identify the developmental stage of chick embryo by window preparation.  2.5
2. Identify the slides A, B & C. Give two reasons for each identification 4.5
3. Viva-Voce 2
4. Practical Note Book and Project Report  2

Option-I
5. To identify the specimens D, E & F. Write the disease caused by each and two reasons for their identification. 4.5
6. Identify the given instrument. Write about its uses and functions. 2.5

Option- II
5. To identify the specimens D, E & F belonging to crop and stored grain pests. Give one outstanding character of each. 4.5
6. Identify specimen/slide G. Give its one outstanding morphological character and medical/veterinary importance. 2.5

Option- III
5. Giving two identification features identify specimen D & E.  2
6. Identify specimen ‘F’. Give the purpose for which this fish has been introduced. 1
7. Identify the slides G & H. Give one identification features of each. 2
8. Identify the weed ‘I’ and write its common identification features. 2

--------
ZOOLOGY

SEMESTER -VI

Paper I: GENETICS 40 (36 +4) marks
Paper II: APPLIED ZOOLOGY-II 40 (36 + 4) marks
Practical (Covering the entire syllabus) of 4 hours duration 20 (18 +2) marks

Total: 100 marks

Note: The number of hours for Theory and Practical per week shall be 6 hours and 4 hours, respectively.

OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Semester VI, in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Seashores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.

PAPER I: GENETICS (ZOO-601)

UNIT-I

Modification of Mendelian ratios:
Non-allelic gene interaction, Modified F_2 ratios.
Gene modifications due to incomplete dominance, lethal factors (2:1), Pleiotropic genes.
Multiple Alleles: Blood group inheritance, eye colour in Drosophila, pseudo-allelism.
Multiple factors: Qualitative and quantitative characters, inheritance of quantitative traits (skin colour in man).

UNIT-II

Linkage, crossing over and recombination: Linkage, sex-linked characters, crossing over, frequency of crossing over, cytological basis of crossing over, synaptonemal complex. Recombination in Fungi, (tetrad analysis).
Properties of genetic code, codon assignment, wobble hypothesis.
Extranuclear inheritance: Kappa particles in Paramaecium.
UNIT-III


UNIT-IV


Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

Books Recommended


Practicals based on Theory Paper ZOO-601(ZOO-353)

1. Demonstration of Law of segregation, Independent assortment and epistasis (use of coloured beads or capsules etc.). Numericals for segregation and Independent assortment.
2. Segregation demonstration in preserved material (Maize).
3. Cytoplasmic inheritance in *Mirabilis jalapa*.
4. Inheritance of other human characteristics, ability to taste, PTC, thiourea.
5. Comparison of variance in respect of pod length and number of seeds/pods.
6. Calculation of gene frequencies and random mating (coloured beads or capsules).
7. Study of polytene chromosomes of *Chironomus/Drosophila* through photographs.
8. Dermatographics: Palm print taking and finger tip patterns.
Paper II: APPLIED ZOOLOGY-II

Max. Marks : 40
Theory : 36 marks
Internal Assessment : 4 marks
Time : 3 hours

Note: Students are required to opt any one of the following:
1. Medical Zoology and Medical Laboratory Technology-II
2. Economic Entomology and Pest Management-II
3. Inland Fisheries & Aquaculture-II

OPTION I: MEDICAL ZOOLOGY AND MEDICAL LABORATORY TECHNOLOGY-II
(ZOO-602A)

UNIT-I
Brief introduction to human defence mechanisms.
Humoral and cell mediated immune-response, Antigens-physical & chemical properties.

UNIT-II
Antibodies - structure and function of immunoglobulin M, G, A, E and D.
Antigen and antibody interactions : Serodiagnostic assays.
Vaccines and their types.

UNIT- III
Laboratory safety rules, hazards and precautions during sample collection and laboratory investigations.
Laboratory techniques: Colorimetry, Microscopy (student’s and electron microscope), Autoclaving,
Centrifugation, Spectrophotometry.
Haematology : Collection of blood (Venous and Capillary), Anticoagulants (merits and demerits),
Romanowsky’s stains,

UNIT- IV

Bacteriology : Sterilisation, (dry heat, moist heat, autoclave, filtration), Disinfection, Staining techniques
(gram’s stain, AFB stain, etc), Culture media (Defined & Synthetic media & routine laboratory media),
Bacterial culture (aerobic and anaerobic), Antibiotic sensitivity.

Biochemistry : Protein estimation, Estimation of blood urea, blood sugar and urine analysis.

Histopathology : Common fixatives and staining techniques, Histochemistry : Principle and method :
Staining of carbohydrates, proteins and fats with bromo phenol blue, Periodic acid Schiff, Sudan Black blue
and Feulgen reaction.
Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

Books Recommended


Practicals based on Theory Paper ZOO-602A (ZOO-354A)

1. Demonstration of safety rules in laboratory like proper handling of patients specimens and disposal of syringes, needles etc.
2. Demonstration of the use of autoclave, centrifuge and spectrophotometer.
3. Cleaning and sterilization of glassware using hot air oven, autoclave etc.
4. Demonstration of various equipments for the estimation of hemoglobin, WBC, RBC, ESR.
5. Estimation of sugar and protein in a sample.
6. Procedure of Fixation, embedding, cutting of tissue sections and their staining (Routine Haematoxylin and Eosin and special staining with BPB, PAS, SBB and Feulgen reaction) (Theory only).
7. Study of permanent slides-Thymus, spleen & lymph node.

OPTION-II: ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT-II (ZOO-602B)

UNIT-I

Comparative studies of mouth parts in Grasshopper, Honeybee, Butterfly, Red-Cotton bug and Mosquito.

Major modifications in the antennae and legs of insects.

1. Sericulture
   (i) Species of silkworm
   (ii) Requirements of Sericulture Industry
   (iii) Grainage Management
   (iv) Pre and Post-cocoon processing (Stifling & Reeling)
   (v) Diseases of silkworm.
UNIT-II

2. Apiculture
   (i) Species of Honeybees
   (ii) Flora for Apiculture
   (iii) Methods & Appliances of Bee Keeping
   (iv) Products - (a) Honey (b) Bee wax (c) Propolis (d) Pollen (e) Royal Jelly (f) Bee Venom
   (v) Diseases of Honey bee

3. Lac Culture
   (i) Species and varities of Lac insect
   (ii) Host Plants
   (iii) Cultivation of Lac
   (iv) Processing of Lac
   (v) Lac Industry
   (vi) Enemies of Lac insect.

UNIT-III

I. Chemical Control: Types and Classification of Insecticides (a) Insecticides of plant origin with special reference to vicotine; Pyrethrum; Rotenone and Azadirachtin (b) Chlorinated Hydrocarbons insecticides with special reference to DDT; Toxaphene; BNC; Chlordane; Aldrin; Endrin and Endosulfan (c) Organophosphorus Insecticides with special reference to Malathion; TEPP; Parathion and DDVP (d) Carbamate Insecticides with reference to Carbaryl and Carbofuran (e) Fumigants with reference to Hydrogen cyanide; Methyl bromide; Ethylene dichloride; Carbon tetrachloride and Aluminium phosphide. Hazards of chemical control. List of banned pesticides.

UNIT-IV

II. Recent methods of Pest Control:
   • Biological Control: History; Techniques in biological control, Agents of biological Control (a) Vertebrates (b) Nemathelminthes (c) Arthropods (d) Protozoan; Microbial control with the help of Bacteria, Virus and Fungi.
   • Integrated Pest Control: Introduction of IPM: Pre-requisites; Implementation Strategy; Framework of IPM programme and perspectives in IPM.

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.
Books Recommended


Practicals based on Theory Paper ZOO-602B (ZOO-354B)

1. Study of Mouth parts of honey bee, butterfly and red cotton bug from permanent mounts.
2. Study of different types of antennae, legs and wings through preserved specimens and permanent slides.
5. Visit to apiary and godowns for study of infestation and project report.

OPTION III - INLAND FISHERIES & AQUACULTURE-II (ZOO-602C)

UNIT-I
- Fishing gears: Classification of the fishing gears according to the habitats in which they are being used, Electrical fishing.
- Culture systems: Monoculture and polyculture

UNIT-II
- Pearl culture in India: Species used, implantation procedures, water quality requirements and economics
- Fish seed resources and their transport

UNIT-III
- Prawn culture: Culture of fresh water prawn, culture technology
- Cold water fisheries: Mahseer fisheries and trout fisheries
- Fish Diseases and their control: Viral, bacterial, fungal, protozoan, helminth, crustacean, diseases due to unhygienic conditions, diseases during transportation.
UNIT-IV

- Fish by-products
- Fish marketing
- Fish preservation: Principles of fish preservation, preservation by curing (Drying, Salting and Smoking), Chilling and freezing of fish, Canning of fish and fish products, Spoilage of fish, Rigor mortis

**Note:** Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

**Books recommended**


**Practicals based on Theory Paper ZOO 602C (ZOO-354C)**

1. Determination of food and feeding habits of locally available fishes on the basis of stomach analysis adopting the following methods:
   a. Frequency occurrence method
   b. Feeding intensity
   c. Point method.
2. Estimation of following chemical parameters of the water of a fish pond:
   a. Temperature
   b. pH
   c. Dissolved oxygen
   d. Phosphates
   e. Total dissolved solids
   f. Nitrates
   g. Hardness
   h. Chlorides
3. Visits to various fish ponds and fish market.
4. Study of various fresh water prawn species cultured in India.
Guidelines for the conduct of Practical Examinations

Max. Marks : 20
Practical Exam : 18 marks
Internal Assessment : 2 marks
Time : 4 hours

1. Demonstrate the law of independent assortment/segregation/epistasis from the material provided. Identify the characters involved showing the dominance/recessiveness of characters.

   OR

   Calculate the gene frequency from a known sample of characteristics using Hardy-Weinberg Law.

2. Make a dermatographic print of your finger tips or palm pattern and classify the various visible patterns with the help of diagrams and demonstrate it to the examiner.

3. Identification of polytene chromosomes from the photograph provided.

4. Viva-Voce

5. Practical Note Book and Project Report

Option-I

6. Identify the slide and give two reasons for identification.

7. Identify the instrument/apparatus (Autoclave/centrifuge/spectrophotometer/microtome etc.). Write about its uses and working.

8. Quantitative estimation of sugar/protein in the given sample

Option- II

9. Identification of mouth parts/antennae/legs/wings from charts/slides/specimens

10. Mention the type of larva/pupa/stages of life history of silkworm, honeybees, lac insect. Write a note on its external morphology.

11. Name the apparatus provided. Draw its well labeled diagram and explain its structure and working.

Option- III

12. Identify the gear ‘A’ and draw its well labeled diagram.

13. Identify specimens B & C giving one identification feature of each.


15. Write the habit and habitat of given specimen (Cold water fish)’D’.
BIO-CHEMISTRY
SEMESTER V

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least
   one question from each of the 4 sections.

Paper A: Molecular Biology – I                  Marks: 45+5

Objective: To understand aspects of storage and expression of genetic information. Membrane structure and function.

SECTION-I
(Lectures: 10)

SECTION-II
(Lectures: 10)

SECTION-III
(Lectures: 10)
Transcription: initiation, elongation, termination regulation, processing & Inhibitors of transcription.

SECTION-IV
(Lectures: 10)
Genetic code, amino acid activation, initiation, elongation, termination and inhibitors of translation.

Books Suggested :
Paper B: Applied Biochemistry – I

Objective: To understand general aspects of vitamins, hormones, nutrition, immunology, blood coagulation, muscle contraction and nerve impulse transmission.

SECTION-I

(Lectures: 10)

Vitamins: water soluble & fat soluble, their sources, structure & biochemical function

SECTION-II

(Lectures: 10)

Essential nutrients. Protein energy malnutrition, starvation and obesity. Respiratory quotient (R.Q.) of carbohydrates, proteins and lipids. Basic metabolic rate and factors influencing it. Specific dynamic action of foods

SECTION-III

(Lectures: 10)

Biochemical principles of toxicology. Phase I reactions and cytochrome P 450 enzyme systems. Phase II reactions and various conjugation systems. Effects of nutritional status and metabolic induction on xenobiotic toxicity; importance of physico–chemical properties of toxic chemicals. Biochemical basis of organophosphate and carbamate pesticides toxicity.

SECTION-IV

(Lectures: 10)

Hormones: classes, modes of action, endocrine glands & their hormones.

Books Suggested:


PRACTICALS:

Marks: 25

One Practical of three hours per week

1. Estimation of DNA by diphenylamine method.
2. Effect of temperature on the Viscosity of DNA using Oswald’s viscometer.
3. Assays of SGPT and SGOT in serum.
5. Determination of total protein and A/G ratio in serum.
BIO-CHEMISTRY

SEMESTER -VI

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper A: Molecular Biology – II
Marks: 45+5

Objective: To understand aspects of storage, expression and regulation of genetic information.

SECTION-I
(Lectures: 10)
Targetting of proteins to different cell organelles. Post & co-translational modification of proteins. DNA binding domains of protein. Regulation of prokaryotes gene expression. Concept of operon, regulation of lac operon, trp-operon, phage infection (lysogenic & lytic mode)

SECTION-II
(Lectures: 10)
Regulation of enkaryotic gene expression. transcription factors: Zn fingers and leucine zipper. Roles of RNA regulators. hormonal control of transcription.

SECTION-III
(Lectures: 10)

SECTION-IV
(Lectures: 10)
Analysing genome, genome size, genome sequencing, microarrays, DNA finger printing, SNPs and applications in diseases and forensic.

Books Suggested:
Paper B: Applied Biochemistry – II  
Marks: 45+5

Objective: Providing the student a comprehensive knowledge of physiology with emphasis on immune system and techniques in use; blood, muscle and nerve. This course will explain and demonstrate important techniques being used for analysis of blood. It will also enable the students to understand how the fundamental systems work in tandem for keeping the body fit.

SECTION-I  
(Lectures: 10)

SECTION-II  
(Lectures: 10)

SECTION-III  
(Lectures: 10)

SECTION-IV  
(Lectures: 10)
Central nervous system, peripheral nervous system, action potential, neurotransmitters, synapses & nerve gases. Mechanism of nerve impulse transmission: structure, classification and functions of neurons and neuroglia. The resting membrane potential & action potential. Properties of nerve fibers: excitability, conductivity, all or none law, accommodation, adaptation, summation, refractory period, indefatigability. Synapses: types, structure, synaptic transmission of the impulse, synaptic potentials, neurotransmitters, cotransmitters, neuromodulators. The neuromuscular junction: structure, transmission, end-plate potential.

Books Suggested:
PRACTICALS:

 Marks : 25

One Practical of three hours per week

1. Separation of serum/plasma from blood.
2. Use of different anticoagulants.
4. Use of Haemocytometer.
5. Determination of clotting time of blood.
7. Visualizing antigen-antibody precipitation in gel.
8. Agglutination assay.
9. Separation of proteins by SDS-Polyacrylamine Gel Electrophoresis
10. Liver function tests.
### MICROBIOLOGY

#### SEMESTER - V

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Theory Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC 501</td>
<td>Pathogenic Microbiology-I</td>
<td>3 hrs</td>
<td>37.5</td>
</tr>
<tr>
<td>MIC 502</td>
<td>Food and Industrial Microbiology-I</td>
<td>3 hrs</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**PRACTICAL**

One Practical pertaining to the entire syllabus included in Theory Papers MIC 501 and MIC 502. 3 hrs 25 (20+5*)

#### SEMESTER - VI

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Theory Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC 601</td>
<td>Pathogenic Microbiology-II</td>
<td>3 hrs</td>
<td>37.5</td>
</tr>
<tr>
<td>MIC 602</td>
<td>Food and Industrial Microbiology-II</td>
<td>3 hrs</td>
<td>37.5</td>
</tr>
</tbody>
</table>

**PRACTICAL**

One Practical pertaining to the entire syllabus included in Theory Papers MIC 601 and MIC 602. 3 hrs 25 (20+5*)

*Note:* * Denotes marks for the Internal Assessment.
MICROBIOLOGY
MIC 501-PATHOGENIC MICROBIOLOGY-I
SEMESTER- V

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A

Introduction to important diseases caused by Streptococcus, Pneumococcus, Neisseria, Corynebacterium, Bacillus, Clostridium, Proteus. The operative mechanisms, laboratory diagnosis, prevention and control of these diseases.

Section B


Section C

Introduction to Human mycotic infections viz Superficial, Cryptococcosis and Dermatophytosis.

Section D

Life cycle, pathogenic mechanisms and control of parasitic infections viz. amoebiasis, Kala-azar and Toxoplasmosis.
MICROBIOLOGY
MIC502-FOOD AND INDUSTRIAL MICROBIOLOGY-I
SEMESTER -V

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.
(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Food as substrate for microorganisms, Nutritive value of food stuffs, Effect of Hydrogen ion concentration (pH), moisture requirement on food, Important food borne diseases viz. Staphylococcal intoxication, Botulism, Salmonellosis and Shigillosis.

Section B
Contamination, preservation and spoilage in various foods viz. cereal and cereal products (cereal grains, flour, bread, pasta, macroni), Sugar and sugar products (Maple, Syrup, Honey, Candy).

Section C
Production strains, Isolation and screening techniques, preservation and genetic modification of Industrial microorganisms.

Section D
Yeast (Baker’s) and its uses, Fermentation of Beer, Wine and Alcohol.

Recommended Books :

**MICROBIOLOGY**

**PRACTICAL**

**SEMESTER- V**

**MAX. MARKS: 25 MARKS**

**PRACTICAL: 20 MARKS**

**INTERNAL ASSESSMENT: 5 MARKS**

**TIME: 3 HRS.**

1. Identification of both Gram positive and Gram negative bacteria on the basis of:
   i) Morphology
   ii) Biochemical characteristics
   iii) Serological reactions
2. Demonstration of pathogens (Viruses, fungi, parasites) in permanent mounted slides
3. Demonstration of cysts/ ovas of Protozoa/ Helminths.
4. Demonstration of Laboratory grown fungi on Sabauraud’s agar
5. Germ tube test for *Candida albicans*
MICROBIOLOGY

MIC601-PATHOGENIC MICROBIOLOGY-II

SEMESTER- VI

MAX. MARKS: 37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.

(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A

Introduction to important diseases caused by Shigella, Salmonella, Vibrio, Yersinia, Hemophilus and Mycobacterium. The operative mechanisms, laboratory diagnosis, prevention and control of these diseases.

Section B

Morphology, pathogenesis, life cycle, laboratory diagnosis, prevention and control of viral diseases viz. Herpes, Influenza and AIDS

Section C

Introduction to Human mycotic infections viz Blastomycosis, Opportunistic mycosis; Candidiasis and Aspergillosis.

Section D

Life cycle, pathogenic mechanisms and control of parasitic infections viz. Ascariasis, Filariasis and Hookworm infections
MICROBIOLOGY
MIC602-FOOD AND INDUSTRIAL MICROBIOLOGY-II

SEMESTER- VI

MAX. MARKS:37.5 MARKS
THEORY: 33 MARKS
INTERNAL ASSESSMENT: 4.5 MARKS
TIME: 3 HRS.
(THREE PERIODS PER WEEK)

Note: The question paper will consist of four sections (A-D). There will be nine questions and five questions have to be attempted. Question 1 will span the complete syllabus and will be compulsory. Rest eight questions will be from different sections of the syllabus. There will be two questions from each of four sections and one is to be attempted. Each question will be subdivided into 2-4 sub-parts.

Section A
Qualitative and Quantitative analysis of food components (proteins, lipids, carbohydrates), Microbiological examination of food products including dairy products, food poisoning caused by bacteria and fungi.

Section B
Contamination, preservation and spoilage in various foods viz. Vegetables and fruits, Meat (Fresh meat, fresh beef, hamburger, fish), Milk and milk products (Cheese, butter)

Section C
Fermentation media, Characteristics of Ideal production media, Common substrates used in Ideal fermentations, Batch and continuous fermentations

Section D
Production of organic acids viz. acetic acid, lactic acid, propionic acid, butyric acid and mixed acids. Mass transfer in aerobic fermentations

Recommended Books:

**MICROBIOLOGY**

**PRACTICAL**

**SEMESTER- VI**

MAX. MARKS: 25 MARKS
PRACTICAL: 20 MARKS
INTERNAL ASSESSMENT: 5 MARKS
TIME: 3 HRS.

1. Demonstration of Fungi through normal saline/KOH preparation
2. Quantitative examination of microbial types in raw processed preserved food stuffs
3. Direct microscopic examination of bacteria in raw, pasteurised milk
4. Methylene reductase test for milk
5. Various biochemical tests and their importance in Food Microbiology

------------------------
ELECTRONICS

(Kept in Abeyance)
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947 – enacted by the Govt. of India)

FACULTY OF BUSINESS MANAGEMENT AND
COMMERCE

SYLLABI

FOR

B.Com. (General & Hons.)
(Semester System)
For the Examinations 2017-2018

© The Registrar, Panjab University, Chandigarh.
All Rights Reserved.
SCHEME OF B.Com COURSE (General and Hons.)

Semester – I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 101 A</td>
<td>PUNJABI OR HISTORY AND CULTURE OF PUNJAB</td>
<td>50</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCM 101 B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCM 102</td>
<td>ENGLISH AND BUSINESS COMMUNICATION</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 103</td>
<td>INTERDISCIPLINARY PSYCHOLOGY FOR MANAGERS</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 104</td>
<td>BUSINESS ECONOMICS-I</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 105</td>
<td>PRINCIPLES OF FINANCIAL ACCOUNTING**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 106</td>
<td>COMMERCIAL LAWS</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 107</td>
<td>PRINCIPLES AND PRACTICES OF MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

Semester – II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 201 A</td>
<td>PUNJABI OR HISTORY AND CULTURE OF PUNJAB</td>
<td>50</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCM 201 B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCM 202</td>
<td>ENGLISH AND BUSINESS COMMUNICATION</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 203</td>
<td>INTERDISCIPLINARY E-COMMERCE</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 204</td>
<td>BUSINESS ECONOMICS-II</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 205</td>
<td>CORPORATE ACCOUNTING**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 206</td>
<td>BUSINESS LAWS</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 207</td>
<td>HUMAN RESOURCE MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ENVIRONMENT, ROAD SAFETY EDUCATION AND VIOLENCE</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AGAINST WOMEN &amp; CHILDREN*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Semester – III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 301</td>
<td>INTERDISCIPLINARY ISSUES IN INDIAN COMMERCE</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 302</td>
<td>COST ACCOUNTING**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 303</td>
<td>COMPANY LAW</td>
<td>100</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>BCM 304</td>
<td>BUSINESS MATHEMATICS AND STATISTICS **</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 305</td>
<td>BANKING AND INSURANCE</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 306</td>
<td>GOODS AND SERVICES TAX (GST)**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

### Semester-IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 401</td>
<td>INTERDISCIPLINARY SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 402</td>
<td>ADVANCED ACCOUNTING**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 403</td>
<td>AUDITING AND SECRETARIAL PRACTICE</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 404</td>
<td>COST MANAGEMENT**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 405</td>
<td>MARKETING MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 406</td>
<td>QUANTITATIVE TECHNIQUES AND METHODS**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
### Semester-V

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 501</td>
<td>INCOME TAX LAW**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 502</td>
<td>MANAGEMENT ACCOUNTING**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 503</td>
<td>INDIAN ECONOMY</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 504</td>
<td>PRODUCTION AND OPERATION MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 505</td>
<td>ENTREPRENEURSHIP AND SMALL BUSINESS</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 506</td>
<td>FINANCIAL MARKETS AND SERVICES</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

### Semester-VI

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Maximum Marks</th>
<th>Number of Lectures (L) Per Week</th>
<th>Tutorials (T) Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM 601</td>
<td>DIRECT TAX LAWS**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 602</td>
<td>FINANCIAL MANAGEMENT</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 603</td>
<td>ISSUES IN FINANCIAL REPORTING</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 604</td>
<td>SOCIAL AND BUSINESS ETHICS</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 605</td>
<td>OPERATIONAL RESEARCH**</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BCM 606</td>
<td>SECTORAL ASPECTS OF INDIAN ECONOMY</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

* This is a compulsory qualifying paper, which the students have to study in the B.A./B.Sc./B.Com./BBA 1st year (2nd Semester). If the student/s failed to qualify the paper during the 2nd Semester, he/she/they be allowed to appear/qualify the same in the 4th or 6th Semester/s.

** the strength of B.Com. unit shall be 70. There will be tutorials only in the papers which have been highlighted with asterisk**.

***Each unit of B.com. will be divided into 3-groups for the purpose of Tutorials.*
Scheme of Examination

B.Com. Honours

A student can pursue Honours course in B.Com. by taking up one paper each in four semesters beginning with 3rd semester in any one of the following four streams. Option of any stream once exercised cannot be changed subsequently.

1. Accounting & Finance
   1. BCH 307: Accounting Theory and Reporting Practices 3rd Semester
   2. BCH 407: Contemporary Issues in Accounting 4th Semester
   3. BCH 507: Strategic Financial Management 5th Semester
   4. BCH 607: Investment Management 6th Semester

2. Economics
   1. BCH 308: Development Economics 3rd Semester
   2. BCH 408: Industrial Economics 4th Semester
   3. BCH 508: Money and Banking 5th Semester
   4. BCH 608: International Economics 6th Semester

3. Management Studies
   1. BCH 309: Advertising & Brand Management 3rd Semester
   2. BCH 409: Consumer Behaviour 4th Semester
   3. BCH 509: Compensation Management 5th Semester
   4. BCH 609: Training & Development 6th Semester

4. Banking
   1. BCH 310: Bank Management 3rd Semester
   2. BCH 410: Bank Legislation 4th Semester
   3. BCH 510: Electronic Banking and Risk Management 5th Semester
   4. BCH 610: Bank Marketing 6th Semester
SYLLABI FOR B.COM FOR THE EXAMINATION OF 2017-18 ONWARDS

Note:
1. Examination in each subject for B.Com will be of 3 hours duration.
2. There will be no objective type questions.
3. Students are required to have the knowledge of the developments in the subject up to 6 months before the examination.
4. Use of non-programmable calculators by the students in the Examination Hall is allowed. The calculators will not be provided by the University/College to the examinees.
5. Tutorials classes will be held as notified in the Scheme of Examination for the session 2014-15 and 2015 onwards.
6. The following categories of the students shall be entitled to take the option of History and Culture of Punjab in lieu of Punjabi as compulsory subject:
   (a) Students who have not studied Punjabi up to Class 10th.
   (b) Wards of defence personnel and Central government employee/employees, who are transferable on all India basis.
   (c) Foreigners.
7. 20% marks in each paper will be internal assessment based on the following parameters:
   a. Mid-Semester Test : 50%
   b. Academic Activity : 30%
   (Seminar, Project & Assignments)
   c. Attendance : 20%

INSTRUCTIONS FOR THE PAPER SETTERS

Note: The question paper of each subject covering the entire course shall be divided into three sections:

Section A (20 marks)
This section will have 6 short answer questions from the entire syllabus. Students are required to attempt 4 questions from this section. Each question will carry 5 marks; the total weightage being 20 marks.

Section B (30 marks)
This section will consist of essay type/numerical questions from Unit I of the syllabus. The candidate will be required to attempt two questions out of four questions. Each question will carry 15 marks; the total weightage being 30 marks.

Section C (30 marks)
This section will consist of essay type/numerical questions from Unit II of the syllabus. The candidate will be required to attempt two questions out of four questions. Each question will carry 15 marks; the total weightage being 30 marks.

Important Note: In all numerical papers the paper setter is required to set numerical questions as follows:

Section A : Four numerical questions out of six questions.
Section B and C: At least two numerical questions out of four questions.
SCHEME OF B.COM. COURSE (GENERAL AND HONS.)

SEMESTER-I

BCM101 A: PUNJABI

Max. Marks : 50 marks.
Written : 45 marks.
Internal Assessment : 05 marks.
Time : 3 hrs.

1. A Book of Punjabi. 20 marks
2. Essay Writing on National and International Problems. 10 marks
3. Translation of Business Advertisement from English to Punjabi 05 marks
4. Correct-Incorrect words 05 marks
5. Business Vocabulary 05 marks

Courses:

1. Galiey Chikkarh Door Ghar (Autobiography) by Dr. S.S. Wanjara Bedi,
   Chapters 1 to 6
2. List of words of Business Vocabulary attached (A to H)

Themes and Units:

1. Two questions from the book Galiey Chikkarh Door Ghar 6+6=12 marks
   (With internal choice)
2. Short answer question (4 out of 6) 2×4=08 marks
3. Essay (1 out of 4) (National and International Problems) 10 marks
4. Translation of Business Advertisement from English to Punjabi 05 marks
5. Correct-Incorrect words (5 words out of 8) 05 marks
6. Business Vocabulary (5 words out of 8) 05 marks
## Business Vocabulary

<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Acceptance</td>
<td>gbEkBr h t hFeq h</td>
</tr>
<tr>
<td>2.</td>
<td>Access</td>
<td>gj k</td>
</tr>
<tr>
<td>3.</td>
<td>Account</td>
<td>b/y k</td>
</tr>
<tr>
<td>4.</td>
<td>Accountant</td>
<td>b/y ke lo</td>
</tr>
<tr>
<td>5.</td>
<td>Account Book</td>
<td>t j hyls k</td>
</tr>
<tr>
<td>6.</td>
<td>Acknowledgement</td>
<td>gj k o; h</td>
</tr>
<tr>
<td>7.</td>
<td>Advance</td>
<td>g/ r h</td>
</tr>
<tr>
<td>8.</td>
<td>Alternative Cost</td>
<td>ft ebgb k s</td>
</tr>
<tr>
<td>9.</td>
<td>Amortization</td>
<td>ew o D</td>
</tr>
<tr>
<td>10.</td>
<td>Amortization of Debts</td>
<td>eof nKdkfe s t k o Q s k</td>
</tr>
<tr>
<td>11.</td>
<td>Amortization of fixed Assets</td>
<td>n u b ; g s hdhfe s t k o g g s t</td>
</tr>
<tr>
<td>12.</td>
<td>Annuity</td>
<td>t kof et</td>
</tr>
<tr>
<td>13.</td>
<td>Anticipated Prices</td>
<td>n B W k s e h w s t</td>
</tr>
<tr>
<td>14.</td>
<td>Arbitration</td>
<td>; h b ; h ft ub r t</td>
</tr>
<tr>
<td>15.</td>
<td>Assessed Tax</td>
<td>fBoXk s eo</td>
</tr>
<tr>
<td>16.</td>
<td>Assets</td>
<td>g s t</td>
</tr>
<tr>
<td>17.</td>
<td>Assets and Liabilities</td>
<td>b D d k o m K n s / D D d k o m t</td>
</tr>
<tr>
<td>18.</td>
<td>Authorized Capital</td>
<td>n f X e k s g f t</td>
</tr>
<tr>
<td>19.</td>
<td>Audit</td>
<td>b/y kgVs k b</td>
</tr>
<tr>
<td>20.</td>
<td>Audit Staff</td>
<td>b/y kgV s k b n w b k</td>
</tr>
<tr>
<td>21.</td>
<td>Average</td>
<td>n ' s</td>
</tr>
<tr>
<td>22.</td>
<td>Average Productivity</td>
<td>n ' s T f g l d e s k</td>
</tr>
<tr>
<td>23.</td>
<td>Average Income</td>
<td>n ' s n k w d B</td>
</tr>
<tr>
<td>24.</td>
<td>Back Log</td>
<td>f g s b k p e k f j n k</td>
</tr>
<tr>
<td>25.</td>
<td>Balance Sheet</td>
<td>/ k o D t</td>
</tr>
<tr>
<td>26.</td>
<td>Bankrupt</td>
<td>f d t l b m k</td>
</tr>
<tr>
<td>27.</td>
<td>Barter</td>
<td>t ; s t N k d o k</td>
</tr>
<tr>
<td>28.</td>
<td>Beneficial</td>
<td>b k G d k j e</td>
</tr>
<tr>
<td>29.</td>
<td>Bilateral Agreement</td>
<td>d ' f x o h ; w W k</td>
</tr>
<tr>
<td>30.</td>
<td>Bill of Exchange</td>
<td>j j r t</td>
</tr>
<tr>
<td>31.</td>
<td>Bond</td>
<td>f o D F g z o</td>
</tr>
<tr>
<td>32.</td>
<td>Book Value</td>
<td>f e s k p h w W B</td>
</tr>
<tr>
<td>33.</td>
<td>Book Keeping</td>
<td>t j hyls k</td>
</tr>
<tr>
<td>34.</td>
<td>Break-Even Point</td>
<td>; w W f p d</td>
</tr>
<tr>
<td>35.</td>
<td>Breach of Trust</td>
<td>n W B s f t u f i n k B s</td>
</tr>
<tr>
<td>36.</td>
<td>Broker</td>
<td>d b k b</td>
</tr>
<tr>
<td></td>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>37.</td>
<td>Capital Account</td>
<td>gï¢ hr s yls k</td>
</tr>
<tr>
<td>38.</td>
<td>Capital Expenditure</td>
<td>gï¢ ho¾ you</td>
</tr>
<tr>
<td>39.</td>
<td>Capital Formation</td>
<td>gï¢ hfBwkd</td>
</tr>
<tr>
<td>40.</td>
<td>Capital Investment</td>
<td>gï¢ hfBt /</td>
</tr>
<tr>
<td>41.</td>
<td>Capital Gains</td>
<td>gï¢ ho¾ bkg</td>
</tr>
<tr>
<td>42.</td>
<td>Capital Goods</td>
<td>gï¢ ho¾ t; s k</td>
</tr>
<tr>
<td>43.</td>
<td>Cash Account</td>
<td>oëV yls k</td>
</tr>
<tr>
<td>44.</td>
<td>Cash Balance</td>
<td>Bed pekJ n k</td>
</tr>
<tr>
<td>45.</td>
<td>Cash Book</td>
<td>oëV t j t</td>
</tr>
<tr>
<td>46.</td>
<td>Census</td>
<td>i Br DBk</td>
</tr>
<tr>
<td>47.</td>
<td>Circulating Capital</td>
<td>wloehN ft u bZ hgi¾ t</td>
</tr>
<tr>
<td>48.</td>
<td>Commerce</td>
<td>ekwò; , t Di , t glo</td>
</tr>
<tr>
<td>49.</td>
<td>Commercial Capital</td>
<td>t Di hgi¾ t</td>
</tr>
<tr>
<td>50.</td>
<td>Commodity</td>
<td>TâGr sk t; s</td>
</tr>
<tr>
<td>51.</td>
<td>Company</td>
<td>eBt</td>
</tr>
<tr>
<td>52.</td>
<td>Competition</td>
<td>gqh t sk</td>
</tr>
<tr>
<td>53.</td>
<td>Corporation</td>
<td>fBr w</td>
</tr>
<tr>
<td>54.</td>
<td>Cost Account</td>
<td>bkr s býk</td>
</tr>
<tr>
<td>55.</td>
<td>Cost of Production</td>
<td>TâgkdB dhbkrs</td>
</tr>
<tr>
<td>56.</td>
<td>Current Account</td>
<td>ulb yls k</td>
</tr>
<tr>
<td>57.</td>
<td>Current Liabilities</td>
<td>ubz dDkóm k</td>
</tr>
<tr>
<td>58.</td>
<td>Debenture</td>
<td>foD gZô</td>
</tr>
<tr>
<td>59.</td>
<td>Debt Management</td>
<td>foDFggX</td>
</tr>
<tr>
<td>60.</td>
<td>deduct</td>
<td>eN§ t</td>
</tr>
<tr>
<td>61.</td>
<td>Deferred Payment</td>
<td>; Ef r s Gf s kB</td>
</tr>
<tr>
<td>62.</td>
<td>Deflation</td>
<td>wôokft ; ch t</td>
</tr>
<tr>
<td>63.</td>
<td>Demand for payment</td>
<td>n dfj r hbj hwz</td>
</tr>
<tr>
<td>64.</td>
<td>Demonstration Effect</td>
<td>gdo Bhgkit</td>
</tr>
<tr>
<td>65.</td>
<td>Depreciation</td>
<td>wô x Nj t</td>
</tr>
<tr>
<td>66.</td>
<td>Depression</td>
<td>nkofEe wôk</td>
</tr>
<tr>
<td>67.</td>
<td>Devaluation</td>
<td>eoahdknt wôD</td>
</tr>
<tr>
<td>68.</td>
<td>Discount Rate</td>
<td>eN§ hdo</td>
</tr>
<tr>
<td>69.</td>
<td>Disinvestment</td>
<td>ft fBt /</td>
</tr>
<tr>
<td>70.</td>
<td>Dividend</td>
<td>bKGFnz</td>
</tr>
<tr>
<td>71.</td>
<td>Distribution</td>
<td>ft s oD</td>
</tr>
<tr>
<td>72.</td>
<td>Documentary proof</td>
<td>d; s k / h; p§</td>
</tr>
<tr>
<td>73.</td>
<td>Double Entry</td>
<td>dj[kofj dôk</td>
</tr>
<tr>
<td>74.</td>
<td>Draftsman</td>
<td>Be kBt h</td>
</tr>
<tr>
<td>75.</td>
<td>Economic Indicator</td>
<td>nkofEe ; îe</td>
</tr>
</tbody>
</table>
HISTORY AND CULTURE OF PUNJAB – I

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units.
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.
2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   - Map : 06 Marks
   - Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER : HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1849

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the Punjab region.

Pedagogy: Lectures, library work and discussions.

UNIT I

UNIT II
4. Society and Culture under Maurayas
5. Society and Culture under Gupta
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III
9. Institution of Khalsa: new baptism; significance
UNIT IV

10. Changes in Society in 18th century: social unrest; emergence of misls and institutions - rakhis, gurmata, dal khalsas.

11. Society and Culture of the people under Maharaja Ranjit Singh


Suggested Readings:


5. Basham, A.L : The Wonder That was India, Rupa Books, Calcutta (18th rep.), 1992

6. Sharma, B.N : Life in Northern India, Munshi Ram Manohar Lal, Delhi, 1966

7. Singh, Kirpal : History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala 1990 (3rd edn.).


Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:

A. That the students who have not studied Punjabi upto class 10th.
B. Ward of / and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners
BCM 102: ENGLISH AND BUSINESS COMMUNICATION SKILLS

Note:

(i) There will be one paper of 80 marks. 10 marks are reserved for the Internal Assessment and 10 for the Practical Work. Total is 100.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of communication and language learning skills.

(iii) For Unit I, the prescribed text is Ten Mighty Pens, ed., K.A. Kalia (Oxford University Press), The relevant sections, however, are as follows:

| I.  | The Model Millionaire | Oscar Wilde |
| II. | The Gift of the Magi  | O. Henry    |
| III.| The Judgement-seat of Vikramaditya | Sister Nivedita |
| IV. | Fur                    | Saki       |
| V.  | A. Marriage Proposal  | Anton Chekhov |

(iv) For Unit II, there is no prescribed text, only suggested reading, listed towards the end. Unit II shall consist of the following sub-units:

Business Communication: It shall focus on different aspects of communication in general and business communication in particular, communication within organizations, types of communication, and significance of positive attitude in improving communication.

Writing Skills: Letters of all kinds, tender notices, auction notices, public notices; memos and advertisements relating to sales/marketing.

Practical Work: To impart the skills of Personal Interview and public speaking like Declamation and Debate.

Practical Work:

There will be viva-voce examination of 10 marks which will include Debate, Declamation and Personal Interview.

Note: In case of private candidates and students of School of Open Learning, the marks obtained by them out of 80 will be proportionately increased out of 100.

Testing Scheme:

The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:

<table>
<thead>
<tr>
<th>Q. 1.</th>
<th>It shall consist of five short question/answers (not exceeding 100-120 words) out of which a student will be expected to</th>
<th>12 Marks</th>
</tr>
</thead>
</table>

attempt any three. This question shall be based upon the prescribed text *Ten Mighty Pens.*

| Q. 2. | It shall consist of two long question/answers (not exceeding 300-350 words) out of which a student will be expected to attempt only one. This question shall have internal choice, be based upon the prescribed text *Ten Mighty Pens.* | 10 Marks |

**Note:** The questions 1 & 2 should be so designed as to cover all the chapters prescribed.

| Q. 3. | It shall consist of an Unseen Passage for Comprehension (not more than 300 words), with minimum five questions at the end. These questions should be designed in such a way that we are able to test a student's comprehension ability, language/presentation skills and vocabulary etc. | 12 Marks |

| Q. 4. | It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given six words in one column and asked to match them with words/meanings in the next column. | 6 Marks |

**Section II (Based upon Unit II)**

| Q. 5. | This question shall test a student's ability to write business letter of various kinds (in not more than 250 words). There will be Internal Choice in the question. | 10 Marks |

| Q. 6. | This question shall be on Memos, Tender Notices/Auction Notices/Public Notices/Advertisements. (have to attempt four of 5 marks each) | 20 Marks 5x4=20 |

| Q. 7. | Two short questions to test the students' understanding of various aspects of business communication. | 10 Marks |

**Suggested Reading:**

BCM103: PSYCHOLOGY FOR MANAGERS

Objective: The objective of the paper is to provide broad understanding about basic concepts and techniques of human behaviour to the students.

UNIT I


Personality: Meaning, Characteristics, Determinants and Theories of Personality


Attitudes and Values: Components, Sources and Measurement of Attitudes. Concept, Sources and Types of Values.

UNIT II:

Motivation: Meaning and Importance of Motivation, Theories of Motivation, Morale.

Inter Personal Behaviour and Transactional Analysis (TA).

Leadership: Definition, Importance, Leadership Styles, Models and Theories of Leadership.

Stress Management: Concept, Sources of Stress, Work Stressors, Consequences, Prevention and Management of Stress.

Conflict Management: Traditional vis-a-vis Modern View of Conflict, Types and Causes of Conflict, Conflict Resolution.

Reference books:

1. Robbins, Stephens P., Organisational Behaviour
2. French, W and C. Bell, Organisational Development
3. Davis, Keith, Human Behaviour at Work: Organisational Behaviour
4. Luthans, Fred, Organisational Behaviour
5. Harold Weihrich, Koontz, Essentials of Management
BCM 104: BUSINESS ECONOMICS-I

Objective: To study the basic concepts of microeconomics relevant for Business decision making and helping the students to understand the application of economic principles in business management

UNIT – I

Consumer Behaviour
Law of Demand
Elasticity of Demand: Definitions, Types, Measurement, Factors and Importance.
Demand Forecasting

UNIT-II

Production and Revenue
Production Function: Laws of Returns, Law of Variable Proportion and Returns to Scale.
Cost and Cost Curves: Concept of Nominal Real Economic Implicit, Explicit and Opportunity Cost, Cost Curve under Short-run and Long-run, Relationship between Average Cost and Marginal Cost.
Revenue Curves: Concept of Total Average and Marginal Revenue under different Market Conditions, Relationship between Average Revenue, Marginal Revenue and Elasticity of Demand.
Oligopoly: Features, Price Leadership, Collusive Oligopoly, Kinky Demand Curve Analysis

Reference books:
4. A. Kontsoyianis; Modern Micro-Economics.
5. M. Adhikary ; Business Economics.
BCM 105: PRINCIPLES OF FINANCIAL ACCOUNTING

Objective: The objective of this paper is to help students to acquire conceptual knowledge of financial accounting and to impart skills for recording various kinds of business transactions.

UNIT – I


Financial Statements of Sole Proprietor and Partnership Firm (with adjustments): Income Statement, Balance Sheet

Branch Accounting: Dependent and Independent Branches (Excluding Foreign Branches).

Departmental Accounting: Meaning, Needs, Advantages, Apportionment of Expenses, Inter Departmental Transfers and Provision for Unrealised Profit.

UNIT – II

Accounting for Consignment.

Accounting for Joint Venture.

Accounting for Dissolution of Partnership Firm; Insolvency of Partners(excluding Sale to a Company) and Piecemeal Distribution.

Royalty Accounts

Practical work:

1. Preparation of List of Accounting Standards and IFRS.

2. Comparison of US GAPP with Indian Accounting Standards.

Reference books:


BCM 106: COMMERCIAL LAW

**Objective:** The main objective of the paper is to acquaint the students with general Commercial Laws.

**UNIT I**

Indian Contract Act, 1872: Definition & Nature of Contract, Classification; Offer & Acceptance; Consideration; Capacity of Parties; Free Consent; Legality of Objectives; Void Agreements; Performance of Contracts; Discharge of Contract; Contingent Contracts; Quasi Contracts; Remedies for Breach of Contract.

**UNIT II**

Special Contracts: Indemnity & Guarantee; Bailment & Pledge; Contract of Agency.

**Reference books:**

1. Avtar Singh : The Principles of Mercantile Law
2. M.C. Kuchhal : Business Law
3. N.D. Kapoor : Business Law
4. P.R. Chandra : Business Law, Galgotia, New Delhi
5. Gogna : Mercantile Law, S. Chand
Objective: The objective of the paper is to help the students in understanding the process of business management and its functions.

UNIT I


UNIT II
Direction: Concept, Features, Importance and Limitations of Direction. Elements of Direction- Supervision, Motivation, Leadership and Communication
Coordination: Concept, Features, Importance and Limitations of Coordination. Internal and External Coordination

Reference books:
1. Peter F. Drucker, *The Practice of Management*
2. Weihrich and Koontz, *Essentials of Management*
3. Stoner and Freeman, *Management*
4. David R Hampton, *Modern Management*
SEMESTER-II

SCHEME OF B.COM. COURSE (GENERAL AND HONS.)

BCM201 A: PUNJABI

Max. Marks : 50 marks.
Written : 45 marks.
Internal Assessment : 05 marks.
Time : 3 hrs.

1. A Book of Punjabi. 20 marks
2. Business Correspondence : Letters 10 marks
3. Punctuation 05 marks
4. Business Advertisement 05 marks
5. Business Vocabulary 05 marks

Courses:
2. List of words of Business Vocabulary attached (I to Z)

Themes and Units:
1. Two questions from the book Galiey Chikkarh Door Ghar. 6+6=12 marks
(With internal choice)
2. Short answer question (4 out of 6) 2 x 4=08 marks
3. Business Correspondence : Letters 10 marks
4. Punctuation 05 marks
5. Business Advertisement (Punjabi) 05 marks
6. Business Vocabulary 05 marks

Suggested Readings
Punjabi Viyakaran by Dr. Harkirat Singh, Punjab State University Text-book Board, Chandigarh.
### Business Vocabulary

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Imperfect Market</td>
</tr>
<tr>
<td>2.</td>
<td>Imports</td>
</tr>
<tr>
<td>3.</td>
<td>Import Duty</td>
</tr>
<tr>
<td>4.</td>
<td>Imputed Income</td>
</tr>
<tr>
<td>5.</td>
<td>Imprest Account</td>
</tr>
<tr>
<td>6.</td>
<td>Income Statement</td>
</tr>
<tr>
<td>7.</td>
<td>Index of Profit</td>
</tr>
<tr>
<td>8.</td>
<td>Income Tax</td>
</tr>
<tr>
<td>9.</td>
<td>Inflation</td>
</tr>
<tr>
<td>10.</td>
<td>Intangible Assets</td>
</tr>
<tr>
<td>11.</td>
<td>Investment</td>
</tr>
<tr>
<td>12.</td>
<td>Invoice</td>
</tr>
<tr>
<td>13.</td>
<td>Jobber</td>
</tr>
<tr>
<td>14.</td>
<td>Job Casting</td>
</tr>
<tr>
<td>15.</td>
<td>Joint Venture</td>
</tr>
<tr>
<td>16.</td>
<td>Labour</td>
</tr>
<tr>
<td>17.</td>
<td>Laissez Fair</td>
</tr>
<tr>
<td>18.</td>
<td>Lease Holding Building and Property</td>
</tr>
<tr>
<td>19.</td>
<td>Ledger</td>
</tr>
<tr>
<td>20.</td>
<td>Ledger Folio</td>
</tr>
<tr>
<td>21.</td>
<td>Liabilities</td>
</tr>
<tr>
<td>22.</td>
<td>Liquidator</td>
</tr>
<tr>
<td>23.</td>
<td>Market</td>
</tr>
<tr>
<td>24.</td>
<td>Marketable Goods</td>
</tr>
<tr>
<td>25.</td>
<td>Mechanization</td>
</tr>
<tr>
<td>26.</td>
<td>Mercantilism</td>
</tr>
<tr>
<td>27.</td>
<td>Monetary System</td>
</tr>
<tr>
<td>28.</td>
<td>Money of Account</td>
</tr>
<tr>
<td>29.</td>
<td>Monopoly</td>
</tr>
<tr>
<td>30.</td>
<td>Mortgage</td>
</tr>
<tr>
<td>31.</td>
<td>Net Investment</td>
</tr>
<tr>
<td>32.</td>
<td>Net Profit</td>
</tr>
<tr>
<td>33.</td>
<td>Notice of Stoppage</td>
</tr>
<tr>
<td>34.</td>
<td>Office Expenses Account</td>
</tr>
<tr>
<td>Num</td>
<td>Term</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>35</td>
<td>Open Market Operations</td>
</tr>
<tr>
<td>36</td>
<td>Over Due</td>
</tr>
<tr>
<td>37</td>
<td>Over Head Cost</td>
</tr>
<tr>
<td>38</td>
<td>Partnership</td>
</tr>
<tr>
<td>39</td>
<td>Payable Accounts</td>
</tr>
<tr>
<td>40</td>
<td>Preference Shares</td>
</tr>
<tr>
<td>41</td>
<td>Premium</td>
</tr>
<tr>
<td>42</td>
<td>Price Control</td>
</tr>
<tr>
<td>43</td>
<td>Production</td>
</tr>
<tr>
<td>44</td>
<td>Profit Margin</td>
</tr>
<tr>
<td>45</td>
<td>Proprietor</td>
</tr>
<tr>
<td>46</td>
<td>Quasi Negotiable Instrument</td>
</tr>
<tr>
<td>47</td>
<td>Quotation</td>
</tr>
<tr>
<td>48</td>
<td>Rate of Exchange</td>
</tr>
<tr>
<td>49</td>
<td>Ready Delivery</td>
</tr>
<tr>
<td>50</td>
<td>Real Wages</td>
</tr>
<tr>
<td>51</td>
<td>Rebate</td>
</tr>
<tr>
<td>52</td>
<td>Recession</td>
</tr>
<tr>
<td>53</td>
<td>Receivable Accounts</td>
</tr>
<tr>
<td>54</td>
<td>Redemption of Mortgage</td>
</tr>
<tr>
<td>55</td>
<td>Receipts and Payment Account</td>
</tr>
<tr>
<td>56</td>
<td>Rent</td>
</tr>
<tr>
<td>57</td>
<td>Rent Account</td>
</tr>
<tr>
<td>58</td>
<td>Reserve Price</td>
</tr>
<tr>
<td>59</td>
<td>Revenue</td>
</tr>
<tr>
<td>60</td>
<td>Sales Tax</td>
</tr>
<tr>
<td>61</td>
<td>Sales Transfer Order</td>
</tr>
<tr>
<td>62</td>
<td>Security Bond</td>
</tr>
<tr>
<td>63</td>
<td>Service Goods</td>
</tr>
<tr>
<td>64</td>
<td>Shares</td>
</tr>
<tr>
<td>65</td>
<td>Share Capital</td>
</tr>
<tr>
<td>66</td>
<td>Share Holder</td>
</tr>
<tr>
<td>67</td>
<td>Share Market</td>
</tr>
<tr>
<td>68</td>
<td>Short Bills</td>
</tr>
<tr>
<td>69</td>
<td>Slump</td>
</tr>
<tr>
<td>70</td>
<td>Sole Proprietorship</td>
</tr>
<tr>
<td>71</td>
<td>Speculation</td>
</tr>
<tr>
<td>72</td>
<td>Statutory Company</td>
</tr>
<tr>
<td>73</td>
<td>Stipulated</td>
</tr>
<tr>
<td>Number</td>
<td>Term</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>74</td>
<td>Stock</td>
</tr>
<tr>
<td>75</td>
<td>Stock Exchange</td>
</tr>
<tr>
<td>76</td>
<td>Subsidiary Company</td>
</tr>
<tr>
<td>77</td>
<td>Surety</td>
</tr>
<tr>
<td>78</td>
<td>Tariff</td>
</tr>
<tr>
<td>79</td>
<td>Tax Exemption</td>
</tr>
<tr>
<td>80</td>
<td>Tax Base</td>
</tr>
<tr>
<td>81</td>
<td>Tax Evasion</td>
</tr>
<tr>
<td>82</td>
<td>Tax Equity</td>
</tr>
<tr>
<td>83</td>
<td>Tender</td>
</tr>
<tr>
<td>84</td>
<td>Tender money</td>
</tr>
<tr>
<td>85</td>
<td>Terms of Payment</td>
</tr>
<tr>
<td>86</td>
<td>Terms of Trade</td>
</tr>
<tr>
<td>87</td>
<td>Trademark</td>
</tr>
<tr>
<td>88</td>
<td>Transactions</td>
</tr>
<tr>
<td>89</td>
<td>Transfer Book</td>
</tr>
<tr>
<td>90</td>
<td>Under Value</td>
</tr>
<tr>
<td>91</td>
<td>Unproductive Expenditure</td>
</tr>
<tr>
<td>92</td>
<td>Unproductive Labour</td>
</tr>
<tr>
<td>93</td>
<td>Validity Period</td>
</tr>
<tr>
<td>94</td>
<td>Vertical Integration</td>
</tr>
<tr>
<td>95</td>
<td>Wages</td>
</tr>
<tr>
<td>96</td>
<td>Wages Account</td>
</tr>
<tr>
<td>97</td>
<td>Wage Goods</td>
</tr>
<tr>
<td>98</td>
<td>Wage Book</td>
</tr>
<tr>
<td>99</td>
<td>Wharf age</td>
</tr>
<tr>
<td>100</td>
<td>Write Off</td>
</tr>
<tr>
<td>101</td>
<td>Working Capital</td>
</tr>
<tr>
<td>102</td>
<td>Yield</td>
</tr>
<tr>
<td>103</td>
<td>Zero Rate of Interest</td>
</tr>
</tbody>
</table>
Semester II

HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES: (FOR PAPER in semester 1 AND 2)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment. The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.

2. The distribution of marks for the map question would be as under:
   
   Map : 6 Marks
   
   Explanatory Note : 4 Marks
   
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

Max. Marks : 50

Theory : 45

Internal Assessment : 05

Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region in modern times.
Pedagogy: Lectures, library work and discussions.

UNIT I

1. Introduction of Colonial Rule: administrative changes; means of communication; western education.
2. Agrarian Development: Commercialization of agriculture; canalization and colonization.
3. Social Classes: agrarian groups; new middle classes

UNIT II

5. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
6. Development of Press & literature: growth of press; development in literature

UNIT III

7. Emergence Of Political Consciousness: Agrarian uprising 1907; Ghadar.
8. Gurudwara Reform Movement: Jallianwala Bagh; foundation of SGPC and Akali Dal; Morchas.
9. Struggle for Freedom: activities of revolutionaries - Babbar Akalis, Naujawan Bharat Sabha; participation in mass movements Ī non co-operation, civil disobedience, Quit India.

UNIT IV

10. Partition and its Aftermath: resettlement; rehabilitation
12. MAP: Major Historical places: Delhi, Kurukshetra, Jaito, Ferozepur, Ambala, Amritsar, Lahore, Ludhiana, Qadian, Jalandhar, Lyallpur, Montgomery.

Suggested Readings:

1. Singh,Kirpal :History and Culture os the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
BCM 202 : ENGLISH AND BUSINESS COMUNICATION

Note:

(i) There will be one paper of 80 marks. 10 marks are reserved for the Internal Assessment and 10 for the Practical Work. Total is 100.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of communication and language learning skills.

(iii) For Unit I, the prescribed text is Ten Mighty Pens Issues ed. K.A. Kalia (Oxford University Press).

The relevant sections, however, are as follows:

I. Chandalika: Rabindranath Tagore
II. A Bachelor's Complaint of the Behaviour of Married People: Charles Lamb
III. El Dorado: R.L. Stevenson
IV. Bores : E.V. Lucas
V. The Art of the Essayist : A.C. Benson

(iv) For Unit II, there is no prescribed text, only suggested reading, listed towards the end, Unit II shall consist of the following sub-units:

Writing Skills: This section shall focus on business précis-writing, curriculum vitae; short formal reports (not exceeding 200 words).

Modern Forms of Communication: Here special emphasis shall be given to teaching the format of e-mails, Fax Messages, Teleconferencing, Audio-Visual Aids and Power-Point Presentations. Apart from this, the students shall also be given basic lessons in Effective Listening, Non-Verbal Communication, How to Prepare for Group Discussion etc.

Practical Work: To impart skills of Group Discussion.

Practical Work: There will be viva-voce examination of 10 marks which will include Group Discussion. The students will appear in the group of 10 students for viva-voce.

Note: In case of private candidates and students of School of Open Learning, the marks obtained by them out of 80 will be proportionately increased out of 100.

Testing Scheme: The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:

Section I (It is text-based and corresponds to Unit I in the syllabus)

| Q. 1. | It shall consist of five short question/answers (not exceeding 100-120 words) out of which a student will be expected to attempt any three. This question shall be based upon the | 12 marks |
| Q. 2. | It shall consist of two long question/answers (not exceeding 300-350 words) out of which a student will be expected to attempt only one. This question shall have internal choice, and be based upon the prescribed text *Ten Mighty Pens.* | 10 marks |

**Note:** The questions 1& 2 should be so designed as to cover all the chapters prescribed.

| Q.3. | It shall consist of an Unseen Passage for Comprehension (not more than 300 words), with minimum six questions at the end. These questions should be designed in such a way that we are able to test a student's comprehension ability, language/presentation skills and vocabulary etc. | 12 marks |

| Q.4. | It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given six words in one column and asked to match them with words/meanings in the next column. | 6 marks |

**Section II (Based upon Unit II)**

| Q.5. | The students shall be asked to write a short survey report on a situation, incident, business problem, or the possibility of starting a new commercial venture (in about 150-200 words). The students shall be given an internal choice in this question. | 10 marks |

| Q.6. | This will test the students' ability to write a Précis. A passage of about 200 words shall be given and the students shall have to write a précis of about 70 words (including the title). | 10 marks |

| Q.7. | Definition/format of Modern forms of communication to be tested- Listening - Non verbal communication, e-mail, fax, teleconferencing etc. | 10 marks |

| Q.8. | Curriculum Vitae | 10 marks |

**Suggested Reading:**

2. *50 Ways to Improve Your Business English...without too much effort,* Ken Taylor, Hyderabad: Orient Blackswan.
BCM 203: E-COMMERCE

Objective: The objective of this paper is to provide fundamental knowledge to the students about E-Commerce so that they can better perform in any area of operation and can excel in the field of commerce with IT specialization.

UNIT I


UNIT II
Changing Structure of Organisation The Impact of E-Commerce on Various Business Sectors such as Entertainment, Education, Health Services, Publishing and Financial Services. Socio-Economic Impacts of E-Commerce.

Electronic Payment System: Types of Payment System E-Cash and Currency Servers, E-Cheques, Credit Cards, Smart Cards, Electronic Purses and Debit Cards. Electronic Data Interchange, Digital Signatures, Cryptography, Interoperatibility and Intercompatibility.

Reference books:
BCM 204: BUSINESS ECONOMICS-II

Objective: The paper aims at providing the knowledge of basic concepts of the distribution and modern tools of macro-economic analysis.

UNIT-I

Distribution
Wages: Meaning, Types, Marginal Productivity Theory of Wages, Modern Theory of Wages.
Rent: Meaning, Types, Ricardoian Theory of Rent, Modern Theory of Rent, Quasi-Rent.

UNIT-II

Say’s Law of Market: Meaning, Implications,
Classical Theory of Income Output and Employment:
Keynesian Theory of Employment.
Effective Demand: Determination, Importance
Consumption Function: Meaning, Factors Influencing Consumption Function, Average and Marginal Propensities to Consume, Propensity to Save, Psychological Law of Consumption and its Importance.
Investment: Meaning, Types, Factors Affecting Investment, Importance of Investment, Measures to Raise Private Investment.
Multiplier: Meaning, Keynesian Income or Investment Multiplier, Leakages, Uses, Limitations of Multiplier, Multiplier and Under-Developed Countries.

Reference books:

1. Shapiro, E  Macroeconomic analysis Galotia publications, New Delhi.
BCM 205: CORPORATE ACCOUNTING

Objective: To provide knowledge about basic corporate accounting with the relevant accounting standards.

UNIT 1

Issue, Forfeiture, Reissue and Buy-Back of Shares,
Redemption of Preference Shares.
Right Issue and Bonus Shares.
Final Accounts of Companies (including Managerial Remuneration & Profit Prior to Incorporation),

UNIT II

Underwriting of Shares and Debentures.
Issue and Redemption of Debentures.
Accounts of Banking Companies
Accounts of Insurance Companies.

Note: Accounting Standards are to be covered along with topics.

Practical Work:
1. Preparation of Final Accounts of Companies and critical evaluation.
2. Comparison of annual reports of companies and disclosures norms.

Reference books:
BCM 206: BUSINESS LAWS

Objective: The main objective of the paper is to acquaint the students about Business Laws.

UNIT- I


UNIT- II

Factories Act, 1948: Objectives; Definitions; Approval; Licensing & Registration of Factories; The Inspecting Staff Health; Safety Welfare; Working Hours of Adults; Employment of Women; Child Labour Issues and Challenges; Leave with Wages; Penalties & Procedure Supplemental.

The Industrial Disputes Act, 1947: Scope & Object; Definitions; Authorities; Notice of Change; Reference of Disputes; Procedure; Powers & Duties of Authorities; Award & Settlement; Strikes & Lockouts; Lay-off & Retrenchment etc.

Reference books:
BCM 207: HUMAN RESOURCE MANAGEMENT

**Objective:** The objective of the paper is to familiarize the students with the different aspects of managing human resource in the organization.

**UNIT – I**


**UNIT – II**


Performance Appraisal: Concept, Objectives, Methods of Performance Appraisal; How to Make it Effective.

Internal Mobility and Transfers: Promotions, Demotions and Other Forms of Separations, Definitions, Purpose, and Basis of Promotions. Transfer: Definitions, Purpose, Types and Transfer Policy.

Compensation Management: Concept, Methods of Wage payments and Incentive Plans, Fringe Benefits.

**Reference books:**

1. Environment Concept:
Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere; Natural resources – their need and types; Principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

2. Atmosphere:
Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.

3. Hydrosphere:
Types of aquatic systems; Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.

4. Lithosphere:
Earth crust, soil – a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

5. Forests:
Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban Forests, Chipko Andolan.

6. Conservation of Environment:
The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems – soil, water, air, wildlife, forests.

7. Management of Solid Waste:
Merits and demerits of different ways of solid waste management – open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

8. Indoor Environment:
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food;
uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. Global Environmental Issues:
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.

10. Indian Laws on Environment:
Indian laws pertaining to Environmental protection: Environment (Protection) Act, 1986; General information about laws relating to control of air, water and noise pollution. What to do to seek redressal.

11. Biodiversity:
What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.

12. Noise and Microbial Pollution:
Pollution due to noise and microbes and their effects.

13. Human Population and Environment:

14. Social Issues:
Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.

15. Local Environmental Issues:
Environmental problems in rural and urban areas. Problem of Congress Grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

Practical
Depending on the available facility in the college, a visit to vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken.

Examination Pattern:
A qualifying paper of 50 marks comprising of fifty multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong answer or un-attempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added / included in the final mark sheet.
UNIT II (ROAD SAFETY)

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Engineering ñ Concept & Significance.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

Note : Examination Pattern :

- The Environment and Road Safety paper is 70 marks.
- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted questions).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit II is to be covered in 10 hours.
- All the questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination: 90 minutes.
- The paper setter is requested to set the questions strictly according to the syllabus.

Suggested Readings
2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

Websites:
(a) www.chandigarhpolice.nic.in
(b) www.punjabpolice.gov.in
(c) www.haryanapolice.gov.in
(d) www.hppolice.nic.in
VIOLENCE AGAINST WOMEN & CHILDREN

1. Concept and Types of Violence: Meaning and Definition of violence; Types of Violence against women – domestic violence, sexual violence (including rape), sexual harassment, emotional/psychological violence; Types of Violence against children – physical violence, sexual violence, verbal and emotional abuse, neglect & abandonment.

2. Protective Provisions of IPC on Domestic Violence & Sexual Violence against Women:
   - **Dowry Death** – Section 304B;
   - **Rape** – Sections 375, 376(1), 376A, 376B, 376C, 376D and 376E;
   - **Cruelty** – Section 498A;
   - **Insult to Modesty** – The Indian Penal Code does not define the word eve-teasing; there are three sections which deal with crime of eve-teasing. These are Sections, 294, 354 and 509of Indian Penal Code. Section 509 of the Indian penal code defines (Word, gesture or act intended to insult the modesty of a woman), Section 294 (Obscene acts and songs) and Section 354 (Assault or criminal force to woman with intent to outrage her modesty);
   - **Hurt & Grievous Hurt Provisions** – Sections 319 to 326;
   - **Acid Attacks** – Sections 326A and 326B;
   - **Female Infanticide** – Section 312, Section 313 of Indian Penal Code (Causing miscarriage without women’s consent) and section 314;
   - **Sexual Harassment** – For providing protection to working women against sexual harassment, a new section 354 A is added; 354 B (Assault or use of criminal force to women with intent to disrobe); 354 C Voyeurism; 354 D (Stalking). All these provisions are added in IPC to protect women against acts of violence through Criminal Law (Amendment) Act, 2013; **Human Trafficking and Forced Prostitution**- Sections 370 and 370A

3. Protective Laws for Women:


3.2 **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** – Definition, Internal Complaint Committee, Local Complaint Committee, Procedure adopted by Committee for punishing accused.

4. **Protective Provisions of IPC regarding Sexual Violence against Children:**
   - **Section 293**(sale etc. of obscene objects to young persons); 294 (obscene acts & songs); 305 (abetment of suicide of child); 315 to 317 (act causing death after birth of a child etc.); 361
(kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A (kidnapping or maiming a minor for purposing of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).

4.1 The Protection of Children from Sexual Offences Act, 2012: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.

Note: Instructions for Examination:
- Unit III of the paper dealing with Violence against Women and Children is of 30 Marks.
- It shall have 30 multiple-choice questions (with one correct and three incorrect choice options and no deduction of marks for wrong or un-attempted questions).
- Minimum two questions from each topic must be covered.
- All the questions are to be attempted
- Qualifying Marks 33 percent
- Duration of Examination 30 Minutes
- The Paper Setter is requested to set the questions strictly according to the syllabus.

Pedagogy:
- The entire syllabus of Unit III is to be covered in ten hours in total, with each lecture of one-hour duration.
- The purpose behind imparting teaching-learning instructions is to create basic understanding of the contents of the Unit III among the students.

RELEVANT READING MATERIAL

Ahuja, Ram (1998), Violence against Women, New Delhi: Rawat Publication
NRHM, Child Abuse, A Guidebook for the Media on Sexual Violence against Children
The Protection of Children from Sexual Offences Act, 2012
The Protection of Women from Domestic Violence Act 2005
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
UNO, United Nations Secretary-General's Study on Violence against Children, adapted for Children and Young People
www.slideshare.net/HRLNIndia/a-life-free-from-violence
http://hrln.org/admin/issue/subpdf/Sexual_Harrassment_at_Workplace.pdf
Drug Abuse: Problem, Prevention and Management

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three year of degree course.

The paper/Topic “Drug Abuse: Problem, Prevention and Management” having 2 credit/50 marks (40 theory+10 Internal) at undergraduate level, as a fourth part of the paper ‘Environment, Road Safety Education and Violence against Women and Children’ from the academic session 2017-18.

Main Objective

This module introduces to the students the problem of drug abuse and its adverse consequences for the society. The students would get an understanding of why drug abuse is such a serious problem to our society. The course also apprises them of how to prevent and manage this menace.

Learning objectives of the course

1. Understand the meaning of the term drug.
2. Understand the difference between use, misuse and abuse of drugs.
3. Differentiate between commonly abused legal and illegal drugs.
5. Understand the causes and consequences of drug abuse
6. Identify and access safety measures for support to stay away/give up drug abuse

Pedagogy of the course work

1. 70 % Lectures (Including expert lectures)
2. 30% assignments, discussion, seminars and class tests.

- A visit to drug de-addiction centre could also be undertaken

Course content

UNIT I: Problem of Drug Abuse

b) Types of drugs often abused and their effects

**Stimulants:** tobacco Amphetamines: dl-amphetamine (Benzedrine ®), dextroamphetamine (Dexedrine®). Cocaine.

**Depressants:** Alcohol. Barbiturates: phenobarbitone (Nembutal®), secobarbital (Seconal®), Benzodiazepenes: diazepam (valium ®), alprazolam (Xanax®), flunitrazepam (Rohypnol®)

**Narcotics:** Morphine, heroin (‘Chitta’/ ‘Brown Sugar’), pethidine, oxycodone.

**Hallucinogens:** cannabis ['Bhang’, marijuana (‘Ganja’), hashish (‘Charas’), hash oil]. MDMA (3,4- methylenedioxy methamphetamine) / ‘Ecstasy’/ ‘Molly’. LSD (lysergic acid diethylamide).

**Miscellaneous:** cough/cold medicines: diphendydramine (Benadryl®), chlorpheneramine maleate+ codeine+alcohol (Corex®). Iodex®, Vicks®, Amrutanjan® and correction fluid (Whitener).

**UNIT II: Theories of consequences of drug abuse**

- **a) Theories of drug abuse:** Physiological theory. Psychological theory. Sociological theory.
- **b) Consequences of drug abuse:** For individuals, families, society and economy.

**Unit III: Extent and nature of the problem**


**UNIT IV: Prevention and management of drug abuse**

Suggested readings:

5. 2003 National Household survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, AIIMS, 2004
SEMESTER-III

BCM 301: ISSUES IN INDIAN COMMERCE

Objective: To enable the students to acquire basic knowledge of different issues faced in progress and prospects of commerce in India.

UNIT-I

Foreign Direct Investment: Concept, Historical Perspective, Incentives for Attracting Foreign Capital, Implication for Indian industry, Role of Foreign Investment Promotion Board (FIPB) - Automatic Route and Sectoral Limits, Difference between FDI and Foreign Portfolio Investment (FPI).

"Make in India" An Initiative of Government of India, Objectives, Sectors in Focus and Issues & Challenges ahead.

Technology in Commerce: Features, Impact, Management and Status of Technology and Impact of Technology on Commerce in India.

International Finance: Introduction, Need, Importance, Sources-External Commercial (FCCBs) Borrowings (ECB), American Depository Receipt (ADR), Global Depository Receipt (GDR).

UNIT-II

Infrastructure: Growth of Infrastructure- Energy, Transport and Communication. Public-Private Partnership (PPP) in Infrastructure Development in India, Bottlenecks, Models - Built Operate and Transfer (BOT), Built Operate Levy and Transfer (BOLT), Special Economic Zones (SEZs).


Corporate Debt Restructuring: Concept, Importance, Methods, Corporate Scams and Regulatory Authorities-Serious Fraud Investigation Office (SFIO), Investors; Protection in India-Importance, Need, and Initiatives by the Central Government.

Recent Trends in Credit Rating Services in India- Role of ICRA and CRISIL.

Reference books:

1. Indian Economy - Datt and Sundharam, S Chand and Co. New Delhi
2. Indian Economy - M.B. Shukla, Taxman Publication, New Delhi
3. India Transport Report, National Transport Development Committee Report, Routledge, Tolstoy Marg, New Delhi
7. Khan ñ my Indian Financial Systems - Tata Mcgraw Hills India.
8. Website of Make in India
BCM 302: COST ACCOUNTING

Objective: The objective of this paper is to help the students to acquire conceptual knowledge of cost accounting and elements of cost.

UNIT – I


UNIT – II

Overheads: Collection, Classification, Allocation, Apportionment and Absorption of Overheads (Primary and Secondary Distribution), Machine Hour Rate.

Preparation of Cost Sheet, Operation Costing, Service Costing.

Cost Ledger Accounting, Integral Accounting, Reconciliation of Cost and Financial Accounts.

Practical Work:

Reference books:
1. Banerjee Bhabatosh: Cost Accounting, Phi Learning
2. Saxena and Vashist: Cost Accounting, Sultan Chand and Sons.
BCM 303: COMPANY LAW

Objective: The objective of this paper is to help the students understand various provisions of Companies Act 2013.

UNIT - I
Introduction: Characteristics of a Company, Concept of Lifting of Corporate Veil, Emerging Types of Companies.
Formation of Company – Promotion & Registration, Pre-incorporation Contract and Provisional Contracts.
Memorandum of Association, Articles of Association, Doctrine of Constructive Notice, Doctrine of Ultra-Vires, Doctrine of Indoor Management,
Prospectus and Statement in Lieu of Prospectus, Red-Herring Prospectus.

UNIT- II
Members and Shareholders – Their Rights and Duties.
Management – Directors, Classification of Directors, Disqualification, Appointment, Legal Position, Powers and Duties, Disclosures of Interest, Removal of Directors, Board Meetings, Other Managerial Personnel and Remuneration, Digital Signatures of Directors.
Winding Up-Concept and Modes.

Practical Work: Teacher should use Internet and Communication Technology to give students demo regarding procedure of Online Filing of Documents for Registration of Company, obtaining Director Identity Number (DIN), Corporate Identity Number (CIN), etc. Students should be apprised of National Company Law Tribunal (NCLT), Insider Trading, Rating Agencies, etc. Practical Training about Notice of Meeting, Agenda, Quorum, Proxy, Reports, Minutes of Meeting, Resolutions, etc. The teacher should use simulation method and will hold at least One Statutory Meeting, One Annual General Meeting, One Extra-ordinary Meeting and One Board Meeting.
Reference books:

BCM 304: BUSINESS MATHEMATICS AND STATISTICS

Objective: The objective of this paper is to help the students in understanding mathematical and statistical tools in business decisions.

UNIT I

Matrices and Determinants: Definition of a Matrix. Types of Matrices; Algebra of Matrices; Properties of Determinants; Calculation of Values of Determinants upto Third Order, Ad-Joint of a Matrix, Elementary Row or Column Operations; Inverse of a Matrix. Solution of a System of Linear Equations having Unique Solution and Involving not More Than Three Variables.

Differentiation: Idea of Simple Derivative of different Functions (excluding trigonometric function).
Maxima and Minima of Functions of One Variable only

UNIT II

Introduction: Statistics as a Subject; Statistical Data: Meaning and Types, Collection and Rounding of Data, Classification and Presentation of Data.

Analysis of Univariate Data: Construction of a Frequency Distribution; Concept of Central Tendency and Dispersion-and Their Measures; Measures of Skewness; Concept of Kurtosis.
Time Series: Meaning, Components, Models, Fitting Linear and Quadratic Trend
Index Number: Meaning, Types, and Uses: Methods of Constructing Price and Quantity Indices (Simple and Aggregate); Tests of Adequacy; Chain-Base Index Numbers; Base Shifting, Splicing, and Deflecting; Problems in Constructing Index Numbers; Consumer Price Index.

Practical work: Collection, Classification and Presentation of data using Microsoft Excel

Reference books:

BCM 305: BANKING AND INSURANCE

Objective: To acquaint the students with Indian Banking and Insurance industry.

UNIT – I


Emerging Trends in Banking: Concept of E-Banking, Mobile Banking, Electronic Fund Transfer- (RTGS & NEFT) and Core Banking. RBI Guidelines on Internet Banking, Challenges faced by Indian Banking, Cheque Truncation System.

UNIT – II


Reference books:

8. U.C. Patnaik: Rural Banking in India, Anmol Publications.
Objective: Understanding of Basics of GST

Unit I

Tax Structure in India, Direct and Indirect Taxes, Overview of Goods and Services Tax, Implementation of GST, Reasons for GST introduction, Pros and cons of GST, Registration procedure under GST, CGST/ SGST Act, 2017, Classes of officers under GST, their appointment and powers; Levy and collection of CGST/ SGST; Composition Levy scheme; Time and Value of supply, valuation in GST (basics), Tax invoice, credit and debit notes.

Unit II

IGST Act, 2017: Definitions, Supplies in the course of inter-State trade or commerce, Supplies in the course of intra-State trade or commerce, Levy and collection of IGST, power to grant exemption from tax, place of supply under IGST; Input tax credit; Returns under GST; Refund of tax; offences and penalties, Prosecution and Appeals under GST, GST Portal: GST Eco system, GST suvidha provider.

References

2. Taxmann’s GST Ready Reckoner Updated till 18th June, 2017.
4. GST Ready Reckoner by CA Kesha R Garg, Bharat Law House, Delhi.
5. Goods and Services Tax in India -----Notifications by Government of India
6. GST Bill 2012
7. Integrated Goods and Services Tax Act 2017
SEMESTER-IV

BCM 401: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Objective: The paper aims at providing the students a comprehensive knowledge about security analysis and portfolio management and equipping for taking profitable investment decisions.

UNIT – I


Security Analysis ĭ Meaning, Risk and Return, Types and Measurement of Risk, Risk and Return Trade Off.


Technical Analysis. Fundamental v/s Technical Analysis.

UNIT – II


Portfolio Performance Evaluation and Revision.

Global Investing ĭ Benefits and Options for Global Investment.

Reference books:

5. French, Don, Security and Portfolio Analysis, Merril Publishing Co.
8. Cheney, Muses, Fundamentals of Investments
9. V. K. Bhalla, Portfolio Analysis and Management, Sultan Chand & Sons
BCM 402: ADVANCED ACCOUNTING

Objective: To provide knowledge to students about advanced accounting problems with the relevant Indian Accounting Standards.

UNIT-I

Valuation of Shares and Goodwill.

Insurance Claims.

Accounting for Hire- Purchase and Instalment System

Investment Accounts.

UNIT-II

Accounting for Amalgamation, Absorption (Excluding Inter-Holding) & External and Internal Reconstructions.

Accounts of Holding Companies-Preparation of CBS, Mutual Owings- Revaluation of Assets - Bonus Issue (Excluding Cross Holdings).

Liquidation of Companies.

Practical work:

1. Designing Scheme of Internal Reconstruction.

2. Case Studies on Mergers and Acquisitions.

Reference books:

BCM403: AUDITING AND SECRETARIAL PRACTICE

Objective: The objective of the paper is to help the students in understanding concepts and issues in Auditing and Secretarial Practice.

UNIT-I


Verification and Valuation of Assets & Liabilities

UNIT – II

Secretarial Practice: Definition of Company Secretary, Qualification of Company Secretary, Appointment, Dismissal, Duties & Liability for Offences of Company Secretaries. Position and Role of Company Secretaries, Company Secretary in Practice.

Procedure for Statutory Meeting and its fate under New Companies Act 2013, Annual General Meeting, Extra Ordinary General Meeting, Director, Board and Committee Meetings, Meaning and Types of Motions and Resolution, Minutes, Role of Company Secretary before, during and after Meetings.

Practical Work :

a) Practical Work on Vouching and Audit Report Preparation.
b) Preparing of Minutes, Motions and Resolutions, Holding of Meetings.

Reference books:

2. Institute of Chartered Accountants of India: Auditing and Assurance Standards ICAI.
BCM 404: COST MANAGEMENT

Objective: The objective of the paper is to acquaint the students with the various methods of cost determination and tools and techniques of cost control.

UNIT – I
Cost Management: Need Significance and Different Areas of Cost Management and Application.
Methods of Cost Determination: Job Costing, Batch Costing, Contract Costing, Uniform Costing and Inter Firm Costing, Process Costing (including joint and by-products).

UNIT – II
Techniques for Cost Control:
Marginal Costing, Cost, Volume; Profit Analysis and Decision Making; Differential Costing and Absorption Costing.
Budgeting and Budgetary Control: Concepts, Objectives, Limitations, Types of Budgets, Zero Base Budgeting.
Standard Costing, Analysis of Variance.

Practical Work:
Use of software package to obtain cost accounting output like: Fixed and Variable Cost, Break Even Point, P/V Analysis, Preparation of budgets.

Reference books:
2. Jawahar Lal: Advance Management Accounting, S.Chand and Company Ltd.
Objective: The paper aims at making students to understand the basic concepts, philosophies, process and techniques of marketing.

UNIT – I

UNIT – II
Promotion Decisions: Communication Process.

Promotion Tools: Advertising (Steps Involved in Designing and Advertising Programme), Sales Promotions, Public Relations, Personal Selling.
Issues in Marketing in a Developing Economy, Rural Marketing.

Reference books:
BCM 406: QUANTITATIVE TECHNIQUES AND METHODS

Objective: The objective of the paper is to acquaint the student with the various quantitative techniques and methods used in managerial decisions.

UNIT I

Quantitative Techniques: Introduction and Use in Business
Linear Programming: Meaning, Advantages, Limitations, Basic Terminology, Formulation of Linear Programming Problem, Graphic Solution of Linear Programming Problem; Business Application of Linear Programming.

UNIT II

Interpolation and Extrapolation

Correlation: Meaning, Types, Methods-Scattered Diagram, Karl Pearson’s Coefficient of Correlation, Rank Correlation and Concurrent Deviation Method.

Regression: Meaning and Significance, Difference Between Correlation and Regression, Simple Linear Regression and Estimation of Parameters (Slope and Intercept).

Practical Work: Use of Microsoft Excel in Solving Simple Data Analysis.

Reference books:
2. K. Sydsaeter, P. Hammond Essential Mathematics for Economic Analysis, Pearson
Objective: The objective of the course is to impart basic knowledge of the provisions of Income tax laws in India.

UNIT – I


Income from Salaries, Income from House Property.

UNIT – II

Profits and Gains of Business and Profession including Depreciation, Capital gains, Income from Other Sources.

Note: The paper setter will consider the changes up to 30th September of relevant year.

Practical Work:

1. Preparation of Form 16 and 16A
2. Preparation and Filling of ITR Forms
3. Preparation of PAN Form

Suggested Readings:


2. Income Tax Law and Accounts - Dr. H. C. Mehrotra & Dr. S.P. Goyal (Sahitya Bhawan Publications, Agra)

3. Income Tax - Dr. Garish Ahuja & Dr. Ravi Gupta
   (Bharat Publications, New Delhi)
BCM 502: MANAGEMENT ACCOUNTING

Objective: To study the basic concepts of Management Accounting relevant in Business and helping the students to understand the usage of Accounting in Financial Management.

Unit-I


Unit-II


Practical: Use of various software packages to obtain different Management Accounting outputs like: (i) Fund Flow Statement, (ii) Ratio Analysis, (iii) Cash Forecasting.

Reference books:

4. Dr. S.N. Maheshwari: Principles of Management Accounting, Sultan Chand & Sons, New Delhi
5. I.M. Pandey: Management Accounting, Vikas Publication
6. Debarshi Bhattachharya: Management Accounting, Pearson Publication
BCM 503: INDIAN ECONOMY

Unit – I

i) State of Indian Economy at the time of Independence.

ii) Nature of Indian Economy.

iii) Features and Appraisal of Economic Reforms Programme.


vi) Demographic Features of Indian Population, Demographic Dividend.

Unit – II

i) Indian Public Finance: The Indian Tax Structure, Public Expenditure, Public Debt.


Suggested Readings:

9. Economic and Political Weekly: Various Issues
BCM 504: PRODUCTION AND OPERATION MANAGEMENT

Objectives: The objective of this course is to enable the students to understand the concepts of production and operations management of an industrial undertaking.

Unit-I


Unit-II


Suggested Readings:

1. B. Mahadevan "Operations Management Theory & Practice", Pearson Education.
4. B.S. Goel "Production Operation Management"
BCM 505: ENTREPRENEURSHIP AND SMALL BUSINESS

Objectives:- The basic objective of this course is to help the learners understand various issues involved in setting up a private enterprise and develop required entrepreneurial skills in economic development. It also aims to motivate students to opt for entrepreneurship and self-employment as alternate career options.

UNIT- I

Entrepreneurship- Concept and Theories; Entrepreneur- Meaning and Characteristics: Leadership, Risk taking, Decision making, Motivation, Innovation.

Women Entrepreneurship- Problems Faced, Suggestions, Role of Government to promote Women Entrepreneurship; Socio- economic Environment.

Business Planning; Entrepreneurial Development Programmes- their Relevance and Achievement, Role of Government in Organizing EDPs.

UNIT- II

Small Scale Business-Seed Bed of Entrepreneurship; Business Venture- Its Concept; Setting up a Small Scale Enterprise.

Product Planning and Management; Marketing Management; Growth and Diversification Strategies.

Role of Small Business in the National Economy; Small Business and Modern Technology.

Tax Considerations/ Benefits to Small Scale Units; SSI Exemptions.

Suggested readings

Objective: To familiarize the students with the traditional and modern financial and services.

UNIT I

Financial Markets: Meaning, Functions and Types.


UNIT II


Mutual Funds: Concept, Types, Advantages, Problems of Mutual Funds in India, Constitution and Management of Mutual Funds.

Exchange Traded Funds, Factoring.

Suggested readings

1. Financial Markets: A Beginners’ Module, Workbook from NSE
2. Mutual Fund: A Beginners’ Module, Workbook from NSE
5. Thummuluri, Siddaiah, Financial Services, 1st edition, Pearson Education.
Objective: The objective of the course is to impart basic knowledge of the provisions of Income tax laws in India.

UNIT – I

Deemed Incomes and Clubbing of Incomes (Aggregation of Incomes), Set-off and Carry Forward of Losses, Deductions to be made in Computing the Total Income, Rebate & Relief.

Assessment of Individual.

UNIT – II

Assessments of HUF, Association of Persons & Firm.

Income Tax Authorities, Procedure of Assessment (Practical aspects of Filing of Return to be stressed), Penalties, Deduction & Collection of Tax at Source, Advance Payment of Tax, Appeals & Revision.

Note: The paper setter will consider the changes up to 30th September of relevant year.

Practical Work:

1. Filing of return by an Individual, HUF & Firm.

2. Filling and Submission of TDS Form.

Suggested Readings:


2. Income Tax Law and Accounts Í Dr. H. C. Mehrotra & Dr. S.P. Goyal (Sahitya Bhawan Publications, Agra)

3. Income Tax Í Dr. Garish Ahuja & Dr. Ravi Gupta (Bharat Publications, New Delhi)
Objective: The objective of the paper is to familiarize the students with Principles and Practices of Financial Management.

UNIT- I

UNIT- II

Reference books:
BCM 603: ISSUES IN FINANCIAL REPORTING

Objectives: The main objective of this subject is to provide knowledge to the students about developments in financial reporting, and understanding of reporting issues at the national and international level.

Unit I


Conceptual Framework of Financial Reporting: FASB and IASB

International Financial Reporting Standards (IFRS): Role of IASB, Arguments for Global Conversion. Achievements of IASB and Obstacles in Conversion. Required Disclosures as per IFRS.

Unit II


Indian Accounting Standard with reference to Segment Reporting, Interim Reporting, Leases and Intangible Assets.

Difference between IFRS and Indian Accounting Standards. US GAAP.

Recent Trends in Financial Reporting in the Indian context

Suggested Readings:

1. E.S. Hendriksen, Accounting Theory, Richard D. Irwin.
6. L.S. Porwal, Accounting Theory, McGraw Hill Education (India) Ltd.
BCM604: SOCIAL AND BUSINESS ETHICS

Objectives: The course aims to educate that how the adoption of Business Ethics by organizations not only discourages corporate wrong-doing, but also contributes substantially in the achievement of corporate excellence.

Unit-I
Ethics at Workplace: Individual in Organisation, Gender Issues, Harassment, Discrimination.
Ethics in Accounting &Finance, Marketing and Consumer Protection- Importance, Problems and Issues.

Unit –II
Whistle Blower Policies-Meaning, Importance and Issues.
Corporate Social Responsibility under Company Act 2013.
Ethical Issues in Corporate Governance.
Environmental Issues-Protection of Natural Environment, Prevention of Pollution, Depletion and Conservation of Natural resources.

Suggested Readings:
2. Griffiths, B. : Themarriage of East and West , colling London
BCM 605: OPERATIONAL RESEARCH

Objective: To understand the concepts and techniques of Operations Research for business decision making and to acquire required skills to solve various problems in OR.

UNIT-I
Operational Research Meaning, Significance and Scope. Introduction to Linear Programming, Formulation of Linear Programming Problem, Graphical Method, Simplex Method. Duality in Linear Programming, Definition of Dual Problem, General Rules in Converting any Primal into its Dual, Transportation Problem, Assignment Problem.

UNIT-II

Practical Work:
Use of Linear Programming in Industry.

Suggested Readings:

BCM 606: SECTORAL ASPECTS OF INDIAN ECONOMY

Objectives: This course will provide insight into the various sectoral aspects of indian economy

Unit – I


ii) Industrial Development during the Planning Period, Industrial Policy of Govt. of India, National manufacturing policy, Small Scale and Cottage industries in India: Importance, problems and Govt. Policy, Large Scale Industries İ Iron & Steel, Cement and Petrochemicals.

Unit – II

i) Services Sector in India: Growth and Contribution of Services in India in Pre and Post Reform Period, Role and Problems of Public and Private Sector in India


Suggested Readings:

8. Economic and Political Weekly: Various Issues
B.COM. (HONS.) 3rd SEMESTER

BCH 307: ACCOUNTING THEORY AND REPORTING PRACTICES

Objective: The objective of the paper is to provide broad understanding to the students about the basic concepts, theories and policies regarding accounting theory.

UNIT-I

The History and Development of Accounting, Nature and Uses of Accounting, Traditional Approaches to the Formulation of An Accounting Theory, Regulatory Approach to the Formulation of An Accounting Theory; The Events, Behavioural and Human Information Processing Approach.

Unit –II


Reference Books:

2. Bhabatosh Banerjee, Regulation of Corporate Accounting and Reporting in India, World Press.
Objective: The objective of the paper is to provide broad understanding to the students about the basic concepts, theories and policies regarding economic development and growth.

UNIT-I

Concept of Economic Development, Distinction between Growth and Development, Various Traditional and Modern Criteria to Measure Development, Determinants of Development, Balanced vs. Unbalanced Growth,

Concept of Sustainable Development, Importance, Indices of Development,

Classical Theories of Development-Adam Smith, Karl Marks and Schumpeter, Rostow’s Stages of Growth, Kaldor Model of Growth.

UNIT-II

Economic Development Since Independence, India’s Five Years Plans- Objectives, Strategies, Achievements and Constraints,

Models in Economic Planning- Harrod-Domar Model, Mahalanobis Model,

Role of State and Capital Formation in Economic Development, Growth and Distribution Trends and Policies regarding Poverty; Inequality and Unemployment in India,

Reference Books:

BCH 309: ADVERTISING AND BRAND MANAGEMENT

Objective: The objective of the paper is to provide an understanding of the principles of advertising and brand management.

UNIT - I


UNIT – II

Brand-Concept: Nature and Importance of Brand; Brand vs. Generics, Brand Life Cycle, Brand Name and Brand Management; Brand Identity: Conceiving, Planning and Executing (Aaker Model), Brand Loyalty, Measures of Loyalty; Brand Equity: Concepts and Measures of Brand Equity-Cost, Price and Consumer Based Methods; Sustaining Brand Equity; Brand Personality: Definition of Brand Personality, Measures of Personality, Formulation of Brand Personality; Brand Image Vs Brand Personality. Brand Positioning: Concepts and Definitions, Repositioning, Celebrity Endorsement, Brand Extension; Differential Advantage: Strategies for Competitive Advantage, Brand Pyramid; Branding in different sectors; Role of Information in Brand Management; Role of e-Communities in Brand Management.

Reference Books:

BCH 310: BANK MANAGEMENT

Objectives: The paper aims at acquainting the students, the concepts of Bank Management and relevant aspects.

UNIT – I


UNIT – II


Reference Books:

1. Donald,F., R. Gup Benten E., Kolari, J.W., Commercial Banking The Management of Risk, South Western Thomson Learning
2. Justin,P. and Padmalatha, S., Management of Banking and Financial Services, Pearson Education
3. Timothy,K.W. and MacDonald, Bank Management, The Dryden Press, Hascourt College Publisher
B.COM. (HONOURS) 4\textsuperscript{th} SEMESTER

BCH407: CONTEMPORARY ISSUES IN ACCOUNTING

Objective: The paper aims at acquainting students with the contemporary issues in accounting.

UNIT – I

Role of International Accounting Standard Committee in Harmonisation of Divergent Accounting Practices.

Accounting for Human Resources.

Accounting for Price-Level Changes.

Accounting for Financial Instruments.

UNIT – II

Segment Reporting, Interim Reporting.

Forensic Accounting – Introduction – Historical Background, Essentials – Role of Forensic Accountant – Forensic Accounting in India.

Corporate Accountability Reporting – Basics of Sustainability Reporting – Social Reporting and Performance Reporting.

Accounting for Brand Equity – Introduction, Types of Brands, Objectives – Models, Environment Accounting.

Reference Books: -

1. L S Porwal. Tata McGraw-Hill Education,
2. Hendriksen, Irwin Professional Publishing; 5 Sub edition,
Objective: The objective of the paper is to provide basic knowledge to the students about concepts, theories and policies regarding industrial structure and growth.

Unit - I

Industrial Economics - Meaning, Scope, Need and Significance,
Pattern and Phases of Industrial Growth and Changes in Industrial Structure, Role of Industry in Economic Development,
Theories of Industrial Location- Weber, Sargent Florence, Factors Influencing Location of Industries, Localization and Decentralization on Industriesm, Industrial Productivity and Efficiency, Measures Required for Improving Productivity and Efficiency

Unit - II

Role of Industrialization in Economic Development, Factors for and Against Industrial Development, Problems of Industrialization in Developing Countries,
Industrial Finance in India- Scope, Importance and Sources, Industrial Growth in India during Plans, Impact of Economic Reforms on India's Industrial Growth,
IndiaÔôs Industrial Policies, Role and Performance of Public Sector Enterprises, Privatization of Public Sector Undertakings in India,
Performance and Problems of Micro, Small, Medium Enterprises in India

Reference Books:
1. Ahluwalia I.J., ÔIndustrial Growth in India,ÔOxford University Press, New Delhi
4. Desai, B. , ÔIndustrial Economics in India,ÔHimalaya Publishing House, Mumbai
7. Thakur, Srinivas V. , ÔIndustrialization and Economic DevelopmentÔPopular Parkashan, Mumbai
BCH 409 : CONSUMER BEHAVIOUR

Objective: The paper aims at enabling students to understand the process of consumer behaviour, the various external and internal factors that influence consumer behaviour and to apply the concept to the development of marketing strategy.

UNIT- I

Introduction to Consumer Behavior: Scope and Relevance of Consumer Behavior Studies; Buying Decision Process; Basic Model of Consumer Behavior; Problem Recognition – Methods of Problem Solving; Information Search, Alternative Evaluation and Selection, Outlet Selection and Purchase, Post Purchase Behavior and Customer Satisfaction, Role of Involvement. Individual Determinants of Consumer Behaviour: Role of Motivation; Personality and Self Concept; Attention and Perception; Consumer Learning; Consumer Attitudes – Formation and Change; Consumer Values and Lifestyles. External Determinants of Consumer Behavior: Influence of Culture and Subculture; Social Class; Reference Groups and Family Influences; Diffusion of Innovations.

UNIT- II


Reference Books:

BCH 410: BANK LEGISLATION

Objective: The paper aims to acquire knowledge about the legal & regulatory framework of the banking system and the various laws and enactments.

UNIT – I


UNIT-II


Reference Books:

2. RBI, Act, 1934.
5. Arundeep Singh and N.S. Toor: Legal and Regulatory Aspects of Banking, Skylark Publications.
OBJECTIVE: This Course aims at enabling the students to understand various financial management concepts and to apply financial management theories and techniques for strategic decision making and informed analysis. It aims at enabling students to manage basic corporate finance transactions besides investing more profitably and operate more efficiently.

UNIT-I


UNIT-II


Suggested Readings:

BCH 508: Money and Banking

Objectives: This course exposes students to the theory and functioning of the monetary and banking sectors of the economy.

Unit –I

Money- Concept, Functions, Measures;
Fisher’s Transactions Approach to the Quantity Theory of Money; Cambridge Cash- Balances Approach;
Keynes Demand Theory of Money; Friedman’s Theory of Demand for Money;
Theory of Money Supply- H- Theory of Money;
Inflation- Concept, Types, Demand-Pull inflation, Cost-Push Inflation, Philips Curve, Structural Inflation in the Less Developed Countries;

Unit-II

Bank- Meaning, Functions, Liabilities and Assets;
Commercial banks; Co-operative banks; Development banks; Non-Bank Financial Intermediaries (NBFIs); Unregulated Credit Markets;
Reserve Bank of India- Goals, Current Monetary Policy;
Banking Sector Reforms in India

Suggested Readings:

1. Suraj B. Gupta, Monetary Economics: Institutions, Theory and Policy, S. Chand & Company Ltd.
5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill,
8. www.rbi.org.in
Objective: To enable the students to design and administer a compensation system that rewards employees fairly while satisfying customer demands and permitting the organization to operate profitably.

Unit I


Unit II


Suggested Readings:

BCH 510: Electronic Banking and Risk Management

Objective: To provide an understanding and an appreciation of Electronic Banking and of Risk Management in order to enable the optimum strategy for the handling of risk in banks.

Unit-I

Electronic Banking – Core Banking – Electronic Products, On line Banking – Facilities provided and Security Issues, Cheque Truncation, Microfiche, Phone and Mobile Banking Electronic Funds Transfer Systems – Plain Messages (Telex or Data Communication) – Structured Messages (SWIFT, etc...) – RTGS, NEFT, Information Technology – Current Trends – Bank Net, RBI Net, Data Net, Nicnet, I-net, E-mail, etc. Role and Uses of Technology Up-gradation – Global Developments in Banking Technology Impact of Technology on Banks – Effect on Customers and Service Quality – Computer Audit – Information System Audit.

Unit-II


Suggested Readings:

B.COM. (HONOURS)

6th Semester

BCH607: INVESTMENT MANAGEMENT

Objective and expected outcome of the course: This course provides a broad overview of investment management, focusing on the application of finance theory to the issue faced by portfolio managers and investors in general. It aims at enabling the students to get theoretical and practical background in the field of investments, financial markets, valuation of investment and different investment strategies. Students will know the characteristics of different financial assets such as money market instruments, bonds, and stocks, and how to buy and sell these assets in financial markets.

Unit - I

Introduction to Investment Management


Valuation of Securities ï Valuation of Bonds, Valuation of Debentures, Valuation of Preference Shares, Valuation of Equity Shares and Share Valuation: CAPM Model.

UNIT - II

Market Indices ï Concept, Method of Computing India’s Leading Stock Indices, Overview of various Benchmark Indices, Market capitalization Indices, Sectoral Indices and Broad market Indices.

Security Credit Rating ï Introduction, Factors Affecting Assigned Ratings, Credit Rating Agencies in India, Functions, Approaches and Framework Used and Business Models, Benefits of Credit Rating, Regulatory Concerns.


Suggested Readings:

BCH 608: INTERNATIONAL ECONOMICS

Objective: The objective of the paper is to provide basic knowledge to the students about International Economics.

Unit-I

Adam Smith’s Absolute Advantage Theory; Ricardo’s Comparative Advantage Theory; Heckscher-Ohlin Theory of Trade; Terms of Trade

Free Trade vs Protection, Rationale of Protection Policy in Developing Countries, Barrier Tariffs, Quotas to Trade.

Unit-II


Exchange Rate: Meaning and Its determination; Fixed vs Flexible Exchange Rate, Theories of Exchange Rate: BoPs Theory, PPP Theory.
Suggested Readings:


BCH 609: TRAINING & DEVELOPMENT

Objectives: This Course aims at educating students regarding the concept of training and development in an organization.

UNIT – I

Introduction to Training Concept: Definition, Meaning, Need For Training, Importance Of Training, Objectives Of Training, Process Of Training: Steps In Training


UNIT – II

Designing Training and Development Programs: Organisation of Training and Development Programs, Training Design, Kinds of Training and Development Programs- Competence Based and Role Based Training; Orientation and Socialization


Suggested Readings:

5. Bhatia, S.K File' Training And Development
BCH 610: BANK MARKETING

Objective: The paper aims at acquainting the students application of marketing functions in banks, being directed at providing services to satisfy customers financial (and other related) needs and wants, more effectively and efficiently.

UNIT–I

Introduction of Marketing and Key Concepts

UNIT–II

Bank's Product Strategy

Suggested Readings:

-------------------
FACULTY OF SCIENCE
SYLLABI

FOR
B.Sc. (HONOURS) BIOTECHNOLOGY
Semester System
EXAMINATIONS 2017-2018

--:O:--
# B.Sc. (Hons.) Biotechnology (Semester System)

**Examinations 2017-2018**

## B.Sc. (Hons.) 1st year (1st Semester)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
<td>Course No.</td>
</tr>
<tr>
<td>1.</td>
<td>English</td>
<td>BIOT-Sem-I-I-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT - Sem-I--II-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Physics</td>
<td>BIOT-Sem-I-V-T</td>
<td>75</td>
<td>BIOT-Sem-I-V-P</td>
</tr>
<tr>
<td>6.</td>
<td>Introduction to Biotechnology</td>
<td>BIOT-Sem-I-VI-T</td>
<td>75</td>
<td>BIOT-Sem-I-VI-P</td>
</tr>
</tbody>
</table>

**Total Marks = 500**

## B.Sc. (Hons.) 1st year (2nd Semester)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course No.</td>
<td>Marks</td>
<td>Course No.</td>
<td>Marks</td>
</tr>
<tr>
<td>1.</td>
<td>English</td>
<td>BIOT-Sem-II-I-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT - Sem-II--II-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Basic Biochemistry</td>
<td>BIOT-Sem-II-IV-T</td>
<td>75</td>
<td>BIOT-Sem-II-IV-P</td>
</tr>
<tr>
<td>5.</td>
<td>Cell Biology</td>
<td>BIOT-Sem-II-V-T</td>
<td>75</td>
<td>BIOT-Sem-II-V-P</td>
</tr>
<tr>
<td>6.</td>
<td>General Microbiology</td>
<td>BIOT-Sem-II-VI-T</td>
<td>75</td>
<td>BIOT-Sem-II-VI-P</td>
</tr>
</tbody>
</table>

**Total Marks = 500**

The Environment, Road Safety Education and Violence Against Women & Children is a compulsory qualifying paper, which the students have to study in the B.Sc. 1st year (2nd Semester). If the student/s failed to qualify the paper during the 2nd Semester, he/she/they be allowed to appear/qualify the same in the 4th or 6th Semester/s.
## B.Sc. (Hons.) 2nd year (3rd Semester)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
<td>Course No.</td>
</tr>
<tr>
<td>2.</td>
<td>Genetics</td>
<td>BIOT-Sem-III-II-T</td>
<td>75</td>
<td>BIOT-Sem-III-II-P</td>
</tr>
<tr>
<td>3.</td>
<td>Immunology-I</td>
<td>BIOT-Sem-III-III-T</td>
<td>75</td>
<td>BIOT-Sem-III-III-P</td>
</tr>
<tr>
<td>5.</td>
<td>Animal Cell Culture</td>
<td>BIOT-Sem-III-V-T</td>
<td>75</td>
<td>BIOT-Sem-III-V-P</td>
</tr>
</tbody>
</table>

Total Marks = 500

## B.Sc. (Hons.) 2nd year (4th Semester)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
<td>Course No.</td>
</tr>
<tr>
<td>1.</td>
<td>Immunology-II</td>
<td>BIOT-Sem-IV-I-T</td>
<td>75</td>
<td>BIOT-Sem-IV-I-P</td>
</tr>
<tr>
<td>2.</td>
<td>Biophysical and Biochemical Techniques</td>
<td>BIOT-Sem-IV-II-T</td>
<td>75</td>
<td>BIOT-Sem-IV-II-P</td>
</tr>
<tr>
<td>5.</td>
<td>Agro &amp; Industrial Biotechnology</td>
<td>BIOT-Sem-IV-V-T</td>
<td>75</td>
<td>BIOT-Sem-IV-V-P</td>
</tr>
</tbody>
</table>

Total Marks = 500
### B.Sc. (Hons.) 3rd year (5th Semester)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
</tr>
<tr>
<td>1.</td>
<td>Molecular Biology</td>
<td>BIOT-Sem-V-I-T</td>
<td>75</td>
<td>BIOT-Sem-V-I-P</td>
</tr>
<tr>
<td>2.</td>
<td>Enzymology</td>
<td>BIOT-Sem-V-II-T</td>
<td>75</td>
<td>BIOT-Sem-V-II-P</td>
</tr>
<tr>
<td>3.</td>
<td>Environmental Biotechnology</td>
<td>BIOT-Sem-V-III-T</td>
<td>75</td>
<td>BIOT-Sem-V-III-P</td>
</tr>
<tr>
<td>4.</td>
<td>Tools in Bioinformatics</td>
<td>BIOT-Sem-V-IV-T</td>
<td>75</td>
<td>BIOT-Sem-V-IV-P</td>
</tr>
<tr>
<td>5.</td>
<td>Intellectual property rights and Ethical Issues in Biotechnology and Entrepreneurship</td>
<td>BIOT-Sem-V-V-T</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Total Marks = 500

---

### B.Sc. (Hons.) 3rd year (6th Semester)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
</tr>
<tr>
<td>2.</td>
<td>Bioprocess Engineering and Technology</td>
<td>BIOT-Sem-VI-II-T</td>
<td>75</td>
<td>BIOT-Sem-VI-II-P</td>
</tr>
<tr>
<td>3.</td>
<td>Food Biotechnology</td>
<td>BIOT-Sem-VI-III-T</td>
<td>75</td>
<td>BIOT-Sem-VI-III-P</td>
</tr>
<tr>
<td>4.</td>
<td>Genomics and proteomics</td>
<td>BIOT-Sem-VI-IV-T</td>
<td>75</td>
<td>BIOT-Sem-VI-IV-P</td>
</tr>
<tr>
<td>5.</td>
<td>On Job Training</td>
<td>----</td>
<td>--</td>
<td>BIOT-Sem-VI-V-P</td>
</tr>
</tbody>
</table>

Total Marks = 500
# B.Sc. (Hons.) 1st year (1st Semester)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Course No.</td>
<td>Marks</td>
<td>Course No.</td>
</tr>
<tr>
<td>1.</td>
<td>English</td>
<td>BIOT-Sem-I-I-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT - Sem-I--II-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>5.</td>
<td>Physics</td>
<td>BIOT-Sem-I-V-T</td>
<td>75</td>
<td>BIOT-Sem-I-V-P</td>
</tr>
<tr>
<td>6.</td>
<td>Introduction to Biotechnology</td>
<td>BIOT-Sem-I-VI-T</td>
<td>75</td>
<td>BIOT-Sem-I-VI- P</td>
</tr>
</tbody>
</table>

Total Marks = 500
Paper: English  
Code No: BIOT-Sem-I-I-T  

Semester I  
Note: (i) There will be one paper of 40 marks, 5 marks are reserved for the internal assessment and 5 for the Practical work. Total is 50.

(ii) The paper shall consist of Two Units, Unit I will be text specific and Unit II shall deal with different aspects of Communication and Language Skills.

(iii) For Unit I, the prescribed text is Varieties of Expression Ed. A.H.Tak. Foundation Books. Only four Prose chapters and two dramas have been recommended for study. The relevant sections, however, are as follows:

Unit I  
Prose: Chapters 1-4  
Drama: Dramas 1-2

Unit II  

Note (iv) No text book is recommended for Unit II, but a few books that may be used for this Unit are listed towards the end. Unit II shall consist of the following:

Business Communication: It shall focus on different aspects of communication in general and business communication in particular, communication within organizations, types of communication, and significance of positive attitude in improving communication.

Writing Skills: This section shall focus on letters of all kinds, tender notices, auction notices, public notices; and memos.

Practical Work:  
Teacher should assign some project or practical work to the students. This should be in the nature of guided activity, which the students shall have to complete under the direct supervision of the teacher. The students may be given projects on a variety of subjects relating to their discipline i.e. business, commerce, accounts etc. Preferably, they should be given minor projects (to be completed within less than two weeks, and length not exceeding 20 pages) in consultation with teachers of commerce. However, the evaluation of the projects should be done only by the Language Teachers, who must keep all the basic criteria of good writing in mind while doing so.

Note: In case of private candidates and students of School of Open Learning, the marks obtained by them out of 40 will be proportionately increased out of 50).

Testing Scheme:  
The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Unit I shall be as follows:

Section I (It is text-based and corresponds to Unit I in the syllabus)

Q.1 It shall consist of six short questions. Three from Prose and three from drama (not exceeding 50-60 words) out of which, a student will be expected to attempt any two from Prose and two from Drama.
This question shall be based upon the prescribed text *Varieties of Expression* and cover a wide range of issues, topics and problems.  

**Q.2** It shall consist of four long questions—**Two** from *Prose* and **two** from *Drama* (not exceeding 100-150 words) out of which a student will be expected to attempt **two**-one from Prose and one from Drama.  

**10 marks**

Note: The question 1 & 2 should be so designed as to cover all the chapters prescribed (Prose & Drama)

**Q.3.** It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given **five** words in one column and asked to match them with words/meanings in the next column.  

**5 marks**

**UNIT II**

**Q.4.** This question shall test a student’s ability to write letter of various kinds (not more than 200 words). Again, there will be internal choice here.  

**5 marks**

**Q.5.** Memos/Tender Notices/Auction Notices/Public Notices.  

**10 marks**

**Q.6** One short question to test the students’ understanding of various aspects of Business Communication.  

**5 Marks**
BIOT - Sem-I--II-T

समेतत्व पत्रिका

समार 2017 देन भिडिगरठ डगी

Course Title : PUNJABI  Course Number : 111

वेंस भाग : 50

संचिति : 45

हिंद्वल अध्यापन: 5

सम: 3 पहटे

पाठ

पंजाबी विषय का अधियोग

पेंट-विज्ञान

विश्वकर्मा

वेंस

आधार-आधार (विषय के बना संग्रह),

मंगलधर : डॉ. भैरवसिन्ह भि देन डॉ. विकार भि संग पूर्ववर्त तत्त्व तरल रेप पतिचराटी, अभियुक्त, 2006

आधार-आधार प्रमुख के विषय द्रवा रिचर्ड विश्वकर्मा 5 ऑफ

(2 रिचर्ड 1)

आधार-आधार प्रमुख रिचर्डी विद्वानों व विद्वानों द्र रिचर्ड रॉम बें मार

(2 रिचर्ड 1)

वेंस रिचर्डी पहला प्रमुख (आधार-आधार) भीम विद्वानों राज

मेंदेएद प्रमुख रिचर्ड

संग पूर्ववर्त देन संग्रह (7 दें 5)

संग पूर्ववर्त अधिकार के मंगलधर देन संग्रह दे चर्चा भाषणों यत्न पेंट-प्रमुख

(वेंस विद्वान)

विष्कर्मा : (3+3+4=10 ऑफ)

(1) विभाग विभाग

(2) ड्रामा दे झट पेंट में विश्वकर्मा

(3) प्रभावित है उद्यान विभिन्न विभिन्न

प्रमुख विभिन्न विभिन्न के सीट, लघुर देन वेंस्टान

विश्वकर्मा रेट : मानव पाठ वास गठी उड़िये रिचर्ड 6 पीलिया
HISTORY AND CULTURE OF PUNJAB – I

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment. 
The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER : HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES TO 1849

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I

UNIT II
4. Society and Culture under Maurayas
5. Society and Culture under Gupta
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism
UNIT III
9. Institution of Khalsa: new baptism; significance

UNIT IV
10. Changes in Society in 18th century: social unrest; emergence of misls and institutions-rakhi, gurmata, dal khalsa.
11. Society and Culture of the people under Maharaja Ranjit Singh

Suggested Readings:
1. Joshi, L.M (ed.): History and Culture of the Punjab, Part-I, Publication Bureau, Punjabi University, Patiala, 1989 (3rd edn.)
5. Basham, A.L: The Wonder That was India, Rupa Books, Calcutta (18th rep.), 1992
6. Sharma, B.N: Life in Northern India, Munshi Ram Manohar Lal, Delhi, 1966
7. Singh, Kirpal: History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).

Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:
A. That the students who have not studied Punjabi upto class 10th.
B. Ward of / and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners
Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
- Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
- Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Objectives:

Mathematics

- To study the different concepts of limits, differentiation, integration and calculus so as to apply these concepts in biotechnology.
- To learn solutions to quadratic, cubic equations, differential equation, linear equation and thus study the applications in biotechnology.

Paper: Mathematics

UNIT – I

Numbers
Different kinds of numbers, integer, rational and irrational, surds and their properties, Fractional indices.
Complex numbers, conjugate, modulus and argument of a complex number.

UNIT – II

Set, relation and function
Set, product sets, relations, functions (polynomials, trignometric, exponential), graphical representation of functions

Limit
Sequences, limits of sequences, series, limits of functions

UNIT III

Calculus
Differentiation: Calculating gradients of chords first and higher order derivatives. Applications increasing and decreasing functions, maximum and minimum points, Derivatives as rates of change.

Integration
Finding a function from its derivative, definite integral, indefinite integral, calculating areas for bounded regions.

Differential Equations
Forming differential equations solving first order differential equation and second order differential equation with constant co-efficients, growth equation, applications.
UNIT – IV

Linear Programming
Elementary statistics

**Representation of Data:** Discrete data, continuous data, histogram, polygons, frequency curves, The Mean, variability of data-The standard deviation, Median, quintiles, percentile
Skewness

**Reference Books:**

**Mathematics (Practicals)**

Practical : 22 Marks
Internal Ass.: 3 Marks

1. Computation of mean, variance and standard deviation using given (preferably biological) data (2 to 3 practicals).
2. Sets (Venn-Diagram, Union, Intersection, Difference of sets, Symmetric Difference of sets, Complement of sets) (2 practicals).
3. Relations (graphical representation of relation from set A to set B or set A to set A) (1 practical).
4. Histogram, frequency polygon, ogives, pie chart, bar diagrams (2 to 3 practical).
5. Solving linear programming problem using graphical methods (2 practical).

**Paper: Life Sciences**

BIOT-Sem-I-III-TB
Theory: 67 Marks
Internal Ass.: 8 Marks

**Instructions for paper setters and candidates**

• Set nine questions in all from three sections. All questions carry equal marks.
  o Section A will cover Unit I & II
  o Set 2 questions from each unit out of which any 2 are to be attempted
  o Section – B will cover Unit – III & IV
  o Set 2 questions from each unit out of which any 2 are to be attempted
    o Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

**Life Sciences**

• To increase scientific vocabulary and understanding of a variety of life science concepts.
• To learn about the anatomy and physiology of animals and animal systems.
• To study ecology and ecosystems.

**Unit-I**

An introduction to life on earth.

**Plant Anatomy and Physiology:**
Structure of land plants.
Nutrition and Transport phenomena in plants.
Plant reproduction and development.
Plant responses to the environment.

**Unit-II**

**Ecology:** Community interactions.

**Ecosystems:** Definition and components.
Food chain and food web.
Habitat.
Ecological succession.
Types of succession.
Animal behaviour:- Definition and learning.

**Unit-III**

**Animal Anatomy and Physiology:**
Homeostasis and organization of animal body.
Circulation.
Respiration.
Nutrition and digestion.
Urinary system and homeostasis.
The immune response.

**Unit-IV**

**Animal Anatomy and Physiology:**
The endocrine system.
Nervous system.
The senses.
Action and support by the muscles and skeleton system.
Reproduction.

**Reference Books:**

**BIOT-Sem-I-III-PB**

**Life Sciences (Practical)**

Practical : 22 Marks
Internal Ass.: 3 Marks

1. To study cell structure from onion leaf peels.
2. To study ultra structure of cell organelles through photographs.
3. To study digestive, Respiratory, Circulatory, Endocrine and Reproductive system of Human body through charts/ model.
4. Study of the slides/specimens and identification with reasons – Bacteria, oscillatoria, Spirogyra, Rhizopus, Mushroom, yeast, liverwort, moss, fern, lichen, one monocotyledon and dicotyledon.


Paper: Chemistry Theory: 67 marks
Code No: BIOT-Sem-I-IV-T Internal Ass.: 8 Marks

Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Objectives:

- To learn the concepts of chemical thermodynamics, chemical equilibrium and their applications.
- To learn about compounds of carbon, their sources, mechanism of reactions and utility in daily life
- To study concepts of stereochemistry and spectra of organic molecules.

UNIT – I


b) Periodic properties: Position of elements in the periodic table, effective nuclear charge and its calculation, atomic and ionic radii, ionization energy, electron affinity, electronegativity. Trends in periodic table and application in predicting and explaining the chemical behavior.

c) Molecular Spectroscopy: Difference between atomic and molecular spectroscopy, absorption and emission spectroscopy, regions of electromagnetic spectrum. Infrared and Raman spectra, basic principle and information from Infrared and Raman spectra. Principle of NMR, chemical shift values and its applications. Importance of mass spectroscopy in chemistry and biology

UNIT – II

a) Solutions: Ideal and non-ideal solutions, method of expression concentrations of solution, activity and activity coefficients, dilute solution, Osmotic pressure, its law and measurements, Elevation of boiling point and depression of freezing points.

b) Chemical kinetics: Scope, rate of reaction, influencing factors such as concentration, temperature, pressure, solvent etc. theories of chemical kinetics. Arrhenius equation, concept of activation energy.
UNIT – III

a) **Photochemistry:**

b) **Coordination compounds:** Introduction, Wener’s coordination theory, naming of coordination compounds, isomerism and stereochemistry in coordination compounds

UNIT – IV

a) **Fundamentals:** inductive effect electromeric effect, resonance, hyperconjugation, types of reagents, electrophiles and nucleophiles, types of organic reaction intermediates, carbocations, free radicals, carbenes (with example). Nomenclature and classification of Alkyl halide, method of formation, chemical reaction, mechanisms and stereochemistry of nucleophilic substitution reaction of Alkyl halides, SN₂, and SN₁ reaction with energy diagram.

b) **Carboxylic Acids and derivatives:** Structure of carboxylic acids and derivatives. Acidity of carboxylic acids, effects of substitution on acidic strengths, chemical properties of carboxylic acids. HVZ reaction with mechanism. Relative stability and reactivity and reactivity of acid chloride, esters, anhydrides, amides, mechanism of esterification.

**Reference Books:**

BIOT-Sem-I-IV-P Chemistry (Practical) Practical: 22 Marks Internal Ass.: 3 Marks

1. Inorganic qualitative analysis
2. Four ions including interfering ions.
3. Iodimetry and Iodometry
4. Redox titrations using ceric sulphate, potassium dichromate and potassium permanganate
5. Complexometric titration using EDTA of Ca++, Mg++ and Zn++
6. Analysis of a given organic compound (solid): Elemental Analysis,

**Reference Books:**
Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
- Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
- Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Objectives:
Physics is one of the important basic sciences and Biotechnology is based upon these. Introduction to basic course of Physics will enhance the grasping of subject.

UNIT – I
Science, Physics and Life Sciences- An introduction to apparent differences and the underlying overlap (atomic nature of matter). Units of measurement and ranges (from the smallest to the largest known) for different physical quantities viz. mass, length, time, current, temperature, luminosity, etc. with suitable examples from bio/physical sciences.

UNIT – II
Coulomb’s law for point charges; electric field due to point charge and electric dipole (on axial line and equator line), electric flux; Gauss’s theorem and its applications (line of charge and sheet of charge).

Electric potential due to point charge, group of charges and dipole (on axial line and equatorial line), potential difference as line integral of electric field, capacitance; series and parallel arrangements, energy stored in the electric field of capacitor, current, current density, equation of continuity, Ohm’s law in vector form.

UNIT - III
Interference of waves, phase and path differences, theory of interference fringes, Young’s experiment, coherent sources, Llyod’s mirror, Fresnel Biprism, intensities of maxima and minima.

Diffraction of light, rectilinear propagation, Fresnel and Fraunhofer diffraction, Fraunhofer diffraction at single slit, Rayleigh criterion for resolving power, Resolving power of telescope and microscope, Compound Microscope ( Principle, construction, ray diagram, formula for magnifying power), fluorescent microscope(concept only), Polarization, introduction.

UNIT – IV
Quantum theory of light, X-rays diffraction, Compton effect, Bragg’s law, de Broglie wave equation, phase velocity and group velocity, electron microscope, Uncertainty Principle (statement only), applications of Uncertainty Principle ( particle in a box, existence of electron in Nucleus and atom ).

Radioactivity and its laws ; half-life and mean life, uses of radioactivity.
Reference Books:
2. Electricity and Magnetism : Berkeley physics course vol. II.

BIOT-Sem-I-V-P

Physics (Practical)

Practical : 22 Marks
Internal Ass.: 3 Marks

Introduction and practice the concepts of proper measurement, data recording, and data presentation; stress to be laid on use of proper units, least count, error & its propagation, graph plotting & least square fitting. (Simple measuring devices available in the lab may be used to create basic data).

1. Resolving power of Telescope/Microscope.
2. Rotation of the plane of polarization of a solution using a Polarimeter.
3. Use of C.R.O. as a display & measuring device.
4. Capacitance by flashing and quenching of a neon lamp.

Reference Books:
1. Laboratory Manual of Physics for Undergraduate classes by D. P. Khandelwal

Paper: Introduction to Biotechnology

Theory: 67 Marks
Internal Ass.: 8 Marks

Instructions for paper setters and candidates

• Set nine questions in all from three sections. All questions carry equal marks.
  o Section A will cover Unit I & II
• Set 2 questions from each unit out of which any 2 are to be attempted
  o Section – B will cover Unit – III & IV
• Set 2 questions from each unit out of which any 2 are to be attempted
  o Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Objectives: -
This course will introduce the basic concepts of biotechnology to the students. They will learn about the history of biotechnology; the foundations of modern biotechnology; the role of biotechnology in fermentation industry, environment and modern medicine and the ethical implications of biotechnology.

Unit-I

Advent, scope and basics of biotechnology
Bacteria as workhorses of biotechnology; E. coli as the model bacterium
Yeast and fungi in Biotechnology
Introduction to multicellular organisms as research models: *Drosophila melanogaster, Caenorhabditis elegans, Daniorerio, Musmusculus*
*Arabidopsis thaliana* as model for plant genetics,
Role of viruses and bacteriophages in biotechnology

**Unit-II**
Structure and function of the cell: the basic unit of life
Prokaryotic and Eukaryotic cells
Biomolecules in a cell (DNA, RNA and proteins)
Introduction to genomics, transcriptomics, proteomics and metabolomics; bioinformatics and its role in biotechnology.
Introduction to basic techniques like sterilization, centrifugation, electrophoresis, chromatography, sonication.
Fundamentals of recombinant DNA technology: Restriction Enzymes, Vectors and their properties.

**Unit-III**
Applications of biotechnology: today and tomorrow
Basics of Biotechnology in fermentation and pharmaceutical processes.
Green technology to control pollution.
Role of biotechnology in diagnostics, introduction to gene therapy.

**Unit-IV**
Biotechnology and society: genetically modified organisms (GMOs) - transgenic plants and animals and their applications in biotechnology.
Public concerns and risks associated with genetic engineering: Bioterrorism and biowarfare.
Ethical, social and legal implications of biotechnology.

**Reference Books:**
1. Introduction and use of basic equipments in a biotechnology laboratory (Auto-pipettes, pH meter, centrifuges, light microscope, electrophoretic apparatus, vortex mixer, magnetic stirrer, rocker, laminar hoods, autoclave, sonicator)

2. Handling and disposal of hazardous reagents (acids, carcinogenic chemicals like acrylamide, ethidium bromide) and concept of chemical hoods

3. Good laboratory practices followed in biotechnology laboratory (sterility, DNAse/ RNAse free space, separate area for protein work, possible means of contamination and its control etc)

4. Cell disruption and cell lysis of animal/plant/bacterial cell

5. Separation and estimation of extracellular and intracellular proteins

6. Quantification of nucleic acids by colorimetry (orcinol)

7. Introduction to bioinformatic tools used in biotechnology
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Course No.</strong></td>
<td><strong>Marks</strong></td>
<td><strong>Course No.</strong></td>
</tr>
<tr>
<td>1.</td>
<td>English</td>
<td>BIOT-Sem-II-I-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT-Sem-II--II-T</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>Basic Biochemistry</td>
<td>BIOT-Sem-II-IV-T</td>
<td>75</td>
<td>BIOT-Sem-II-IV-P</td>
</tr>
<tr>
<td>5.</td>
<td>Cell Biology</td>
<td>BIOT-Sem-II-V-T</td>
<td>75</td>
<td>BIOT-Sem-II-V-P</td>
</tr>
<tr>
<td>6.</td>
<td>General Microbiology</td>
<td>BIOT-Sem-II-VI-T</td>
<td>75</td>
<td>BIOT-Sem-II-VI-P</td>
</tr>
</tbody>
</table>

**Total Marks = 500**
ENVIRONMENT, ROAD SAFETY EDUCATION AND VIOLENCE AGAINST WOMEN AND CHILDREN (SEMESTER – II)

Note: The syllabus has 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topic from 2 to 11 and one each for the topics 1 and 12 to 15.

1. Environment Concept:
Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere; Natural resources – their need and types; Principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

2. Atmosphere:
Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.

3. Hydrosphere:
Types of aquatic systems; Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.

4. Lithosphere:
Earth crust, soil – a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

5. Forests:
Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban Forests, Chipko Andolan.

6. Conservation of Environment:
The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems – soil, water, air, wildlife, forests.

7. Management of Solid Waste:
Merits and demerits of different ways of solid waste management– open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

8. Indoor Environment:
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. Global Environmental Issues:
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.
10. Indian Laws on Environment:
Indian laws pertaining to Environmental protection: Environment (Protection) Act, 1986; General information about laws relating to control of air, water and noise pollution. What to do to seek redressal.

11. Biodiversity:
What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.

12. Noise and Microbial Pollution:
Pollution due to noise and microbes and their effects.

13. Human Population and Environment:

14. Social Issues:
Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.

15. Local Environmental Issues:
Environmental problems in rural and urban areas. Problem of Congress Grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

Practical
Depending on the available facility in the college, a visit to vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken.

Examination Pattern:
A qualifying paper of 50 marks comprising of fifty multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong answer or un-attempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added / included in the final mark sheet.
UNIT II (ROAD SAFETY)

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Engineering – Concept & Significance.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

Note: Examination Pattern:

- The Environment and Road Safety paper is 70 marks.
- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted questions).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit II is to be covered in 10 hours.
- All the questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination: 90 minutes.
- The paper setter is requested to set the questions strictly according to the syllabus.

Suggested Readings

2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

Websites:

(a) www.chandigarhpolice.nic.in
(b) www.punjabpolice.gov.in
(c) www.haryanapolice.gov.in
(d) www.hppolice.nic.in
1. Concept and Types of Violence: Meaning and Definition of violence; Types of Violence against women – domestic violence, sexual violence (including rape), sexual harassment, emotional/psychological violence; Types of Violence against children – physical violence, sexual violence, verbal and emotional abuse, neglect & abandonment.

2. Protective Provisions of IPC on Domestic Violence & Sexual Violence against Women:
- **Dowry Death** – Section 304B;
- **Rape** – Sections 375, 376(1), 376A, 376B, 376C, 376D and 376E;
- **Cruelty** – Section 498A;
- **Insult to Modesty** – The Indian Penal Code does not define the word eve-teasing; there are three sections which deal with crime of eve-teasing. These are Sections, 294, 354 and 509 of Indian Penal Code. Section 509 of the Indian Penal Code defines (Word, gesture or act intended to insult the modesty of a woman), Section 294 – (Obscene acts and songs) and Section 354 (Assault or criminal force to woman with intent to outrage her modesty);
- **Hurt & Grievous Hurt Provisions** – Sections 319 to 326;
- **Acid Attacks** – Sections 326A and 326B;
- **Female Infanticide** – Section 312, Section 313 of Indian Penal Code (Causing miscarriage without women’s consent) and section 314;
- **Sexual Harassment** – For providing protection to working women against sexual harassment, a new section 354 A is added; 354 B (Assault or use of criminal force to women with intent to disrobe); 354 C Voyeurism; 354 D (Stalking). All these provisions are added in IPC to protect women against acts of violence through Criminal Law (Amendment) Act, 2013; Human Trafficking and Forced Prostitution- Sections 370 and 370A.

3. Protective Laws for Women:


3.2 **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** – Definition, Internal Complaint Committee, Local Complaint Committee, Procedure adopted by Committee for punishing accused.

4. Protective Provisions of IPC regarding Sexual Violence against Children:
- **Section 293** (sale etc. of obscene objects to young persons); 294 (obscene acts & songs); 305 (abettment of suicide of child); 315 to 317 (act causing death after birth of a child etc.); 361 (kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A
(kidnapping or maiming a minor for purposing of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).

4.1 The Protection of Children from Sexual Offences Act, 2012: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.

Note: Instructions for Examination:

- Unit III of the paper dealing with Violence against Women and Children is of 30 Marks.
- It shall have 30 multiple-choice questions (with one correct and three incorrect choice options and no deduction of marks for wrong or un-attempted questions).
- Minimum two questions from each topic must be covered.
- All the questions are to be attempted
- Qualifying Marks 33 percent
- Duration of Examination 30 Minutes
- The Paper Setter is requested to set the questions strictly according to the syllabus.

Pedagogy:

- The entire syllabus of Unit III is to be covered in ten hours in total, with each lecture of one-hour duration.
- The purpose behind imparting teaching-learning instructions is to create basic understanding of the contents of the Unit III among the students.

RELEVANT READING MATERIAL

Ahuja, Ram (1998), Violence against Women, New Delhi: Rawat Publication
NRHM, Child Abuse, A Guidebook for the Media on Sexual Violence against Children
The Protection of Children from Sexual Offences Act, 2012
The Protection of Women from Domestic Violence Act 2005
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
UNO, United Nations Secretary-General’s Study on Violence against Children, adapted for Children and Young People
Unit IV (Drug Abuse)

Drug Abuse: Problem, Prevention and Management

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three year of degree course.

The paper/Topic “Drug Abuse: Problem, Prevention and Management” having 2 credit/50 marks (40 theory+10 Internal) at undergraduate level, as a fourth part of the paper ‘Environment, Road Safety Education and Violence against Women and Children’ from the academic session 2017-18.

Main Objective

This module introduces to the students the problem of drug abuse and its adverse consequences for the society. The students would get an understanding of why drug abuse is such a serious problem to our society. The course also apprises them of how to prevent and manage this menace.

Learning objectives of the course

1. Understand the meaning of the term drug.
2. Understand the difference between use, misuse and abuse of drugs.
3. Differentiate between commonly abused legal and illegal drugs.
5. Understand the causes and consequences of drug abuse.
6. Identify and access safety measures for support to stay away/give up drug abuse.

Pedagogy of the course work

1. 70% Lectures (Including expert lectures)
2. 30% assignments, discussion, seminars and class tests.
   - A visit to drug de-addiction centre could also be undertaken

Course content

UNIT I: Problem of Drug Abuse


b) Types of drugs often abused and their effects

Stimulants: tobacco Amphetamines: dl-amphetamine (Benzedrine ®), dextroamphetamine (Dexedrine®). Cocaine.

Depressants: Alcohol. Barbiturates: phenobarbitone (Nembutal®), secobarbital (Seconal®), Benzodiazepenes: diazepam (valium ®), alprazolam (Xanax®), flunitrazepam (Rohypnol®)
**Narcotics:** Morphine, heroin (‘Chitta’/ ‘Brown Sugar’), pethidine, oxycodone.

**Hallucinogens:** cannabis [‘Bhang’, marijuana (‘Ganja’), hashish (‘Charas’), hash oil]. MDMA (3,4- methylenedioxy methamphetamine) /’Ecstasy’/ ‘Molly’. LSD (lysergic acid diethylamide).

**Miscellaneous:** cough/cold medicines: diphendydramine (Benadryl®), chlorpheneramine maleate+ codeine+alcohol (Corex®). Iodex®, Vicks®, Amrutanjan® and correction fluid (Whitener).

**UNIT II: Theories of consequences of drug abuse**

   a) **Theories of drug abuse:** Physiological theory. Psychological theory. Sociological theory.

   b) **Consequences of drug abuse:** For individuals, families, society and economy.

**Unit III: Extent and nature of the problem**


**UNIT IV: Prevention and management of drug abuse**


**Suggested readings:**

5. 2003 National Household survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, AIIMS, 2004
Paper: English  
Code No: BIOT-Sem-II-I-T  

Semester II  

Note: (i) There will be one paper of 40 marks, 5 marks are reserved for the Internal assessment and 5 for the Practical work. Total is 50.  

(ii) The paper shall consist of Two Units, Unit I will be text specific and Unit II shall deal with different aspects of Communications and Language Skills.  

(iii) For Unit I, the prescribed text is Varieties of Expression Ed. A.H.Tak. Foundation Books. Only four Prose chapters and two dramas have been recommended for study. The relevant sections, however, are as follows:  

**Unit I**  
Prose: Chapters 5-8  
Drama: Dramas 3-4  

**Unit II**  

Note (iv) No text book is recommended for Unit II, but a few books that may be used for this Unit are listed towards the end. Unit II shall consist of the following:  

*Writing Skills:* This section shall focus on précis-writing, curriculum vitae; short, formal reports (not exceeding 200 words) and advertisements relating to product promotion etc.,  

*Modern Forms of Communication:* Here special emphasis shall be given to teaching the format of E-mails, Fax Messages, Audio-Visual Aids and Power-Point Presentations. Apart from this, the students shall also be given basic lessons in Effective Listening, Non-Verbal Communication, How to Prepare for an Interview & Group Discussion etc.  

**Practical Work:**  
Teacher should assign some project or practical work to the students. This should be in the nature of guided activity, which the students shall have to complete under the direct supervision of the teacher. The students may be given projects on a variety of subjects relating to their discipline i.e. business, commerce, accounts etc. Preferably, they should be given minor projects (to be completed within less than two weeks, and length not exceeding 20 pages) in consultation with teachers of commerce. However, the evaluation of the projects should be done only by the Language Teachers, who must keep all the basic criteria of good writing in mind while doing so.  

Note: In case of private candidates and students of School of Open Leaning, the marks obtained by them out of 40 will be proportionately increased out of 50.  

**Testing Scheme:** The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:  

**Unit I** (It is text-based and corresponds to Unit I in the syllabus)  

Q.1 It shall consist of six short questions. Three from Prose and three from drama (not exceeding 50-60 words) out of which, a student will be expected to attempt any four. Two from Prose and two from
Drama. This question shall be based upon the prescribed text Varieties of Expression and cover a wide range of issues, topics and problems.  
Q.2 It shall consist of four long questions—Two from Prose and two from Drama (not exceeding 100-150 words) out of which a student will be expected to attempt two—one from Prose and one from Drama.

Note: The question 1 & 2 should be so designed as to cover all the chapters prescribe (Prose & Drama)
Q.3 It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given five words in one column and asked to match them with words/meanings in the next column.

UNIT II
Q.4 Short Survey Report (150-200 words) with internal choice.
Q.5 Precis of 200 words.

Q.6 Definition/Format of modern forms of communication to be tested.
<table>
<thead>
<tr>
<th>नं.</th>
<th>सवाल</th>
<th>भाग</th>
<th>सफलता</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>आउट-आउट</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>आउट-आउट</td>
<td>3+5=8</td>
<td>45%</td>
</tr>
<tr>
<td>3</td>
<td>वेक्स विचली पाठ-पूँजी (आउट-आउट) सीमा में वर्गीकरण का प्रमाण देंगे पूँजी 7 वेक्स (7 भाग)</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>4</td>
<td>महत्त्वपूर्ण अध्ययन द्वारा पूँजी की सूची तालिका में पूँजी स्तर के प्रमाण देंगे पूँजी 7 वेक्स (2 भाग)</td>
<td>7</td>
<td>50%</td>
</tr>
<tr>
<td>5</td>
<td>विश्लेषण:</td>
<td>3+3+4=10</td>
<td>50%</td>
</tr>
<tr>
<td>6</td>
<td>पूँजी के माध्यम से वर्गीकरण का सीमा, (पूँजी के प्रमाण देंगे पूँजी)</td>
<td>10</td>
<td>50%</td>
</tr>
</tbody>
</table>

विशेष नोट: सभी पत्थर लूट करने उद्देश्य 6 वेक्स
HISTORY AND CULTURE OF PUNJAB-II

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment. The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region in the Modern times.
Pedagogy: Lectures, library work and discussions.

UNIT I
1. Introduction of Colonial Rule in Punjab: Annexation of Punjab, Board of Administration
2. Western Education: Growth of Education and rise of middle classes
3. Agrarian Development: Commercialization of agriculture; canalization and colonization.

UNIT II
5. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
UNIT III
7. Emergence Of Political Consciousness: Agrarian uprising 1907; Ghadar Movement.
8. Gurudwara Reform Movement: Jallianwala Bagh; foundation of SGPC and Akali Dal; Morchas; Activities of Babbar Akalis.
9. Struggle for Freedom: activities of revolutionaries - Naujawan Bharat Sabha; Kirti Kissan Movement; participation in mass movements – non co-operation, civil disobedience, Quit India.

UNIT IV
10. Partition and its Aftermath: resettlement; rehabilitation
12. MAP(Physical geographical map of undivided Punjab): Major Historical places: Delhi, Kurukshetra, Jaito, Ferozepur, Ambala, Amritsar, Lahore, Ludhiana, Qadian, Jalandhar, Lyallpur, Montgomery.

Suggested Readings:

1. Singh, Kirpal :History and Culture os the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Objectives:

- To learn applications of statistics in the field of biology.
- To study concepts of probability, averages, distributions, tests of deviations, correlation and linear regression.
- To learn to design experiments and analysis of results by tests of significance or analysis of variance.

UNIT – I

An introduction, types of data, collection, classification and tabulation of the primary data, secondary data, discrete data and continuous data, diagramatic and graphical representation of grouped data, frequency distribution {univariate and bivariate}, cumulative frequency distribution and their graphical representation, histogram frequency polygon.

Concept of central tendency or location and their measures, partition values: quantiles, deciles and percentiles, dispersion and their measures, relative dispersion.

UNIT – II

Binomial distribution, Poisson distribution as a limiting form of binomial distribution and properties of these distributions, moments, moment generation function, cumulate generating function, geometric distribution and exponential distribution and properties of these distributions.

Normal distribution

Correlation and regression analysis

Hypothesis testing

Markov models

Cluster analysis
  - Nearest neighbor search
  - Search using stem numbers
  - Search using text signature

Concepts of Probability.

UNIT – III

Computers: General introduction to computers, organization of computers, digital and analogue computers, computers algorithms.

Introduction to computers and its uses: Milestones in hardware and software-batch oriented/online/real time applications.
Compute as systems: Basic concepts, stored programs, functional units and their interrelation-communication with computer.

UNIT – IV

Data storage devices:
Primary storage: Storage address and capacity, type of memory.
Secondary storage devices: Magnetic tape-data representation and R/W; Magnetic disks, fixed and removable, data representation and R/W; Floppy and hard disks, optical disks CD-Rom, mass storage devices.
Input/output devices: Key-tape/diskette devices, light pin Mouse, joystick, source data automation.
Printed outputs: Serial, line, page, printers, plotters, voice response units.

Reference Books:

BIOT-Sem-II-III-T

Statistics and Computer Fundamentals (Practical)  Practical: 22 Marks
Internal Ass.: 3 Marks

1. Presentation of data by frequency tables, diagrams and graphs.
2. Calculation of measures of central tendencies, skewness and Kurtosis.
3. Calculation of dispersion.
5. Probability
6. Basics of computer: Basic commands-File creation, copying, moving and deleting in DOS & windows, Using e-mail, browsers, search engines.

Reference Books:
Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Course Objectives

To make student conversant with the biochemical aspect of cell, chemical structure & function of various biomolecules.

UNIT – I

Water: Physico chemical properties of water, dissociation and association constants. pH and buffers, pl, pka, Henderson Hasselbatch equation and its implications.

Carbohydrates: Structure of important mono, di-, oligo- and polysaccharides, glycoproteins, peptidoglycan, glycolipids and lipopolysaccharides. Reaction of monosaccharides.

UNIT II

Lipids: Classification of lipids and fatty acids, general functions of major lipid subclasses, acylglycerols, phosphoglycerols, phosphoglycerides, sphingolipids, glycosphingolipids and terpenes, sterols, steroids: Prostaglandins.

UNIT – III

Vitamins and hormones: Types of vitamins and their chemistry, vitamins as cofactors, steroids and peptide hormones.

UNIT IV

Proteins: Structure of amino acids, nonprotein and rare amino acids and their chemical reactions. Structural organization of proteins (primary, secondary, tertiary and quaternary domain structure), protein classification and function. Forces stabilizing primary, secondary and tertiary structure.

Reference Books:

1. Preparation of physiological buffers.
2. Verification of Beer-Lamberts law for p-nitrophenol.
3. Determination of pKa value of p-nitrophenol.
4. Estimation of carbohydrates in given solution by Anthrone method.
5. The determination of acid value and saponification value of a fat.

Paper: Cell Biology
Code No: BIOT-Sem-II-V-T

Instructions for paper setters and candidates
• Set nine questions in all from three sections. All questions carry equal marks.
  o Section A will cover Unit I & II
• Set 2 questions from each unit out of which any 2 are to be attempted
  o Section – B will cover Unit – III & IV
• Set 2 questions from each unit out of which any 2 are to be attempted
  o Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Course Objectives
• To understand the detailed overview of eukaryotic cell and its inner components
• To understand the processes of cell transport and cell locomotion
• Introduction to stem cells and their applications

Practical skills will be imparted to the students through critically designed practical related to the subjects.

Unit I
Cell as a basic unit of living systems: the cell theory, pre-cellular evolution, artificial creation of "cells", broad classification and ultrastructure of cell types (PPLOs, Bacteria, eukaryotic microbes, plant and animal cells), tissue, organ and organism at different level of organization of other genetically similar cells; biochemical composition of cells (proteins, lipids, carbohydrates, nucleic acids and metabolic pool).

Ultrastructure of cell membrane and cell organelle: structure and function of cell organelles, ultrastrucrure of cell membrane, cytosol, golgi bodies, vacuoles, endoplasmic reticulum (rough and smooth), ribosomes, cytoskeletal structures (actin microtubules etc), mitochondria, chloroplast, lysosomes, peroxisomes, nucleus (nuclear membrane, nucleoplasm, nucleolus)

Unit II
Cellular transport: Passive & active transport, permeases, sodium, potassium, Calcium, ATPase pumps, lysosomal and vacuolar membrane, ATP dependent proton pumps, co-transport, symport, antiport, transport into prokaryotic cells, endocytosis and exocytosis, entry of viruses and toxins into cells.
Unit III
Cell locomotion: Amoeboid, Flagellar and Ciliar.
Chromosomes: discovery, morphology, chemical composition, structural organization of chromatids, centromere, telomere, chromatin, nucleosome organization, euchromatin and heterochromatin, special chromosomes (polytene, lampbrush chromosomes), banding patterns in human chromosomes.

Unit IV
Basics of stem cells: Introduction to concepts in stem cell biology, Cell differentiation in multicellular organisms: (renewal, potency: Totipotent, pluripotent, multipotent); types of stem cells: early embryonic stem cells, blastocyst embryonic stem cells, fetal stem cells, umbilical cord stem cells, adult stem cells; applications; ethical issues related to stem cells.

Reference Books:

BIOT-Sem-II-V-P  Paper: Cell Biology (Practical)  Practical: 22 Marks
Internal Ass.: 3 Marks

1. To study the parts and function of a light microscope
2. To prepare a wet mount of onion peel for microscopy
3. Counting of cells using haemocytometer
4. Subcellular fractionation of spinach cells
5. To study cell locomotion of amoeba
6. To study flagellar motility in bacteria by hanging drop technique
7. To study cell transport in cell membrane by following experiments
   1) Diffusion through artificial membrane: transport of albumin and glucose solution through dialysis bag.
   2) To study the effect of membrane disrupting agents in beet root
8. Quantitative analysis of cell membrane lipids by TLC
Instructions for paper setters and candidates

- Set nine questions in all from three sections. All questions carry equal marks.
  - Section A will cover Unit I & II
  - Set 2 questions from each unit out of which any 2 are to be attempted
  - Section – B will cover Unit – III & IV
  - Set 2 questions from each unit out of which any 2 are to be attempted
    - Section – C will be compulsory and will have 7 – 10 short answer type (not objective type) questions covering the whole syllabus.

Course Objectives

Microbes play significant role in understanding medical science and industries so study of microbes from basic to advance level, with understanding of biochemistry, cell structure and application makes this paper significant.

UNIT – I

Principle of microscopy: Bright field, dark field, phase contrast, fluorescent, electron microscopy.

UNIT – II

Microbial classification: Bacteria, fungi
Morphology of bacteria, viruses and fungi with major emphasis on bacterial structure specially cell wall. Gram positive and Gram negative bacteria. Microbial spores, sporulation/germination process.

UNIT – III

Microbial growth, nutritional biodiversity, phases of growth, generation time, growth rate, monoauxic, diauxic and synchronous growth. Chemostat
Physical and chemical agents to kill microbes, sterilization and pasteurization processes.

UNIT – IV

Normal micro flora in human/animals. Types of microbial pathogens and diseases caused by them. Microbial interactions like symbiosis and antibiosis. Host defense mechanism against pathogens.

Reference Books:
1. Cleaning of glass wares, preparation of media, cotton plugging and sterilization.
2. Isolation of microorganisms from air, water and soil samples.
3. Dilution and pour plating techniques.
4. Gram staining, spore staining, motility
5. Growth curve of microorganisms.

Reference Books:
SEMESTER 3\textsuperscript{rd}
B.Sc. (Hons.) 2\textsuperscript{nd} year (3\textsuperscript{rd} Semester)

Paper: Biochemistry
Course No.: BIOT-Sem-III-I-T

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates:-:-
• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: To familiarize the students with the biochemical activities taking place at cellular level, highlighting the enzymatic reactions, metabolic pathways and biochemical aspect.

Unit- I

Unit- II
Carbohydrate metabolism: Biosynthesis and degradation of glucose; feeder pathways of glycolysis; Kreb cycle, amphibolic nature of the Kreb’s cycle; regulation of Krebs cycle, regulation of gluconegenesis. Glycogen metabolism. Mitochondrial electron transport chain, oxidative phosphorylation; regulation of ATP synthesis.

Unit- III
Lipid Metabolism: Biosynthesis and degradation of fatty acids; β oxidation of saturated, unsaturated and polyunsaturated fatty acids. Formation of ketone bodies, their function and physiological significance. Fatty acid synthesis: multifunctional enzyme complex in eukaryotes, function of citrate. Regulation of fatty acid metabolism. Cholesterol metabolism: Biosynthesis of cholesterol and its regulation.

Unit- IV
Amino acid metabolism: Biosynthesis of nutritionally non-essential amino acids; catabolism of carbon skeleton of amino acids. Conversion of amino acids to specialized products; amino acids as precursors of porphyrins, bile pigments and biogenic amines. Nucleic acid metabolism: Biosynthesis of purine and pyrimidine nucleotides; salvage reactions. Catabolism of purines and pyrimidines, urea cycle.
Reference Books:

BIOT-Sem-III-I-P Biochemistry (Practical)

Practical : 22 marks
Int. assessment : 03 marks
Total : 25 marks
Time : 3 hours

1. Estimation of DNA by the diphenylamine reaction.
2. Determination of reducing sugars using 3, 5-dinitrosalicylic acid and Benedict’s test.
3. Determination of iodine number of fat.
4. Determination of extinction coefficient of nucleic acids.

Paper: Genetics
Course No.: BIOT-Sem-III-II-T

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates:-
• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: The focus of this course is on the science of heredity with emphasis on the basics of Mendelian and molecular genetics. It will familiarize students with chromosome organization, linkage, chromosome mapping, chromosome aberrations, mutations and microbial genetics.

Unit – I

Mendelian laws of inheritance, Sex determination in drosophila, plants and animals, sex linkage, Non-disjunction as a proof of chromosomal theory of inheritance. Numerical chromosome aberration polyploidy, aneuploidy, Chromosomal aberrations: duplications, inversions, translocations, position effects.
**Unit – II**

Gene interactions, sex linked inheritance. Crossing over: molecular mechanism and cytological proof, Recombination, linkage, gene mapping, Three point testcross, interference, coincidence, recombination frequencies, Tetrad analysis, somatic cell hybridization for gene linkage studies, Hereditary defects.

**Unit – III**

Population genetics: Hardy-Weinberg equilibrium, gene and genotypic frequencies, Chi-square test, probability, pedigree analysis.

Mutation: Spontaneous versus induced mutations, types of mutations, mutagenic agents: Physical, chemical and radiation, molecular basis of mutations, mechanisms of DNA repair, mutations frequency, correlation between mutagenicity and carcinogenicity.

**Unit – IV**

Basic microbial genetics: Conjugation, transduction, transformation, isolation of auxotrophs, replica plating techniques, analysis of mutations in biochemical pathway, one gene – one enzyme hypothesis. Extra chromosomal inheritance: mitochondrial and chloroplast genetic systems.

**Reference Books:**


**BIOT-Sem-III-II-P Genetics (Practical)**

<table>
<thead>
<tr>
<th>Practical</th>
<th>22 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>03 marks</td>
</tr>
<tr>
<td>Total</td>
<td>25 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Examination of permanent slides of various stages of mitosis and meiosis and different types of chromosomes.
2. Demonstration of law of segregation and independent assortment (use of dried peas, colored peas, capsules etc.).
4. Use of Chi-square for prediction of phenotype/genotype frequencies of parents from progeny and vice-versa, epistasis.
5. Detection of blood groups (ABO & Rh factors).
6. Calculation of variance in respect of pod length and number of seeds/pod.
7. Calculation of gene frequencies and random mating (colored beads, capsules).
8. Dermatographics: Palm print taking and finger tip patterns.

**Paper: Immunology-I**
**Course No.: BIOT-Sem-III-III-T**

**Theory**: 67 marks  
**Int. assessment**: 08 marks  
**Total**: 75 marks  
**Time**: 3 hours

**Instructions for paper setters and candidates:-**
- Set nine questions in all. All questions carry equal marks.
- Five questions to be attempted.
- Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
- Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

**Objectives:** To understand general aspects of immune system like different components of the immune system, Generation and functions of these components, Knowledge of basic immunological techniques.

**Unit-I**
1. **Introduction**
   i) Overviews of immune system – Historical perspectives
   ii) Innate and acquired immunity
   iii) Clonal nature of immune response.
2. **Cells of the immune system**: Hematopoiesis and differentiation, lymphocyte trafficking, B-lymphocytes, T-lymphocytes, macrophages, dendritic cells, Natural killer cells and lymphocyte activated killer cells, eosinophils, neutrophils & mast cells.

**Unit-II**
3. **Organs of the immune system**: Primary and secondary lymphoid organs, systemic function of immune system.
4. **Lymphocyte Trafficking**: Cell surface proteins, Cell Adhesion molecules (Integrin, Selectin, Cadherin family and Ig Superfamily).
5. **Antigen** – Immunogenicity Vs. antigenicity, factors effecting immunogeneticity, nature of immunogen, epitopes, heptans and antigenicity, pattern recognition receptors.

**Unit-III**
6. **Immunoglobulins**: Structure of antibody, antibody effector function, antibody classes and biological activities, antigenic determinants on Immunoglobulins, Immunoglobulins superfamilies.
7. **Major histocompatibility complex**: General organization and inheritance, MHC molecules and genes, genetic map, cellular distribution, regulation of MHC expression and disease susceptibility, antigen presentation.
Unit-IV

8. **Hybridoma Technology**: Production of Monoclonal Antibodies, applications of polyclonal and monoclonal antibodies.

9. **Antigen–Antibody interactions**: Strength of interaction, cross reactivity, antibody affinity, avidity. Antigen-antibody interactions as tools for research and diagnosis: precipitation and agglutination reactions, immunodiffusion, immunoelectrophoresis, immunoassays, Enzyme linked immunosorbent assay (ELISA), Radioimmunoassay (RIA), western blot, Immunofluorescence.

**Reference Books:**


**BIOT-Sem-III-III-P Basic Immunology (Practicals)**

<table>
<thead>
<tr>
<th>Practical</th>
<th>22 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>03marks</td>
</tr>
<tr>
<td>Total</td>
<td>25 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Lymphoid organs and their microscopic organization.
2. Differential leucocytes count.
3. Separation of serum from blood.
4. Separation of plasma from blood.
5. Ouchterlony Double Diffusion
6. Radial immuno diffusion test using specific antibody and antigen.
7. Agglutination (Blood group testing).
Paper: Plant Tissue Culture  
Course No.: BIOT-Sem-III-IV-T

<table>
<thead>
<tr>
<th>Theory</th>
<th>67 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>08 marks</td>
</tr>
<tr>
<td>Total</td>
<td>75 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Instructions for paper setters and candidates:-
• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

**Objective:** To introduce the students with fundamentals and applications of plant tissue culture. This course will expose students to the methods of culturing, maintaining and regenerating plants species.

**Unit – I**
Cellular totipotency and differentiation in plants.  
Plant Culture Media and their composition.  
Sterilization techniques for glassware and tissue culture media.  
Micropropagation: Establishment of aseptic culture, various stages, advantages and disadvantages.

**Unit –II**
Organogenesis; somatic embryogenesis; somaclonal variation, its genetic basis and application in crop improvement. Cell/callus line selection for resistance to herbicide, stress and diseases. Role of tissue culture in rapid clonal propagation, production of pathogen - free plants and "synthetic seeds" haploid and Triploid plant production & their application.

**Unit – III**
Protoplast and somatic hybridization: Isolation, culture and plant regeneration, protoplast fusion, identification and characterization of somatic hybrids, applications of protoplast hybridization technology.

**Unit – IV**
Secondary metabolites: Secondary Plant products from cultured cells and their industrial applications.  
Cryopreservation of germplasm: Short term and long term conservation of plant genetic resources, In situ and Ex situ conservation of plants

**Reference Books:**

**BIOT-Sem-III-IV-P  Plant Tissue Culture (Practical)**

<table>
<thead>
<tr>
<th>Practical</th>
<th>22 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>03 marks</td>
</tr>
<tr>
<td>Total</td>
<td>25 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Laboratory design set up for a plant tissue culture laboratory.
2. How to clean glass/plastic ware.
3. Preparation of complex nutrient medium (Murashige and Skoog’s medium).
4. To select, prune, sterilize and prepare an explant for culture.
5. To culture different explants for raising callus cultures.
7. To demonstrate various steps of micropropagation.

**Paper: Animal Cell Culture**

**Course No.: BIOT-Sem-III-V-T**

<table>
<thead>
<tr>
<th>Theory</th>
<th>67 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>08 marks</td>
</tr>
<tr>
<td>Total</td>
<td>75 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

**Instructions for paper setters and candidates:-**

- Set nine questions in all. All questions carry equal marks.
- Five questions to be attempted.
- Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
- Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

**Objective:** The major emphasis of this course is to introduce the students to the field of Animal cell-culturing and its importance to mankind. The students will also learn the techniques involved in animal cell culture.

**Unit – I**

History of development of cell cultures, natural surroundings for animal cells, simulating natural conditions for animal cells, metabolic capabilities of animal cells.

Biology of cultured cells: The culture environment, cell adhesion, proliferation, differentiation, signaling, evolution of cell lines. Equipments and materials for animal cell culture technology.

**Unit II**

Introduction to the balanced salt solutions and simple growth medium. Brief discussion on the chemical, physical and metabolic functions of different constituents of culture medium. Role of carbon dioxide. Role of serum and supplements.

Serum & protein free defined media and their application.
Animal cell culture Techniques: Dispersion and disruption of tissues; primary cultures, anchorage and non-anchorage dependent cells; secondary culture, transformed animal cells.

**Unit – III**

Established/continuous cell lines, commonly used animal cell lines, their origin and characteristics. Maintenance and growth kinetics of cells in culture, differentiation of cells, Measurement of growth and viability of cells in culture. Cytotoxicity assays & their applications,

**Unit – IV**

Characterization of Cell lines and their authentication, Cell fusion and production of monoclonal antibodies.
Transformation and immortalization, cryopreservation.
Bio-Safety & Bioethics.

**Reference Books:**

**BIOT-Sem-III-V-P Animal Cell Culture (Practical)**

<table>
<thead>
<tr>
<th>Practical</th>
<th>20 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>05marks</td>
</tr>
<tr>
<td>Total</td>
<td>25 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Fumigation of animal cell culture laboratories.
2. Maintenance of aseptic conditions and sterilization method.
4. Isolation of lymphocytes for culturing.
5. Checking availability of cells by Teypan blue
6. Determination of cell count

**B.Sc. (Hons.) 2nd year (4th Semester)**

**Paper: Immunology-II**

**Course No.: BIOT-Sem-IV-I-T**

<table>
<thead>
<tr>
<th>Theory</th>
<th>67 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>08 marks</td>
</tr>
<tr>
<td>Total</td>
<td>75 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Instructions for paper setters and candidates:-
- Set nine questions in all. All questions carry equal marks.
- Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: This course will introduce students to the principles of advanced Immunology, both at the molecular and cellular levels.

Unit-I
1. **B Cell Activation, Differentiation:** B-Cell Activation and Proliferation, In Vivo Sites for Induction of Humoral Responses, T-dependent and T-independent antigens.
2. **Organization and expression of Immunoglobulins gene:** Genetic model, multigene organization, generation of antibody diversity.

Unit-II
3. **Receptors and Signaling:** T-Cell Receptors: Structure and Roles, T-Cell Receptor Complex.
4. **T-Cell Maturation, Activation, and Differentiation:** Thymic Selection of the T-Cell Repertoire, T<sub>H</sub>-Cell Activation, T-Cell Differentiation, Cell Death and T-Cell populations, Peripheral-T-Cells.
5. **Complement system:** Function, Components- Classic, Alternative, Mannose binding proteins, activation, Regulation of the Complement System, Biological Consequences of Complement Activation.

Unit-III
6. **Hypersensitivity:** Type I, Type II, Type III and Type IV Hypersensitivity reactions and their implications.
7. **Autoimmunity:** Organ specific autoimmune diseases: Hashimoto’s Thyroditis, Insulin-dependent Diabetes Mellitus, Grave’s disease, Mysthenia Gravis.
   **Systemic Autoimmune Disease:** Systemic lupus Erythematosuns (SLE).

Unit-IV
8. **Transplantation immunology:** Immunologic Basis of Graft Rejection, Clinical Manifestations of Graft Rejection, General Immunosuppressive Therapy, Specific Immunosuppressive Therapy, Immune Tolerance to Allografts, Clinical Transplantation
9. **Vaccines and Vaccination** – principles of vaccination, passive & active immunization, immunization programs, adjuvants, bacterial vaccines, viral vaccines, polysaccharide vaccines, DNA vaccines, recombinant vaccines, vaccines to other infectious agents, tumor vaccines.

Reference Books:
BIOT-Sem-IV-I-P  Immunology-II (Practical)

Practical : 22 marks
Int. assessment : 03 marks
Total : 25 marks
Time : 3 hours

1. Performing enzyme linked immunosorbent assay (ELISA).
2. Rocket immuno-electrophoresis for antigen antibody interaction.
3. Isolation of mononuclear cells from peripheral blood and viability test by dye exclusion methods.
4. Total leucocyte count (TLC).
5. Isolation of IgG from serum.

Paper: Biophysical and Biochemical Techniques
Course No.: BIOT-Sem-IV-II-T

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates:-
• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: To enable the students learn important tools and techniques based on biophysical and biochemical principles so that they can understand application of these techniques in biotechnology

Unit – I
Principle, working and applications of Spectrophotometry (UV& visible) and spectrofluorimetry, Atomic absorption spectrophotometry: Equipment used and applications Infrared and Raman spectroscopy, ORD and circular dichroism, Nuclear Magnetic Resonance and Electron Spin Resonance spectroscopy, Magnetic Resonance Imaging. Electrophoresis: Principle, types & applications.

Unit – II

Unit – III
Crystallography: Physical basis of crystallization; formation of crystals; Mounting of crystals X-ray diffraction: Braggs law; Diffraction of x-rays by crystals Overview of chromatography; Gas chromatography and HPLC

Unit – IV
Radioisotope techniques: Radiotracers; GM counter, proportional and scintillation counters, autoradiography.
Mass spectrometry: Physical basis; Instrument used; ionization modes; Applications
Collaboration of MS with other techniques: GCMS and LCMS.

Reference Books:
   Edition. (John Wiley & Sons)
   Modern trends (Illustrated, Publisher Springer)
   Publishers Co. Ltd., New Delhi).
   Publication, Chandigarh).

BIOT-Sem-IV-II-P Biophysical And Biochemical Techniques (Practicals)
Practical : 22 marks
Int. assessment : 03 marks
Total : 25marks
Time : 3 hours

1. Identification of the provided sample using some of the spectroscopic techniques.
2. Quantitative analysis by UV/Visible spectrophotometry.
3. Use and care of light microscope.
4. Demonstration of radioisotopic techniques
5. Gel filtration chromatography

Paper: Plant Biotechnology
Course No.: BIOT-Sem-IV-III-T

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates:-
•Set nine questions in all. All questions carry equal marks.
•Five questions to be attempted.
•Question number one will be compulsory having 7-10 short answer types covering the
  whole syllabus (Not objective type and no short notes).
•Set two questions from each Unit, and each question should be further divided in two to
  three parts. Any one question to be attempted from each unit.

Objective: The objective of this course is to familiarize the students with different aspects of
plant molecular biotechnology and techniques for plant genetic manipulations.
Unit – I
Genetic material of plant cells with an introduction to chloroplast and mitochondrial DNA.
Plant Promoter, Plant Selection markers and reporter genes.
Transformation of plant cells; different type of vectors including viral vectors and their benefits.

Unit – II
Modes of gene delivery in plants: Particle bombardment, electroporation, microinjection; Advantages and disadvantages
Agrobacterium mediated gene transfer, natural pathogen mode of infection, vir gene functions, Ti / Ri plasmids, Screening and selection of transformants, PCR and hybridization methods; Transgene selection and silencing; Generation and maintenance of transgenic plants.

Unit – III
Transgenic plants: Genetic modification of plants for herbicide resistance, Pest resistance, virus resistance Bacterial and fungal resistance. Delayed fruit ripening, improved protein composition. Bt cotton, golden rice and some others as examples.

Unit – IV
Plant cell as factories for production of industrial enzymes, biodegradable plastics, antibodies, edible vaccines; manipulation of metabolic pathways for production of fatty acids, industrial oils, terpenoids, flavanoids.

Reference Books:

BIOT-Sem-IV-III-P  Plant Biotechnology (Practicals)
Practical : 22 marks
Int. assessment : 03marks
Total : 25 marks
Time : 3 hours

1. Aseptic culture techniques for establishment and maintenance of cultures
2. Preparation of stock solutions of MS basal medium and plant growth regulator stocks.
3. Micropropagation of Tobacco plant by leaf disc culture.
4. Isolation of plant genomic DNA by modified CTAB method.
5. DNA check run by Agarose Electrophoresis.
6. Agrobacterium tumefaciens-mediated plant transformation.
Paper: Animal Biotechnology
Course No.: BIOT-Sem-IV-IV-T

Instructions for paper setters and candidates:-

- Set nine questions in all. All questions carry equal marks.
- Five questions to be attempted.
- Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
- Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: The major emphasis of this course is to introduce the students to the advances in the field of Animal and their importance to mankind.

Unit-I

Organotypic and histotypic cultures: Organotypic culture: Gas and nutrient exchange, structure integrity, growth, differentiation, advantages and applications. Methods, advantages and applications of histotypic culture.

Three dimensional culture and tissue engineering: Concept of tissue engineering, components of tissue engineering, cells imaging in 3D construct.

Unit-II

In vitro fertilization (IVF) in Humans and Embryo Transfer in Livestock.

Cell culture based vaccines: Cells as virus host/cell culture based vaccines, cells as protein factory/cell expression system and cells as antigen presenter/personalized vaccine.

Scaling up of the animal cell culture: different methods of scale up at laboratory and industrial level.

Unit-III

Transgenic animals and their applications: Concept of transgenics, Methods of gene transfer, selection of clone containing DNA insert and application of transgenic animals (Food, environment, recombinant proteins, drugs etc.). Safety and ethical issues of transgenic animals.

Unit-IV

Production of various products of human use using animal cell culture:
Antibiotics production
Human Growth factors
Insulin and other Hormones

Essential Readings:
3. Animal cell culture and technology by Michaelis Butler. BIOS Scientific Publisher (2003).

BIOT-Sem-IV-IV-P Animal Biotechnology (Practicals)

<table>
<thead>
<tr>
<th>Practical</th>
<th>22 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>03 marks</td>
</tr>
<tr>
<td>Total</td>
<td>25 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Growing the cell monolayers, in vitro.
2. Trypsinization of the monolayers and cell counting using hemocytometer.
3. To check the viability of the cells using Trypan Blue dye exclusion assay.
4. Checking the cytotoxicity of the compounds using MTT Assay.

Paper: Agro & Industrial Biotechnology
Course No.: BIOT-Sem-IV-V-T

<table>
<thead>
<tr>
<th>Theory</th>
<th>67 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>08 marks</td>
</tr>
<tr>
<td>Total</td>
<td>75 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Instructions for paper setters and candidates:-
• Set nine questions in all. All questions carry equal marks.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: This course will introduce students to the concepts of agriculture as industry. This course will help students to understand the application of fundamental concepts like transgenic approaches to improve crop plants, microbial culture maintenance, and metabolite purification at industrial level.

Unit I
Basic concept of agriculture as industry: Industrially important microbes, its screening, selection and identification.
Maintenance and preservation of industrially important microbial cultures.
Differences between microbial industrial process and chemical industrial process.

Unit II
Improvement programme of industrial microbes, mutational programme of penicillin producing microorganisms, selection pressure in maintaining the hyper producer, lowering of production due to reversal of mutations, media formulation and process optimization of industrial and agro industrial microbes.
Unit III
Microbes in agro industries and industrial biotechnology: Introduction of primary and secondary metabolites, production of vitamin B12, alcohol, wine, beer, cheese, bread, citric acid, gluconic acid, antibiotics (penicillin), enzymes (amylases, cellulases, lipases and proteases) and their industrial applications.

Unit IV
Emerging technologies in agro industries: production of vermiculture, composting, herbicides and biopesticides, production of biofertilizers: Blue green algae, azolla, fungi, mycorrhiza (VAM), bacteria – Azospirillum, microbial biotransformations, single cell proteins (bacterial, fungal and algal).

Reference Books:

BIOT-Sem-IV-V-P Agro & Industrial Biotechnology (Practicals)

<table>
<thead>
<tr>
<th>Practical</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int. assessment</td>
<td>03</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

1. Counting of Microbial cells by serial dilution techniques (Spread plate and pour plate).
3. Screening of industrial enzymes (cellulase, protease, amylase etc.) from different soil samples.
4. Production of enzymes by submerged and solid state fermentation.
B.Sc. Hons. Biotechnology 3rd year (5th Semester)

BIOT-Sem-V-I-T  MOLECULAR BIOLOGY

Theory : 67 marks
Int. asset : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates

• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: This course of Molecular Biology will introduce the students with structure of various nucleic acids and detailed molecular mechanisms of gene expression.

UNIT-I

1. DNA: Chemical composition of DNA DNA structure-single stranded DNA, detailed account of double stranded DNA, BDNA, Z.DNA and other structural forms and their importance.
2. Genome organization in prokaryotes: Molecular nature of the genetic material, Composition and structure of prokaryotic DNA and RNA.
3. Genome organization in eukaryotes: Composition and structure of eukaryotic DNA and RNA. Characteristic features of highly repetitive DNA, Tandem repetitive DNA and Mini and microsatellite DNA and Insertional elements and their role and importance

UNIT-II

4. DNA replication: Prokaryotic DNA replication; replication origin and site and structure and DNA Ter regions and structure. DNA polymerases, composition and features, replication factors and the mechanism of replication, leading strand and lagging strand synthesis, processessivity and fidelity. Replication of single stranded DNA, M13 viral DNA.
5. Eukaryotic DNA replication; origins, replication initiation complexes and their assembly, licensing factors, DNA polymerases and their composition, telomerase and mode of action, replication factors, disassembly of chromatin components and reassembly during replication.

UNIT-III

6. Gene Expression: Overview of central dogma
7. RNAs: types, rRNAs; Structural features of rRNAs- prokaryotic and eukaryotic. tRNAs: structural features, their anticodon feature. mRNAs- prokaryotic and eukaryotic mRNAs, structural features,
8. Transcription: regulatory elements and mechanism of transcription regulation in prokaryotes and eukaryotes

UNIT IV

9. Translation: Overview and mechanism of translation process in prokaryotes, characteristics of the genetic code, structure and charging of tRNA,


REFERENCE BOOKS:
Malacinski, George M., 2005, Freifelder’s. Essentials of Molecular Biology, Narosa Publishing House, ND.
Karp, Gerald, 2005, Cell and Molecular Biology, Wiley International, USA.
Snusted and Simmons, 2006, Principles of genetics, John Wiley and Sons, Inc
Weaver R.F., Molecular biology (2005), McGraw

BIOT-Sem-V-I-P: MOLECULAR BIOLOGY (Practical)

<table>
<thead>
<tr>
<th>Practical : 20 marks</th>
<th>Int. assessment : 05marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total : 25 marks</td>
<td>Time : 3 hours</td>
</tr>
</tbody>
</table>

1. Preparation of Reagents for DNA isolation.
2. DNA isolation from plants.
3. Agarose gel electrophoresis of DNA.
4. Plasmid DNA isolation.
5. Isolation of genomic DNA from Bacteria.
6. Restriction digestion of DNA.

Reference Books:
Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: The major emphasis of this course is to introduce the students to the world of enzymes, their structure and mode of action at various cellular metabolism and their applications in Biotechnology.

UNIT – I
Structure and functions of enzymes: Historical background and general properties of enzymes, concept of active centre, binding sites, stereo specificity and ES complex formation, activation energy, Evidences for enzyme-substrate complex; Lock and key, Induced fit and Transition state hypotheses, Coenzymes and Cofactors- Prosthetic group, coenzymes involved in different metabolic pathways.

UNIT – II
Factors Affecting the Enzyme Activity: Concentration, pH and temperature. Kinetics of a single substrate enzyme catalysed reaction, derivation of Michealis-Menten Equation, significance of Km value, Vmax, Turnover number, Kcat. Enzyme activity, international units, specific activity,
Enzymes as thrombolytic agents, Anti-inflammatory agents, streptokinase, Isoenzymes

UNIT-III

UNIT – IV
Applications of Enzymes: Immobilized enzymes, industrial applications of immobilized enzymes, Thermophilic enzymes, amylases, lipases, Proteolytic enzymes in meat and leather industry, enzymes used in fermentation processes, cellulose degrading enzymes, Metal degrading enzymes.
Reference Books:
1. Fundamentals of Enzymology: Nicholas Price & Lewis Stevens
2. Biochemistry text books by Stryer, Voet and Lehninger

BIOT-Sem-V-II-P: ENZYMEOLOGY (Practicals)

Practical : 20 marks
Int. assessment : 05 marks
Total : 25 marks
Time : 3 hours

1. Estimation of enzyme activity.
2. To study the Effect of pH on activity of enzyme.
3. To study the Effect of temperature on activity of enzyme.
4. To study the effect of substrate concentration on enzyme activity.
5. To estimate Km and Vmax of an enzyme and plot Line-Weaver Burk plot.

Reference Books:


BIOT-Sem-V-III-T : ENVIRONMENTAL BIOTECHNOLOGY

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: The course focuses on an introduction to environment, major threats to environment by various polluting agents and the remedies for the same, incorporating design and monitoring of waste treatment processes. As well as learning environmental technology fundamentals, with special focus on biological treatment processes, environmental management. The course is use of biotechnology to design cleaner manufacturing processes and to solve pollution problems. It is ideal for under graduates just embarking on their career, or scientists and engineers who have been working for a few years and wish to develop their career in this direction.

UNIT-I
Basics of Environment and Environmental pollution, air, water, soil and noise.
Air – Types, Sources & Effects,
Soil - Physicochemical and bacteriological analysis of soil, soil pollutants (fertilizers, insecticides fungicides, pesticides).
Noise pollution, its control and impact on human health.
Renewable and Non Renewable resources. and their Environmental Impacts.
Modern Fuels (gasohol, hydrogen and solar energy) and their Environmental Impacts.

UNIT-II
Anaerobic processes: Anaerobic digesters, upward flow anaerobic sludge blanket reactors.

UNIT-III
Bioremediation of contaminated soil and its applications
Degradation of pesticides and other toxic chemicals by microorganism. Integrated Pest management
Biofertilizers for clean environment– Nitrogen fixing microorganism, enrichment of the soil with assimilable nitrogen

**UNIT IV**

Introduction to solid waste and municipal solid waste management: Sources, types, composition. Bioabsorption of metals:– Role of Microorganisms in biosorption and bioleaching,
Enrichment of ores by microorganisms
Bioindicators for detection of pollution

**References Books:**


**BIOT-Sem-V-III-P ENVIRONMENTAL BIOTECHNOLOGY(Practical)**

**Practical : 20 marks**
**Int. assessment : 05 marks**
**Total : 25 marks**
**Time : 3 hours**

1. Detection of coli forms for determination of the purity of potable water.
2. Determination of chlorine in water
3. Determination of total alkalinity of water
4. Determination of dissolved oxygen concentration of water sample.
5. Determination of biological oxygen demand (BOD) of a sewage sample.
6. Determination of chemical oxygen demand (COD) of sewage sample.
7. Isolation of phosphate solubilizing microorganisms from soil.
Reference Books:
3. Practical Microbiology by Dr R.C. Dubey and D.K. Maheshwari, S.Chand Publications.

BIOT-Sem-V-IV-T TOOLS IN BIOINFORMATICS

Theory: 67 marks
Int. assessment: 08 marks
Total: 75 marks
Time: 3 hours

Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: This course of introduces the students to an advanced field of biotechnology which will give an insight how to handle the enormous data generated in biology in silico and the in silico tools applied to decipher and analyze the data.

UNIT – I
Introduction to Bioinformatics, Biological Databases and Sequence analysis
Introduction, overview and needs of bioinformatics technology.
Primary Databases: Primary Sequence database i.e. GenBank & EMBL.
Secondary Databases: SwissProt/TrEMBL, Pfam.
Molecular Structure Databases: Protein Data Bank (PDB), SCOP, CATH. Understanding the structure of each database and using it on the web.

UNIT – II
Sequence Alignment:
Introduction to sequence alignment and its applications.
Pair wise sequence alignment: Concept of global and local alignment, Dot Plot, algorithm for pair wise sequence alignment (Needleman Wunsch, Smith-watterman methods), Introduction to BLAST, types of BLAST, algorithm of BLAST and interpretation of its result.
**Multiple sequence alignment:** Methods of multiple sequence alignment. Introduction to consensus sequences, motifs and profiles.

**UNIT – III**

**Phylogenetic Analysis:** Introduction to phylogenetic analysis and its application, phylogenetic tree topologies, methods of phylogenetic tree construction and tools.

**Genome Annotation:** Concept of genome annotation, methods of gene identification. Tools of gene identification: GenScan and Glimmer.

**UNIT IV**

**Protein Structure Prediction:** Concepts and strategies of protein structure prediction, methods of secondary structure prediction, and methods of protein tertiary structure prediction. Structure visualization tool – RasMol.

**BIOT-Sem-V-IV-P: TOOLS IN BIOINFORMATICS (Practicals)**

- **Practical : 20 marks**
- **Int. assessment : 05 marks**
- **Total : 25 marks**
- **Time : 3 hours**

2. Performing DOTPLOT on web.
3. Retrieving amino acid and nucleotide sequence from sequence databases using Entrez.
4. Performing BLASTp/n and interpreting its results.
5. Performing PSI-BLAST.
7. Finding ORF in nucleotide sequence using NCBI ORF FINDER
8. Using GenScan to identify exons in nucleotide sequence.
9. Download protein structure form PDB and visualize it using RasMol.

**BIOT-Sem-V-V-T ** INTELLECTUAL PROPERTY RIGHTS AND ETHICAL ISSUES IN BIOTECHNOLOGY AND ENTERPRENEURSHIP

- **Theory : 90 marks**
- **Int. assessment : 10 marks**
- **Total : 100marks**
Time : 3 hours

Instructions for paper setters and candidates

• Set nine questions in all. All questions carry equal marks except compulsory question.
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).

Objective: To introduce the students to intellectual rights and how to use the current intellectual property system to protect and commercialize their biotechnological invention. This course also covers the ethical issues, controversies and social-ethical impact of biotechnology on society.

UNIT – I

IPR: Introduction to Intellectual Property Rights. Tangible and intangible property. Patents: Introduction to patent law and brief history (early GATT and TRIPS), conditions for patentability; procedure for obtaining patents, patent filing through PCT, rights of a patentee; patent infringements and litigation.

Indian patent laws and amendments. Patents from an international perspective.

UNIT- II

Design, copyright and Trademark:
Copyright: Registration procedure and copyright authorities; assignment and transfer of copyright, copyright infringement and exceptions to infringement; software copyright.
Designs: Introduction to the law on industrial designs; registration and piracy; international perspective; commercial exploitation and infringement.
Trademark: Importance, Registration, Trademark infringement and piracy.

UNIT – III

Patenting in biotechnology: Biotechnology patents and its economic, ethical and depository considerations.
Patentable subject matter and legal aspects of transfer of biotechnology in India. Other multilateral treaties & International conventions – Paris convention, CBD, UPOV, PGRFA.
Writing a patent specification.
Information sources in patent literature search.

UNIT – IV

Entrepreneurship:
Entrepreneur and its types, Women Entrepreneurship. Selection of a product, Product line design and development processes, economics on material and energy requirement, stock the product and release the same for making.

The basic regulations of excise: Demand for a given product, feasibility of its production under given constraints of raw material, energy input, financial situations export potential.

Reference Books:

B.Sc. (Hons.)3rd year (6th Semester)

BIOT-Sem-VI-I-T Paper: GENETIC ENGINEERING

Theory: 67 marks
Int. assessment: 08 marks
Total: 75 marks
Time: 3 hours

Objectives: Genetic engineering refers to the process of manipulating the characteristics and functions of the original genes of an organism. The objective of this process is to introduce new physiological and physical features or characteristics. The students will learn how the genes can be cut and paste from one organism to another and what are its implications.

Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.
UNIT-I

1. Introduction to genetic engineering. Why gene cloning and DNA analysis is important. How to clone a gene - What is clone, Overview of the procedure

2. Tools in Recombinant DNA Technology:
Restriction and modifying enzymes, Type I , Type II and Type III enzymes and their characteristic features; restriction sequences, isoschizomers, rare cutting enzymes, enzyme cutting similar sequence in different manner.
DNA Modifying enzymes: Characteristics and applications of Nucleases – DNase and RNase, DNA-Pol I, Klenow fragment, T4DNA polymerase, T7 DNA polymerase, T4 Polynucleotide kinase, Phosphatase, Reverse transcriptase, Taq polymerase and Ligase. Terminal deoxy ribonucleotidyl transferase.

3. Polymerase Chain Reaction: Types and applications

UNIT II

Basic biology of plasmids and Phage vectors Basic features of plasmids, plasmid classification, Bacteriophage λ, lytic & lysogeny, Promoter control circuits, linear and circular forms of lambda vector, DNA cloning with single stranded DNA vectors.


Advanced Vectors: cosmid, phagemid, Bacterial Artificial Chromosomes (BACs), shuttle vectors, yeast artificial chromosomes.

UNIT-III

Preparation of genomic and cDNA library: Partial digests, Choice of vectors, Construction and Evaluation of a genomic library. cDNA library: mRNA enrichment, cDNA synthesis, Random, arrayed and Ordered library.


Preparation of nucleic acid probes: DNA and RNA labeling techniques, nick translation, random priming, end labelling, radioactive and non-radioactive labels.

UNIT-IV

Site directed mutagenesis (cassette , primer extension, RT, real time, multiplex, inverse),
DNA sequencing (Maxam-Gilbert, Sanger, pyro).

Production of Protein from Cloned Genes: Special vectors for expression of foreign genes in E. coli, General problems with the production of recombinant protein in E. coli. Production of recombinant protein by eukaryotic cells.
Suggested readings:

BIOT-Sem-VI-I-P : GENETIC ENGINEERING (PRACTICAL)

Practical : 20 marks
Int. assessment : 05 marks
Total : 25 marks
Time : 3 hours

1. Demonstration of PCR.
2. Demonstration of Southern blotting.
3. Preparation of competent cells.
5. Spectrophotometer analysis of DNA.

BIOT-Sem-VI-II-T: BIOPROCESS ENGINEERING AND TECHNOLOGY

Theory : 67 marks
Int. assessment: 08 marks
Total : 75 marks
Time : 3 hours

Objectives:

The objective of this course is to make the student conversant with basic concepts of bioprocesses, design of fermenter along with growth and product formation in various types of processes. Important concept of down streaming and waste water will also be discussed as important component of fermentation economics

Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
  • Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

**Unit – I**

Fundamental principles of biochemical engineering  
Sterilization of air and media sterilization, design of batch sterilization process.  
Del factor, sterilization cycle, continuous sterilization process

**Unit – II**

**Microbial growth kinetics** Simple kinetics of microbial growth (Batch and Continuous) yield coefficient, doubling time, specific growth rate, internal and external feedback systems, metabolic and Biomass productivities, effect of temperature and pH on the product formation

**Unit – III**

**Design of fermenter:**  
Components of Fermenter, Aseptic operation of the fermenters, control and measurement equipment of fermenters, pH and DO probes, impeller and spargers,

**Unit – IV**

**Downstream processing**  
Removal of microbial cells and other solid materials, foam separations, filtration, industrial filters, centrifugations and industrial centrifuges, cell Disruption, aqueous two phase extraction system, super critical extraction, whole broth process.  
Waste water treatment for fermentation process

**Reference Books:**
BIOT-Sem-VI-II-P:

BIOPROCESS ENGINEERING AND TECHNOLOGY (Practicals)

Practical: 20 marks
Int. assessment: 05 marks
Total: 25 marks
Time: 3 hours

1. Demonstration of components and sterilization of fermenters and other accessories.
2. Determination of doubling time, yield coefficient for growth of microorganism.
4. Determination of Specific growth rate and maximum specific growth rate
5. Cell disruption by Sonicator
6. Demonstration of normal flow and cross flow filtration process

Reference Books:

BIOT-Sem-VI-III-T: FOOD BIOTECHNOLOGY

Objective: To enable the students aware of the various prospects of biotechnology in the development of various food products and to make them conversant with food contamination and preservation techniques

Instructions for paper setters and candidates
• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

UNIT – I

Food and Microorganisms: History and scope of Food biotechnology, food as substrates for microbes, factors affecting growth of microorganisms, Detection of microorganisms in food: procedure for microbial analysis; Qualitative methods to isolate pathogenic microorganisms, and quantitative methods for microbial enumeration: direct, indirect and standard methods, test for
bacterial toxins in foods; Rapid and advanced estimation methods (Immunoassays, nucleic acid probe) for detection of pathogens. Applications of enzymes in food technology.

UNIT – II

Principles of food preservation: Physical, chemical, and biological methods of preservations.

Contamination, preservation and spoilage of different kind of foods: Milk and milk products (milk, yoghurt and cheese), beverages (beer, wine, tea and coffee), meat and fish products

UNIT – III

Food adulterants and food additives: Major food adulterants, types and their methods of assay, food additives their function and uses, flavoring agents, coloring agents and vitamins as food additives.

Fermented foods and their production: Bakers yeast, Bread, cheese, yoghurt, tofu, and alcoholic beverages (beer and wine)
Production of algal, fungal and other microbial proteins (SCP)
Probiotics, prebiotics, fortified and biofortified foods, functional foods
Genetically modified food (Golden rice, Favr savr tomato, protato, tomato etc)

UNIT – IV

Food and water borne diseases: Shigellosis, Salmonellosis, Cholera.
Food borne intoxications: Staphylococcal, Bacillus and Clostridium botulinum
Exotoxins and Endotoxins, their mechanism of action

Reference Books:
BIOT-Sem-VI-III-P: FOOD BIOTECHNOLOGY (Practicals)

Practical : 20 marks
Int. assessment : 05 marks
Total : 25 marks
Time : 3 hours

1. Isolation and identification of microorganisms in spoiled food (fungi and bacteria).
2. Inhibitory effect of low temperature on microbial growth.
3. Production and estimation of ethanol.
4. Estimation of lactose in milk.
5. Methylene blue reductase test (MBRT) for determination of quality of milk.
6. Plating the milk samples for microbial contamination.
7. Demonstration for the identification of mushrooms by spore prints.
8. Checking the effect of pasteurization of milk by alkaline phosphatase.

Reference Books:


BIOT-Sem-VI-IV-T: GENOMICS AND PROTEOMICS

Theory : 67 marks
Int. assessment : 08 marks
Total : 75 marks
Time : 3 hours

Instructions for paper setters and candidates

• Set nine questions in all. All questions carry equal marks except compulsory question.
• Five questions to be attempted.
• Question number one will be compulsory having 7-10 short answer types covering the whole syllabus (Not objective type and no short notes).
• Set two questions from each Unit, and each question should be further divided in two to three parts. Any one question to be attempted from each unit.

Objective: This course emphasizes on the detail study of genomes, their mapping and sequencing techniques and using various data bases to study their structure and how they can be related to proteome. They will be also introduced to various tools for proteomics and its application.
UNIT I


UNIT II

Managing and Distributing Genome Data: Web based servers and softwares for genome analysis: ENSEMBL, VISTA, UCSC Genome Browser, NCBI genome. Selected Model Organisms' Genomes and Databases.

UNIT III

Introduction to protein structure, Chemical properties of proteins. Physical interactions that determine the property of proteins. Short-range interactions, electrostatic forces, van der waal interactions, hydrogen bonds, Hydrophobic interactions. Determination of sizes (Sedimentation analysis, gel filtration, SDS-PAGE); Native PAGE, Determination of covalent structures – Edman degradation.

UNIT IV


BIOT-Sem-VI-IV-P: GENOMICS AND PROTEOMICS (PRACTICALS)

Practical : 20 marks
Int. assessment : 05 marks
Total : 25 marks
Time : 3 hours

1. Use of SNP databases at NCBI and other sites.
2. Use of OMIM database
3. Detection of Open Reading Frames using ORF Finder
4. Proteomics 2D PAGE database
5. Softwares for Protein localization.
6. Hydropathy plots
7. Native PAGE
8. SDS-PAGE
Reference Books:


BIOT-Sem-VI-V-P ON JOB TRAINING MARKS: 100

The students are supposed to undergo four to six weeks practical training in industries/institutes during the summer vacations after 4th semester for which the reports will be submitted by the students in 6th semester and will be evaluated by three teacher evaluating committee.

***************
FACULTY OF SCIENCE

SYLLABI

FOR

BACHELOR OF COMPUTER APPLICATIONS

(1st to 6th Semester)

FOR

2017 - 2018 SESSIONS
### Panjab University, Chandigarh

**Scheme of Examination and Syllabus of BCA w.e.f. 2017-18**

#### Bachelor of Computer Applications Semester – I

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th></th>
<th>Total</th>
<th>Int</th>
<th>Ext</th>
<th>Total</th>
<th>Exam. Duration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA-16-101</td>
<td>English (Compulsory)-A</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-102</td>
<td>Fundamentals of Mathematical Statistics</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-103</td>
<td>Computer Fundamentals and Computing Software</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-104</td>
<td>Problem Solving Through C</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-105</td>
<td>Lab based on BCA-16-103</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td>BCA-16-106</td>
<td>Lab based on BCA-16-104</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
</tbody>
</table>

| Environmental, Road Safety Education & Violence against Women & Children |

**Total** 24 1 12 37 40 360 400 16

#### Bachelor of Computer Applications Semester – II

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
<th>Int</th>
<th>Ext</th>
<th>Total</th>
<th>Exam. Duration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA-16-201</td>
<td>English (Compulsory)-B</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-202</td>
<td>Computer Organization</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-203</td>
<td>Fundamentals of Web Programming</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-204</td>
<td>Object Oriented Programming using C++</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-205</td>
<td>Lab based on BCA-16-203</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td>BCA-16-206</td>
<td>Lab based on BCA-16-204</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total** 24 1 12 37 40 360 400 16
### Bachelor of Computer Applications Semester – III

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
<th>Int</th>
<th>Ext</th>
<th>Total</th>
<th>Exam. Duration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA-16-301/ BCA-16-302</td>
<td>Punjabi-A/ History &amp; Culture of Punjab – A</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>5</td>
<td>45</td>
<td>50</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-303</td>
<td>Information System Design and Implementation</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-304</td>
<td>Computer Oriented Numerical Methods</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-305</td>
<td>Data Structures</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-306</td>
<td>Lab based on BCA-16-304</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td>BCA-16-307</td>
<td>Lab based on BCA-16-305</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>24</td>
<td>1</td>
<td>12</td>
<td>37</td>
<td>35</td>
<td>340</td>
<td>375</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

### Bachelor of Computer Applications Semester – IV

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>L</th>
<th>T</th>
<th>P</th>
<th>Total</th>
<th>Int</th>
<th>Ext</th>
<th>Total</th>
<th>Exam. Duration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA-16-401/ BCA-16-402</td>
<td>Punjabi-B/History &amp; Culture of Punjab – B</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>5</td>
<td>45</td>
<td>50</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-403</td>
<td>Software Project Management</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-404</td>
<td>Operating System Concepts and Linux</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-405</td>
<td>Database Management System</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>10</td>
<td>65</td>
<td>75</td>
<td>3 Hrs</td>
<td>3</td>
</tr>
<tr>
<td>BCA-16-406</td>
<td>Lab based on BCA-16-404</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td>BCA-16-407</td>
<td>Lab based on BCA-16-405</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>50</td>
<td>50</td>
<td>4 Hrs</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>24</td>
<td>-</td>
<td>12</td>
<td>36</td>
<td>35</td>
<td>340</td>
<td>375</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>
## Bachelor of Computer Applications - Fifth Semester

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>Entrepreneurship Development Programme</td>
<td>4</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-501</td>
</tr>
<tr>
<td>20.</td>
<td>Discrete Mathematics in Computer Science</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-503</td>
</tr>
<tr>
<td>21.</td>
<td>Computer Lab.: Based on BCA-502</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>4</td>
<td>BCA-504</td>
</tr>
</tbody>
</table>

## Bachelor of Computer Applications - Sixth Semester

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>Web Programming</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-601</td>
</tr>
<tr>
<td>23.</td>
<td>Computer Organization</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-602</td>
</tr>
<tr>
<td>24.</td>
<td>Computer Networks</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-603</td>
</tr>
<tr>
<td>24.</td>
<td>Minor Project and Seminar Based on BCA-601</td>
<td>5</td>
<td>90</td>
<td>10</td>
<td>4</td>
<td>BCA-604</td>
</tr>
</tbody>
</table>

*The Environment, Road Safety Education & Violence against Women & Children is a compulsory qualifying paper which the students have to study in the B.C.A. 1st year (2nd Semester). If the students failed in qualify the paper during 2nd Semester, he / she / they be allowed to appear / qualify the same in the 4th or 6th semester/s.
FIRST SEMESTER
FIRST SEMESTER
English (Compulsory) – A
BCA-16-101

L T P Cr
6 - - 3

External Marks : 65
Internal Marks : 10

Time Duration : 3Hrs.
Number of Lectures : 60

Semester I

Book Prescribed: Colours of Expression by Harbhajan Singh published by Publication Bureau, Panjab University, Chandigarh

Section A

1) **Short Stories** (1 & 2)
   One essay type question on summary/Character/Incident (one out of two with internal choice)
   10 marks

II) **Prose** (1 to 3)
   Long essay type question on Summary/Theme (one out of two with internal choice)
   10 marks

III) **Poetry** (1 to 6)
   15 marks
   - Summary (one out of two with internal choice)
   - Short Questions (two out of three)
   - Reference to the Context (one out of two with internal choice)
   5 marks
   5 marks
   5 marks

Section B

1) Word formation from Prose and Stories and their use in sentences (5 out of 8)
   10 marks

2) Use of textual words and idioms in sentences (5 out of 8)
   10 marks

3) Translation from Hindi/Punjabi to English
   (a small Paragraph)
   5 marks

   OR

   For Foreign Students (Paraphrase of Poetry Passage)

4) Official, Business and Letters to the Editors
   5 marks
Fundamentals of Mathematical Statistics  
: BCA-16-102

L  T  P  Cr  
6  1  -  3

External Marks: 65
Internal Marks: 10

Time Duration: 3 Hrs.  Number of Lectures : 60

Objective: To teach the students the basic techniques Statistical Methods. After completing this course students will be able to solve various Financial, Scientific and Engineering fields’ problems.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.
5. **The student can use only Non-programmable & Non-storage type of Calculator.**
6. Log tables are allowed. Students may be provided the same for computation.

UNIT - I

**Basic Statistics:** Types of Statistics, Different Statistical Techniques, Steps in Statistical Investigation, Uses and Limitations of statistics, Collection of Data: Sources of collecting primary and Secondary Data, Limitations of Secondary Data, Criteria of evaluating secondary data, Organization of data, Graphs of Grouped Frequency Distribution, Tabulation of Data, Parts of Table

**Measures of Central Tendency:** Kinds of measures of central tendency (statistical averages or averages):

**Arithmetic Mean:** Simple Arithmetic Mean, Methods of calculating Simple Arithmetic Mean, Arithmetic Mean in case of Individual Series, Discrete series and continuous series, Weighted Arithmetic Mean, Combined Arithmetic Mean.

**Geometric Mean:** Simple Geometric Mean , Methods of calculating Simple Geometric Mean, Geometric Mean in case of Individual Series, Discrete series and continuous series, Weighted Geometric Mean, Combined Geometric Mean.

**Harmonic Mean:** Simple Harmonic Mean ,Methods of calculating Simple Harmonic Mean, Harmonic Mean in case of Individual, Discrete series and continuous series, Weighted Harmonic Mean, Combined Harmonic Mean.

UNIT - II

**Median:** Methods of Calculating Median in case of Individual, Discrete series and continuous series

**Partition Value:** Quartile, Quintiles, Hexiles, Septiles, Octiles, Deciles, Percentiles

**Mode:** Methods of Calculating Mode in case of Individual Series, Discrete series and continuous series

**Range:** Computation of Range, Inter Quartile Range, Computation of Inter Quartile Range, Percentile Range and Computation of Percentile Range.

Mean Deviation, Computation of Mean Deviation, Standard Deviation, Calculation of Standard Deviation, Variance, Calculation of Standard Deviation for individual Series, Discrete Series and Continuous Series, Coefficient of Standard Deviation and coefficient of variation, Combined Standard Deviation, Correcting incorrect Standard Deviation
UNIT - III


UNIT - IV


Suggested Readings:

Computer Fundamentals and Computing Software

BCA-16-103

L T P Cr      External Marks: 65
6 - -  3      Internal Marks: 10

Time Duration: 3 Hrs.    Number of Lectures : 60

Objectives: The objective of this course is to familiarize students with complete Fundamentals and the carriers commonly used computing software.

Note:

i. The Question Paper will consist of Four Units.

ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.

iv. All questions carry equal marks unless specified.

UNIT - I

Computer Appreciation: Introduction to computers, characteristics of computer; History of computers; Classification of computers on size: (Micro, Mini, Mainframe and super computers), Working Principles, Generations; Applications of computers; commonly used terms–Hardware, Software, Firmware. Basic Computer Organization: Block diagram of computer system, Input unit, Processing Unit and Output Unit; Description of Computer input devices: Keyboard, Mouse, Trackball, Pen, Touch screens, Scanner, Digital Camera; Output devices: Monitors, Printers, Plotters.

Computer Memory: Representation of information: BIT, BYTE, Memory, Memory size; Units of measurement of storage; Main memory: Storage evaluation criteria, main memory organization, RAM, ROM, PROM, EPROM; Secondary storage devices: Sequential Access Memory, Direct Access Memory Magnetic Tapes, Magnetic disks, Optical disks: CD, DVD; Memory storage devices: Flash Drive, Memory card;

Types of software: System and Application software; Programming Languages: Generation of Languages; Translators - Interpreters, Compilers, Assemblers and their comparison.

UNIT - II

Understanding Operating System using DOS : Introduction to operating systems and its functions, DOS and versions of DOS, Booting sequence; Warm and Cold Boot; Concepts of files and directories, Redirecting command input and output using pipes, Wildcard characters, Types of DOS commands: Internal and External; Internal Commands: DIR, MD, CD, CLS, COPY, DATE, DEL, PATH, PROMPT, REN, RD, TIME, TYPE, VER, VOL; External Commands: XCOPY, ATTRIB, BACKUP, RESTORE, FIND, SYS, FORMAT, CHKDSK, DISKCOPY, LABEL, MOVE, TREE, DELTREE, DEFRAG, SCANDISK, UNDELETE. Batch Files: Introduction to simple batch files; Introduction to CONFIG.SYS and AUTOEXEC.BAT files.

UNIT - III

Word Processing Package: Opening, saving and closing an existing document; renaming and deleting files; Using styles and templates: Introduction to templates and styles; applying, modifying and creating new (custom) styles; using a template to create a document, creating a template, editing a template, organizing templates, examples of style use, Changing document views, Moving quickly through a document, Working with text: select, cut, copy, paste, find and replace, inserting special characters, setting tab stops and indents, Checking spelling and Grammar, Autocorrect, Using built-in language tools, word completion, Autotext, Formatting text: Using Styles, formatting paragraphs, formatting characters, auto-formatting, creating lists; Formatting pages: Using layout methods, creating headers and footers, Numbering pages, Changing page margins, Adding comments to a document, Creating a table of contents, Creating indexes and bibliographies, Printing a document, Using mail merge, Tracking changes to a document, Using fields, Linking to another part of a document, Using master documents, Creating fill-in forms.

UNIT - IV

Spreadsheet Package: Introduction to Spreadsheets, sheets and cells; Opening and saving spreadsheet files; Working with sheets: inserting new sheet, deleting and renaming sheets, Viewing a spreadsheet: freezing rows and columns, splitting screen, Entering data: cell referencing, formatting cells, entering numbers, entering numbers as text, entering formulae, entering date and time, deactivating automatic changes, Speeding up data entry: using fill tool, fill series, defining fill series, Validating cell contents, Formatting data: formatting text, numbers, cells, Autoformatting cells and sheets, defining new autoformat, Using conditional formatting, Hiding and showing data, Sorting records, Printing a spreadsheet document: using print ranges, page formats, inserting page breaks, headers and footers; Working with Graphs and Charts : Creating Embedded Chart, formatting chart: Changing chart types, adding Titles, Legends and Gridlines, Printing Charts; Adding database functions: defining database ranges, sorting, filtering and grouping database ranges; Evaluating data: using DataPilot; Functions and Macros: using and editing existing macro, Creating Macros, Recording Macros, Running Macros.

Presentation Packages: Basics of creating a presentation, Parts of main window, workspace views, creating a presentation, Incorporation of Animation.

Note: Any word processing, spreadsheet and presentation package may be used. Focus should be on open source software's.

Suggested Readings:
4. OOoAuthors Team : Getting Started with OpenOffice.org 3.3, Friends of OpenDocument
Problem Solving Through C
BCA-16-104

L T P Cr External Marks: 65
6 - - 3 Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures: 60

Objective: The objective of this course is to make the student understand programming language concepts, mainly control structures, reading a set of data, stepwise refinement, function and arrays. After completion of this course, the student is expected to analyze the real life problem and write programs in ‘C’ language to solve problems. The main emphasis of the course is on problem solving aspect.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt ONE question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT - I
Fundamentals of C Languages: History of C, Character Set, Identifiers and Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables.
Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Standard and Formatted Statements, Structure of a C program, Compilation and Execution.

UNIT - II
Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IF-Else, The else if Clause.
Loop Control Structure: While and do-while, for loop and Nested for loop.
Case Control Structure: Decision using switch, Thegoto statement.
Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C.

UNIT - III
Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Memory Map of a 2-Dimensional Array, Passing array elements to a function: Call by value and call by reference, Arrays of characters, Insertion and deletion operations, Searching the elements in an array, Using matrices in arrays, Passing an Entire Array to a Function.
**Pointers:** Pointer declaration, Address operator “&”, Indirection operator “*”, Pointer and arrays, Pointers and 2-Dimensional Arrays, Pointer to an Array, Passing 2-D array to a Function, Array of Pointers.

**Dynamic Memory Allocation:** malloc(), calloc(), realloc(), free() functions.

**UNIT - IV**

**String Manipulation in C:** Declaring and Initializing string variables, Reading and writing strings, String Handling functions (strlen(), strcpy(), strcmp(), strcat()).

**Structures and Unions:** Declaration of structures, Structure Initialization, Accessing structure members, Arrays of structure, Nested structures, Structure with pointers, Union.

**Files in C:** Introduction, Opening and Closing files, Basic I/O operation on files.

**Suggested Readings:**

**Essential:**

**Further Reading:**
SECOND SEMESTER
English (Compulsory) – B

BCA-16-201

L  T  P  Cr
6  -  -  3

Time Duration : 3Hrs.

External Marks : 65
Internal Marks : 10

Number of Lectures : 60

Book Prescribed: Colour of Expression by Harbhajan Singh published by Publication Bureau, Panjab University, Chandigarh

Section A

1) **Short Stories** (3-5)
   One essay type question on summary/Character/Incident (one out of two with internal choice)
   10 marks

2) **Prose** (4-5)
   Long essay type question on Summary/Theme (one out of two with internal choice)
   10 marks

3) **Poetry** (7-11)
   Summary (one out of two with internal choice)
   5 marks
   Short Questions (two out of three)
   5 marks
   Reference to the Context (one out of two with internal choice)
   5 marks

Section B

1) Paragraph Writing (Descriptive and Narrative)
   10 marks

2). Use of textual words and idioms in sentences (5 out of 8)
   10 marks

3). Translation from Hindi/Punjabi to English
   **(isolated sentences)**
   5 marks

   OR

   For Foreign Students (Paraphrase of Poetry Passage)

4) Transformation of all types (5 out of 5)
   5 marks
Objectives: This course will enable the student to understand the basic organization of computer system and system maintenance.

Note:

i. The Question Paper will consist of Four Units.

ii. Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt **One** question from each Unit and the Compulsory question.

iv. All questions carry equal marks unless specified.

UNIT - I


UNIT - II

**Architecture of a Simple Processor:** Architecture of 8086/8088 microprocessor, instruction set, Addressing Modes.

Instruction: Microinstructions: Register Transfer, Arithmetic, Logical and Shift, Types of Instructions, Instruction Cycle.

Interrupt: Types, Interrupt Cycle

I/O organization: Strobe based and Handshake based communication, DMA based data transfer;

UNIT - III

**Memory Organisation:** Memory Hierarchy, RAM (Static and Dynamic), ROM, Associative memory, Cache memory organisation, Virtual memory organisation.

Assembly Language: Features of Assembly Language, Machine Language vs Assembly Language, Pseudo Instruction; use of Assembly for programs: Addition, Subtraction, Multiplication using Subroutines and Basic Input/Output.

UNIT – IV

**System Maintenance:** Introduction to various physical components of a computer, Physical Inspection and Diagnostics on PC, Functional description of various Internal and External cards; Viruses: Types of Computer Viruses, Detection, prevention and protection from Viruses.
Suggested Readings:

Essential:


Further Reading:

Fundamentals of Web Programming

BCA-16-203

External Marks: 65
Internal Marks: 10

Time Duration: 3 Hrs.

Number of Lectures: 60

Objectives: This course will enable the student to build and publish web sites using HTML, DHTML, CSS, JavaScript and Dreamweaver.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

Basic Terminology: Web Server; Web Client/Browser, Understanding how a Browser communicates with a Web Server, Website, Webpage, Static Website, Dynamic Website, Internet, Intranet, Extranet, WWW, URL

HTML: Structure of an HTML program, Paragraph Breaks, Line Breaks; Emphasizing Material in a Web Page (Heading Styles, Drawing Lines); Text Styles (Bold, Italics, Underline); Other Text Effects (Centering (Text, Images etc.)
Lists: Unordered List, Ordered Lists, Definition lists
Adding Graphics to HTML Documents using the Border, Width, Height, Align, ALT Attributes
Tables: Caption Tag, Width, Border, Cell padding, Cell spacing, BGCOLOR, COLSPAN and ROWSPAN Attributes.

UNIT - II

Linking Documents: Anchor tag, External Document References, Internal Document References and Image Maps

Frames: Introduction to Frames: The <FRAMESET> tag, The <FRAME> tag, Targeting Named Frames

DHTML: Introduction to cascading style sheets (CSS), Style tag, Link tag, Types of CSS: In-Line, Internal, External

Forms: Attributes of Form element, Input element, The Text Element, Password, Button, Submit Button, Reset Button, The Checkbox, Radio, TextArea, Select and Option

UNIT - III

Java Script: Introduction and Features of JavaScript, Writing JavaScript into HTML, tokens, data types, variables, operations, control constructs, strings arrays, functions, core language objects, client side objects, event handling. Applications related to client side form validation.
Other Built-In Objects in JavaScript: The String Object, The Math Object, The Date Object;

UNIT - IV

Web Hosting: Understanding Domain Name & Web Space, Getting a Domain Name & Web Space (Purchase or Free), Uploading the Website to Remote Server, Introduction to Open Source Third party FTP Tools

Suggested Readings:

Essential:

2. Bayross, Ivan : HTML, DHTML, Java Script by BPB, Latest reprint

Further Reading:

5. Thomas Powell : HTML & CSS: The Complete Reference
8. David Powers : The Essential Guide to Dreamweaver CS4
Object Oriented Programming using C++  
BCA-16-204

L T P Cr External Marks: 65
6 - - 3 Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures : 60

Objectives: By the end of the course, students will be able to write C++ programs using the more esoteric language features, utilize Object Oriented techniques to design C++ programs, use the standard C++ library, and exploit advanced C++ techniques.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT - I

**Principles of Object Oriented Programming (OOP):** Introduction to OOP, Difference between OOP and Procedure Oriented Programming; Concepts: Object, Class, Encapsulation, Abstraction, Polymorphism and Inheritance, Applications of OOP. Special operators: scope resolution operator, Member Dereferencing operators, Memory management operators, Manipulators and Type cast operator

**Structure of a C++ Program and Classes and Objects:** Class Declaration: Data Members, Member Functions, Private and Public members, Creating Objects, Accessing class data members, Accessing member functions; Class Function Definition: Member Function definition inside the class declaration and outside the class declaration.

UNIT - II

Friend function, inline function, Static members, Function Overloading, Arrays within a class. Arrays of Objects; Objects as function arguments: Pass by value, Pass by reference, Pointers to Objects.

**Constructors:** Declaration and Definition, Types of Constructors, (Default, Parameterized, Copy Constructors). Destructors: Definition and use.

**Operator Overloading & Type Conversion:** Conversion from basic type to user defined type, User defined to basic type and one user defined conversion to another user defined type.
UNIT - III

Inheritance: Extending Classes Concept of inheritance, Base class, Defining derived classes, Visibility modes: Public, Private, Protected; Types of Inheritance: Single inheritance: Privately derived, Publicly derived; Making a protected member inheritable, multilevel inheritance, multiple Inheritance and ambiguity of multiple inheritance, Hierarchical Inheritance, Hybrid, Nesting of classes.

Polymorphism: Definition, Application and demonstration of Data Abstraction, Encapsulation and Polymorphism. Early Binding, Polymorphism with pointers, Virtual Functions, Late binding, pure virtual functions.

UNIT - IV

Exception Handling: Definition, Exception Handling Mechanism: Throwing mechanism and Catching Mechanism, Rethrowing an Exception

File Processing: Opening and closing of file, Binary file operations, structures and file operations, classes and file operations, Random file processing.

Suggested Readings:

Essential:
1. E. Balaguruswamy, 2008: Object Oriented Programming with C++, TMH.

Further Reading:
Note: The syllabus has 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topic from 2 to 11 and one each for the topics 1 and 12 to 15.

1. Environment Concept:
Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere; Natural resources – their need and types; Principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

2. Atmosphere:
Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.

3. Hydrosphere:
Types of aquatic systems; Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.

4. Lithosphere:
Earth crust, soil – a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

5. Forests:
Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban Forests, Chipko Andolan.

6. Conservation of Environment:
The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems – soil, water , air, wildlife, forests.

7. Management of Solid Waste:
Merits and demerits of different ways of solid waste management– open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

8. Indoor Environment:
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. Global Environmental Issues:
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.
10. Indian Laws on Environment:
Indian laws pertaining to Environmental protection: Environment (Protection) Act, 1986; General information about laws relating to control of air, water and noise pollution. What to do to seek redressal.

11. Biodiversity:
What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.

12. Noise and Microbial Pollution:
Pollution due to noise and microbes and their effects.

13. Human Population and Environment:

14. Social Issues:
Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.

15. Local Environmental Issues:
Environmental problems in rural and urban areas. Problem of Congress Grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

Practical
Depending on the available facility in the college, a visit to vermi composting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken.

Examination Pattern:
A qualifying paper of 50 marks comprising of fifty multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong answer or un-attempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added / included in the final mark sheet.

UNIT II (ROAD SAFETY)
1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Engineering – Concept & Significance.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

Note: Examination Pattern:
- The Environment and Road Safety paper is 70 marks.
- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted questions).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit II is to be covered in 10 hours.
- All the questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination: 90 minutes.
- The paper setter is requested to set the questions strictly according to the syllabus.

Suggested Readings
2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

Websites:
(a) www.chandigarhpolice.nic.in
(b) www.punjabpolice.gov.in
(c) www.haryanapolice.gov.in
(d) www.hppolice.nic.in
SYLLABUS ON “VIOLENCE AGAINST WOMEN & CHILDREN” AT UNDERGRADUATE LEVEL

UNIT III OF COMPULSORY PAPER ON ENVIRONMENT & ROAD SAFETY EDUCATION

AS PART OF SEMESTER - II

Unit – III
VIOLENCE AGAINST WOMEN & CHILDREN

1. Concept and Types of Violence: Meaning and Definition of violence; Types of Violence against women – domestic violence, sexual violence (including rape), sexual harassment, emotional/psychological violence; Types of Violence against children – physical violence, sexual violence, verbal and emotional abuse, neglect & abandonment.

2. Protective Provisions of IPC on Domestic Violence & Sexual Violence against Women:
   - **Dowry Death** – Section 304B;
   - **Rape** – Sections 375, 376(1), 376A, 376B, 376C, 376D and 376E;
   - **Cruelty** – Section 498A;
   - **Insult to Modesty** – The Indian Penal Code does not define the word eve-teasing; there are three sections which deal with crime of eve-teasing. These are Sections, 294, 354 and 509 of Indian Penal Code. Section 509 of the Indian penal code defines (Word, gesture or act intended to insult the modesty of a woman), Section 294 – (Obscene acts and songs) and Section 354 (Assault or criminal force to woman with intent to outrage her modesty);
   - **Hurt & Grievous Hurt Provisions** – Sections 319 to 326;
   - **Acid Attacks** – Sections 326A and 326B;
   - **Female Infanticide** – Section 312, Section 313 of Indian Penal Code (Causing miscarriage without women’s consent) and section 314;
   - **Sexual Harassment** – For providing protection to working women against sexual harassment, a new section 354 A is added; 354 B (Assault or use of criminal force to women with intent to disrobe); 354 C Voyeurism; 354 D (Stalking). All these provisions are added in IPC to protect women against acts of violence through Criminal Law (Amendment) Act, 2013; Human Trafficking and Forced Prostitution- Sections 370 and 370A

3. Protective Laws for Women:


3.2 **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** – Definition, Internal Complaint Committee, Local Complaint Committee, Procedure adopted by Committee for punishing accused.

4. **Protective Provisions of IPC regarding Sexual Violence against Children:**
   - **Section 293** (sale etc. of obscene objects to young persons);
   - **Section 294** (obscene acts & songs);
   - **Section 295** (abortion of child); 315 to 317 (act causing death after birth of a child etc.); 361
(kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A (kidnapping or maiming a minor for purposing of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).

4.1 The Protection of Children from Sexual Offences Act, 2012: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.

Note: Instructions for Examination:

- Unit III of the paper dealing with Violence against Women and Children is of 30 Marks.
- It shall have 30 multiple-choice questions (with one correct and three incorrect choice options and no deduction of marks for wrong or un-attempted questions).
- Minimum two questions from each topic must be covered.
- All the questions are to be attempted
- Qualifying Marks 33 percent
- Duration of Examination 30 Minutes
- The Paper Setter is requested to set the questions strictly according to the syllabus.

Pedagogy:

- The entire syllabus of Unit III is to be covered in ten hours in total, with each lecture of one-hour duration.
- The purpose behind imparting teaching-learning instructions is to create basic understanding of the contents of the Unit III among the students.

RELEVANT READING MATERIAL

Ahuja, Ram (1998), Violence against Women, New Delhi: Rawat Publication
NRHM, Child Abuse, A Guidebook for the Media on Sexual Violence against Children
The Protection of Children from Sexual Offences Act, 2012
The Protection of Women from Domestic Violence Act 2005
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
UNO, United Nations Secretary-General's Study on Violence against Children, adapted for Children and Young People
Unit IV (Drug Abuse)

Drug Abuse: Problem, Prevention and Management

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three year of degree course.

Main Objective
This module introduces to the students the problem of drug abuse and its adverse consequences for the society. The students would get an understanding of why drug abuse is such a serious problem to our society. The course also apprises them of how to prevent and manage this menace.

Learning objectives of the course
1. Understand the meaning of the term drug.
2. Understand the difference between use, misuse and abuse of drugs.
3. Differentiate between commonly abused legal and illegal drugs.
5. Understand the causes and consequences of drug abuse.
6. Identify and access safety measures for support to stay away/give up drug abuse.

Pedagogy of the course work
1. 70% Lectures (Including expert lectures)
2. 30% assignments, discussion, seminars and class tests.
   - A visit to drug de-addiction centre could also be undertaken

Course content
UNIT I: Problem of Drug Abuse


b) Types of drugs often abused and their effects

Stimulants: tobacco Amphetamines: dl-amphetamine (Benzedrine ®), dextroamphetamine (Dexedrine®). Cocaine.

Depressants: Alcohol. Barbiturates: phenobarbitone (Nembutal®), secobarbital (Seconal®), Benzodiazepenes: diazepam (valium ®), alprazolam (Xanax®), flunitrazepam (Rohypnol®)

Narcotics: Morphine, heroin (‘Chitta’/ ‘Brown Sugar’), pethidine, oxycodone.

Hallucinogens: cannabis [‘Bhang’, marijuana (‘Ganja’), hashish (‘Charas’), hash oil], MDMA (3, 4- methylenedioxy methamphetamine) /’Ecstasy’/ ‘Molly’. LSD (lysergic acid diethylamide).
Miscellaneous: cough/cold medicines: diphendydramine (Benadryl®), chlorpheneramine maleate+ codeine+alcohol (Corex®). Iodex®, Vicks®, Amrutanjan® and correction fluid (Whitener).

UNIT II: Theories of consequences of drug abuse

a) Theories of drug abuse: Physiological theory. Psychological theory. Sociological theory.

b) Consequences of drug abuse: For individuals, families, society and economy.

Unit III: Extent and nature of the problem


UNIT IV: Prevention and management of drug abuse


Suggested readings:

5. 2003 National Household survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, AIIMS, 2004

..........
THIRD SEMESTER
पुस्तक समय:
समय 2017 के विभिन्नलक्ष लक्ष

पुस्तक नोट: 50
विक्रय: 45
टिप्पणी: 05
मम्म: 3 पृष्ठ

मिश्रिता

1. आपूर्ति पुस्तक बड़ीहै दीवान बटरीघाट बीसदार रह भावनाम
2. बटरीघाट पुस्तक बेवरीघाट रह भावनाम
3. बटरीघाट पुस्तक अंपग एंड एंड ग्राहियो एंड जेनरल

वेब

1. म्यू-मेंटेंट, मेंरा: दर म्यूंटेंट सिंध दिने बटरीघाट 15 बीसदार, पुरुष: खंडान गुडीपीलीवाड़ी पवतीहैदार दिव्य, चंडीगढ़
(बाह्री बीच बेवरी, तुलसी रा डुस उत्तर कार्य हूँ, बिहार-बस, खेता, पुकार सिंध- मजार पंपन, महेंद्र सिंहदेव में डीडीवाड़, रावण रह बिगड़ादी बसर, पती ग्राम चाँदीवाल- कूल मंडेंट, देव दी बच्चों, पुस्तकें जा मुखर, मंडल सिंध- भा, देव बिगड़ा, देव जा सीमा अट और भींगा पीड़ा- अपने मजा मांग हूँ, मेंट बड़े अट और भींगा देवी बड़ीहै)

2. पुस्तक बरा-बिउन, मेंरा: गुडीपीलीवाड़ी सिंध दिने बटरीघाट 6 बीसदार
(बाह्री बीच बेवरी, महेंद्र सिंहदेव में डीडीवाड़)

पुस्तक अट बीम

1. म्यू-मेंटेंट पुम्याल दिने पूंजा मुखिया विभागधारा (2 दिनें 1) 5 अंब
2. दिने दिन बिउन रा मजा सं बेवरी बर्द (3 दिनें 1) 5 अंब
3. दिन बाराटी रा मजा (पुस्तक बरा-बिउन दिनें) 5 अंब
4. दिने दिन बरा सं बाराटीवार रा मीडिया, बाराट अट जेनरल
(बाह्री बीच बेवरी, पुम्याल मुखिया, भींगा पीड़ा, मंडल मुखिया, मंडुण मुखिया पीठ, अट बाराटीवार मिश्र दिव्य)
(2 दिनें 1, दिन बरा अट जेनरल दिन बाराटीवार दिनें)
5. मेंरा: मध्यम, मध्यमधार अट अट मजा बाराटीवार (500 मंडन्त देव) 7 अंब
6. बार मूंपी (10 बार मजा-मेंटेंट दिनें) 7 अंब
7. बार मूंपी (10 बार मजा दिनें) 8 अंब

विक्रय शेत: मध्यम बार मजा अट जेनरल दिन दिन 6 बीसदार
HISTORY AND CULTURE OF PUNJAB – I

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units.
   There shall be 9 questions in all. The first question is compulsory and shall be short
   answer type containing 10 short questions spread over the whole syllabus to be
   answered in about 25 to 30 words each. The candidates are required to attempt any 5
   short answer type questions. Each question will carry 1 mark. Rest of the paper shall
   contain 4 units. Each Unit shall have two essay type questions and the candidate shall
   be given internal choice of attempting one question from each Unit-IV in all. Each
   question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment,
   the marks secured by them in theory paper will proportionately be increased to
   maximum marks of the paper in lieu of internal assessment.

   The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:

1. Each essay type question would cover about one-third or one-half of a topic detailed
   in the syllabus.

2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question of map on important historical places,
   the paper setter will be required to ask the students to mark 6 places on map of 1
   mark each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within
   one question paper.

PAPER : HISTORY AND CULTURE OF PUNJAB FROM THE EARLIEST TIMES
TO 1849

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of the Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I


UNIT II

4. Society and Culture under Maurayas
5. Society and Culture under Gupta
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III
9. Institution of Khalsa: new baptism; significance

UNIT IV
10. Changes in Society in 18th century: social unrest; emergence of misls and institutions-rakhi, gurmata, dal khalsa.
11. Society and Culture of the people under Maharaja Ranjit Singh

Suggested Readings:
5. Basham, A.L : The Wonder That was India, Rupa Books, Calcutta (18th rep.), 1992
6. Sharma, B.N : Life in Northern India, Munshi Ram Manohar Lal, Delhi, 1966
7. Singh, Kirpal : History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala 1990 (3rd edn.).

Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:
A. That the students who have not studied Punjabi up to class 10th.
B. Ward of / and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
D. Foreigners
Information System Design and Implementation

BCA-16-303

L T P Cr
6 - - 3

External Marks: 65
Internal Marks: 10

Time Duration: 3 Hrs.
Number of Lectures : 60

Objective: To teach the students about the various aspects of Information Systems to be developed, their analysis and design. The motive is to aware the learners about pre requisite of software development and associated paradigms. After completing this course students will be able to analyse and design information systems.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **One** question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT - I


The Role of System Analyst: Skills of a System Analyst, various roles of the Analyst.

UNIT - II

System Planning and the Initial Investigation: Bases for planning in system analysis, Initial investigation, determining the users information requirements, Problem definition and Project Initiation, Background Analysis, Fact Finding, Fact Analysis, Determination of Feasibility.


Tools of Structured Analysis: Various tools of structured analysis: Data flow diagram (DFD), Data Dictionary, Decision tree and structured English, Decision table, Pros and cons of each tools.

UNIT - III


UNIT - IV


Suggested Readings:

Essential :

Further Reading :
Objective: To teach the students the essential techniques of Numerical Methods. After completing this course students will be able to solve various Scientific and Engineering fields’ problems.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.
v. The student can use only Non-programmable & Non-storage type of Calculator.
v. Log tables are allowed. Students may be provided the same for computation.

UNIT - I

**Data Representation and Computer Arithmetic**: Introduction, Concept of Exact and Approximate Numbers, Concept of Significant digits, Representation of Numbers in Memory, Storage of Integer Numbers: Signed Representation, 1’s Complement Representation, 2’s Complement Representation, Floating Point Numbers and their storage, Floating Point Arithmetic, Normalization and their consequences, Errors, Measures of Accuracy: Absolute Error, Relative Error and Percentage Error, Error types: Data Errors, Truncation Errors, Round-Off Errors, Computational Errors, Rules, Relationship between Relative Error and Significant digits and Error Propagation: Error Propagation in Addition Operation, Subtraction Operation, Multiplication Operation and Division Operation.

UNIT - II


UNIT - III


UNIT - IV


Suggested Readings:

Essential:

Further Reading:
3. S.S. Shastry : Introductory Methods of Numerical Analysis
4. H.C. Saxena : Finite differences and Numerical Analysis
Objective: To teach the students various data structures and the basic operations performed using them. At the end of course the student will have complete knowledge of data structures, thus will be able to use them for solving real world problems.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT - I

**Basic Concepts:** Introduction to Complexity, Data Structure and Data Structure operations. Applications of Data Structure, Basic data Structures.

**Arrays:** Introduction, Types of Array, Memory representation, Applications and operations.

**Stacks:** Introduction, memory representation, Applications and operations.

UNIT - II

**Linked List:** Operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation.

**Queue:** Introduction, Types, Memory Representation and Applications.

UNIT - III

**Trees** – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Searching, Insertion and deletion in Binary trees, Binary Search tree.

**Graphs:** Introduction, Memory Representation, Graph Traversal (DFS and BFS)

UNIT - IV

**Searching:** Binary and Linear Search;

**Sorting:** Bubble sort, Insertion sort, Selection sort, Merge Sort, Quick sort.

Comparison of various Searching and Sorting algorithms.
Suggested Readings:

**Essential:**

**Further Reading:**
FOURTH SEMESTER
पंजाबी लगभग

अप्रैल /मई 2018 से शिक्षा विोजन ढूंढ़ी

ेंम बन्च : 50
विद्यार्थी : 45
शिक्षक अभावमें : 05
माम्र : 3 पढ़िे

मिलर्जम

1. आपूर्तिक पंजाबी वल्लों तीनों चूड़ीगां विद्यालयों रह अभिवद्ध
2. चूड़ीगां पंजाबी वार्ता दो अभिवद्ध
3. चूड़ी पंजाबी वेकल मा संघेव सीधे डे वक्ता/मेडिना

वेळा:

1. मुद्य-संहेदन, मंधा: डा.माउरिस सिंग बीच संहेदन 15 विद्यालयों, पुरावश: धर्मपी धर्मीला मिला धर्मीला चेंढ़ीगां
(धीरेदारी शहद- पंजाब, झुड, बा फ. झुड, ठंड मारं ठंड मारं- खेल पंजाब, बुझ ठंड रहें, सेवक में लो, यथा यथा- सेवक ठंडी, बी भारतीय राष्ट्र बलीग रहे, विद्यालय, पुरा- विनाशक, आदि वर्तनी माफी, तीर, मुखरो प्राप- महं ठंडीव, जाति (बेसी ब्राहमी)
2. धर्मपी व्यः-विवरण, मंधा: गुरुस्वामी सिंह बीच संहेदन 6 वार्ता दो, पुरावश: पंजाबी पुरावशीमी, पुरावशीमी, चेंढीगां
(धार्मिक करण, फासी, फासी मध् मध्-हांच ने, येही येही ताकत, सिंह पुख वर्तमान दे अने पनपां वार्ताएं)

प्रतिव बन्च बीच

1. मुद्य-संहेदन पुखर बीच संहेदन पुखर बीच विवरण (2 बीच 1) 5 अंबर
2. विवें बीच विवरण दा मार सर बंडली राज (4 बीच 1) 5 अंबर
3. बीच बंडली दा मार (पंजाबी व्यः-विवरण बीच) 5 अंबर
4. विवें बीच बंडली मा बंडलीवार दा सीड़, बंडली भरे बंडली (विवें व्यः, पुख, मुखरो पुखर, नागिदिशा सिंह, मुखरो चेंढ़ भरे
विवरण में) (2 बीच 1, बीच बंडली मा बीच बंडलीवार बीच)
5. बांडली राज संघेव पुख-राज (2 बीच 1) 8 अंबर
6. बांडली विवरण (2 बीच 1) 7 अंबर
7. विवरण बीच 7 अंबर

विवरण राज : मासें पत्र बुध लंहि गड़े बीच 6 बीच अंबर
HISTORY AND CULTURE OF PUNJAB-II

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units.
   There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment. The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
   Explanatory Note : 04 Marks
   In case a paper setter chooses to set a question on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region in the Modern times.

Pedagogy: Lectures, library work and discussions.

UNIT I
1. Introduction of Colonial Rule in Punjab: Annexation of Punjab, Board of Administration
2. Western Education: Growth of Education and rise of middle classes
3. Agrarian Development: Commercialization of agriculture; canalization and colonization.
UNIT II
5. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
6. Development of Press & literature: growth of press; development in literature

UNIT III
7. Emergence Of Political Consciousness: Agrarian uprising 1907; Ghadar Movement.
8. Gurudwara Reform Movement: Jallianwala Bagh; foundation of SGPC and Akali Dal; Morchas; Activities of Babbar Akalis.
9. Struggle for Freedom: activities of revolutionaries - Naujawan Bharat Sabha; Kirti Kissan Movement; participation in mass movements – non co-operation, civil disobedience, Quit India.

UNIT IV
10. Partition and its Aftermath: resettlement; rehabilitation
12. MAP(Physical geographical map of undivided Punjab): Major Historical places: Delhi, Kurukshetra, Jaito, Ferozepur, Ambala, Amritsar, Lahore, Ludhiana, Qadian, Jalandhar, Lyallpur, Montgomery.

Suggested Readings:

1. Singh, Kirpal :History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
Software Project Management
BCA-16-403

L T P Cr External Marks: 65
6 - - 3 Internal Marks: 10

Time Duration: 3 Hrs. Number of Lectures: 60

Objective: To teach the students important concepts, terms related to various phases during the development of a software project. At the end of the course the student will be able to apply software project management techniques to manage a software project.

Note:
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

**Software Project Management and Process Groups:** Introduction to project and project management, role of a project manager in project management, a system view of project management, Stakeholders of Project, Project phases and product life cycles, Evolution of software economics, Improving software economics: reducing product size, software processes, team effectiveness, automation through software environments, Principles of modern software management.

UNIT - II

**Project Management Framework:** Project Management Framework, Software Tools for Project Management, Issues in Project Staff Acquisition and Team formation and Development, Model based software architectures, Workflows of the process, Checkpoints of the process.

**Project Integration:** Integration Management: Project selection, project management plans, project execution, project monitoring and controlling, integrated change control;

UNIT - III

**Scope Management:** Scope Management: project scope statement, Work breakdown structures, Scope verification and scope control, Process instrumentation and seven core metrics.

**Software management disciplines:** Iterative process planning, Project organizations and responsibilities, Process automation.
UNIT - IV

**Project Scheduling:** Time Management; Importance of Project Schedules, Sequencing and Scheduling Activity, Project Network Diagrams, PERT/CPM, Gantt charts, Critical chain scheduling.


**Suggested Readings :**

**Essential :**

**Further Reading :**
Operating System Concepts and Linux

Objective: The objective of the module is to create skills of students in operating systems concepts and Linux commands.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **One** question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT - I

Operating Systems (OS): Introduction, its needs and services, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems

UNIT - II

Deadlocks: Necessary and sufficient conditions for Deadlocks, Introduction to methods for handling deadlocks, deadlock detection and recovery
Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU

UNIT - III

Introduction to Linux: Linux’s shell, Kernel, Features of Linux, History, Minimum system requirements, Boot and Root disks, Starting and stopping Linux system, passwords, logging in and out, terminal Handling commands: who, Understanding wildcards, Environment variables.
Understanding I/O Redirection and Piping: Introduction, cut, paste, sort, tee; Introduction to Regular Expressions and grep
Using file system: Introduction to common types of files, Filenames, Introduction to different types of directories: Parent, Subdirectory, Home directory; rules to name a directory, Important directories in Linux File System, Absolute and relative filenames,
creating files and directories, listing files (ls), pwd, moving and copying files (mv, cp),
moving directories, Removing files and directories, using wildcards with files and
directories, File and directory permissions using relative and absolute methods, Changing

group ownership, umask settings

UNIT - IV

Process Management: Types of processes, ps, bg, fg, nice, kill.
Understanding System Administration activities: Superuser (su) command, Taking backups
using tar, Managing disk space, Mounting and Un-mounting file system, Managing users,
Managing printers with lpd, mknod, lpc, lpq, lprm.
Vi editor: starting vi, vi modes, inserting text, quitting vi, deleting text, copying and moving
text, searching and replacing text.

Suggested Readings:

Essential :

Further Reading:
3. Brinch, Hansen, Operating System Principles, Prentice Hall of India
Objective: This course aims at giving the students the insight of the underlying concepts of database management system and implement them using Database software.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I


Data Base Systems Concepts and Architecture: Data Models, Schemas and Instances, DBMS architecture and Data Independence, Data base languages & Interfaces, DBMS functions and component modules.


UNIT - II

Relational Data Model: Relational model concepts, Integrity constraints over Relations, Relational Algebra - Basic Operations.


Relational Data Base Design: Functional Dependencies, Decomposition, Desirable properties of decomposition, Normal forms based on primary keys (1 NF, 2 NF, 3 NF and BC NF).

**RDBMS:** Terminology, The 12 Rules (Codd’s Rule) for an RDBMS.

UNIT - III

**Understanding SQL-1:** Data Types, Creating Tables, Creating a Table with data from Another table, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) from a Table, Dropping a Column, Querying database tables, Conditional retrieval
of rows, Working with Null Values, Matching a pattern from a table, ordering the result of a Query Aggregate Functions, Grouping the Result of a Query, creation and deletion of Views, Managing privileges with Grant and Revoke Command, COMMIT and ROLLBACK, Functions: Character Functions, Date Functions, Group Functions

UNIT - IV

Understanding SQL-II: Querying Multiple Tables using Equi-Joins, Cartesian Joins, Outer Joins, Self-Joins, SET Operators: Union, Intersect, Minus; Introduction to Nested Queries


Suggested Readings:
Essential

Further Reading :
FIFTH SEMESTER
SYLLABI AND COURSES OF READING FOR
BACHELOR OF COMPUTER APPLICATIONS

Paper Code : BCA – 501
Paper Title : Entrepreneurship Development Programme
Theory Marks : 90
Number of Lectures : 100
(45 minutes duration)

Objectives : EDP aims at training various target groups in entrepreneurial traits so that they obtain adequate information, motivation and guidance in setting up their own enterprises.
In order to maintain a homogeneous nature of participating groups, EDP focuses on rural entrepreneurs, women, SC/ST and minority communities etc.

Note :
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.
v. **The student can use only Non-programmable & Non-storage type of Calculator.**
vi. **Log tables are allowed. Students may be provided the same for computation.**

UNIT – I

1. Project Formulation : Need, Scope and approaches for project formulation; structure of project report; study and analysis of sample project report; preparation of a project report; Techno-economic feasibility of the project.
   (No. of Periods : 25)

UNIT – II

2. Finance & Accounting : Working capital assessment, its management & exercise thereon; Assessment of fixed capital and exercise thereon; Capital budgeting; Product costing and cost consciousness. Financial ratios and their significance; Break-even analysis; Credit institutions and financing procedures; Books of accounts, financial statements & fund flow analysis.
   (No. of Periods : 25)

UNIT – III

3. Managing the Enterprise : Resource management – men, material, money and machines; Personnel management, Office management.


(No. of Periods : 25)
UNIT - IV


(No. of Periods : 25)

Suggested Readings :

Objectives:

- To study the various graphical techniques.
- To study the multimedia concepts and various I/O technologies.
- To enable the students to develop creative graphics based programs.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.
v. The student can use only Non-programmable & Non-storage type of Calculator.
vi. Log tables are allowed. Students may be provided the same for computation.

UNIT - I

Computer Graphics:

1. A Survey of Computer Graphics:
   (No. of Periods: 15)

2. Overview of Graphics Systems:
   (No. of Periods: 10)
UNIT - II

   AutoCAD: Features, Workspace, Commands to draw line, Polyline, rectangle, polygon, circle, spline, hatch; Modification Commands: Erase, copy, move, mirror, scale, Pan, Zoom, esc, cl, trim; Layer, Dimension, image rotation, area calculation.
   (No. of Periods : 10)

   Use the above primitives to develop programs like drawing concentric circles, Ellipses, Sine curves, Histograms, Pie charts and human face.  (No. of Periods : 15)

UNIT - III

Multimedia Technology:


7. Applications:
   (No. of Periods : 25)

UNIT - IV


9. Studying features and use of Multimedia Image Processing authoring tools like Photoshop and Macromedia Director.
   (No. of Periods : 25)
Suggested Readings:

Essential:

Further Reading:
Objectives : Student will learn and revise the knowledge acquired previously. Logic, Relations and Functions, Algebraic Functions and Graph Theory will be introduced in this course.

Note : 

i. The Question Paper will consist of Four Units.

ii. Examiner will set total of **Nine** questions comprising **Two** questions from each Unit and **One** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt **One** question from each Unit and the Compulsory question.

iv. All questions carry equal marks unless specified.

v. The student can use only Non-programmable & Non-storage type of Calculator.

vi. Log tables are allowed. Students may be provided the same for computation.

UNIT - I

1. Set Theory : Relations and Functions : Set Notation and Description, subset, basic set operations, Venn Diagrams, laws of set theory, partitions of sets, min sets, duality principle, basic definitions of relations and functions, graphics of relations, properties of relations: injective, surjective and bijective functions, compositions.

2. Recurrence : Recurrence Relations and Recursive Algorithms – Linear-Recurrence Relations with Constant Coefficients; Homogeneous Solutions : Particular Solution, Total Solution, Solution by the Method of Generating functions.

   (No. of Periods : 25)

UNIT - II

3. Graph Theory : Graph and planar graphs – Basic Terminology, Multi-graphs, Weighted Graphs, Paths and Circuits, Shortest Paths, Eulerian Paths and Circuits. Travelling Salesman Problem, Planar Graphs.

   (No. of Periods : 25)

UNIT - III


   (No. of Periods : 25)
UNIT - IV

   (No. of Periods : 10)

7. Algebra of Logic : Proposition of logic operations, truth tables and propositions generated by set, equivalence and implication laws of logic, mathematical system, propositions over a universe, mathematical induction, quantifiers.
   (No. of Periods : 15)

Suggested Readings:


Paper Code : BCA - 504
Paper Title : Computer Lab.-1 : Based on BCA - 502
Theory Marks : 90
SIXTH SEMESTER
Objectives: This course will help the student to design & develop websites using HTML, Javascript and JAVA programming language.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

**UNIT - I**

1. Review of forms in HTML, *Introduction to cascading style sheets (CSS)*, defining and applying CSS.
   Java Script: Features, tokens, data types, variables, operations, control structs, likes, strings arrays, functions, core language, objects, client side objects, event handling. Applications related to client side form validation.
   (No. of Periods : 25)

**UNIT - II**

2. Fundamentals of Java: Java Vs. C++, Byte Code, Java virtual machine, constants, variables, data types, operators, expressions, control structures, defining class, creating objects, accessing class members, constructions, method overloading. *String handling.*
   Inheritance: Basics, member access, using super to call super class constructors, creating a multi level hierarchy, method overriding, dynamic method dispatch, using abstract classes, using Final.
   (No. of Periods : 25)

**UNIT - III**

3. Packages and Interfaces: Defining a package, understanding CLASSPATH, Access protection: Importing packages, Interfaces, Defining an Interface, Implementing Interfaces, Applying Interfaces, Variables in Interfaces.
   Exception Handling: Fundamentals, Exception types, Using Try and Catch, Multiple Try and Catch clauses, Nested Try statements, Built-in exceptions.
   (No. of Periods : 25)
UNIT - IV


(No. of Periods: 25)

Suggested Readings:

Essential:

Further Reading:
Objectives: This course will enable the student to understand the basic organization of computer system and system maintenance.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.
v. The student can use only Non-programmable & Non-storage type of Calculator.
vi. Log tables are allowed. Students may be provided the same for computation.

UNIT - I


   (No. of Periods : 25)

UNIT - II

2. **Architecture of a Simple Processor**: An instruction set, Addressing Modes, Instruction formats, Instruction execution in terms of Microinstructions, Concept of interrupt and simple I/O organisation, I/O organization: Strobe based and Handshake based communication, Vector and priority interrupts, DMA based data transfer; CPU organisation with large registers, Stacks and handling of interrupts and subroutines. Concept of Bus, data movement among registers, data movement from/to memory.

   (No. of Periods : 25)

UNIT - III

3. **Memory Organisation**: RAM, Basic cell of static and dynamic RAM, Building large memories using chips, Associative memory, Cache memory organisation, Virtual memory organisation. Assembly Language Programming: Machine and assembly language, Pseudo operations, subroutines in assembly language, Assembly language programs:-To add/subtract two numbers, Program to input/output one character, Program to demonstrate the use of subroutines. Register Transfer Language and micro-operations; Language to represent conditional data transfer, Arithmetic and logical operations along with register transfer.

   (No. of Periods : 25)
UNIT - IV


(No. of Periods : 25)

**Suggested Readings :**

**Essential :**


**Further Reading :**

Objectives: As part of this course, students will be introduced to computer networks and data communication paradigms, network models and standards, network protocols and their use and wireless technologies.

Note:
1. The Question Paper will consist of Four Units.
2. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt ONE question from each Unit and the Compulsory question.
4. All questions carry equal marks unless specified.
5. The student can use only Non-programmable & Non-storage type of Calculator.
6. Log tables are allowed. Students may be provided the same for computation.

UNIT - I
1. Introduction to Data Communication: Data Communication fundamentals, Simplex, Half-Duplex, Full-Duplex

UNIT - II
2. Physical Layer: Transmission Media, Switching, ISDN & its services, Multiplexing, Modems.

UNIT - III

UNIT - IV

UNIT - IV
Suggested Readings :

Essential :

Further Reading :

BCA : 604 Minor Project and Seminar

Paper Code : BCA – 604
Paper Title : Based on BCA – 601
Theory Marks : 90

Project and Seminar must be taken up from the real life problems. Marks for these are to be given on the basis of Programming Style, User friendly I/O, on-line help and documentation (user Manual). This work will carry 100 marks, (90 Marks for Project and Seminar Viva; and 10 Marks for Internal Assessment).

***************
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947-enacted by the Govt. of India)

FACULTY OF BUSINESS MANAGEMENT
AND COMMERCE

OUTLINES OF TESTS SYLLABI AND COURSES OF READING
FOR
BACHELOR OF BUSINESS ADMINISTRATION
(Semester System)

For the Examination 2017-18
SYLLABI FOR B.B.A. FOR THE EXAMINATION OF 2017-2018 ONWARDS

Note:
1. Examination in each subject for B.B.A. will be of 3 hours duration.
2. There will be no objective type questions.
3. Students are required to have the knowledge of the developments in the subject up to 6 months before the examination.
4. Use of non-programmable calculators by the students in the Examination Hall is allowed. The calculators will not be provided by the University/College to the examinees.
5. Tutorial classes will be held for the subjects marked with an asterisk (*). Apart from 5- Regular periods per week, 1-additional tutorial period shall be required to give practical exposure to the students.
6. The following categories of the students shall be entitled to take the option of History and culture of Punjab in lieu of Punjabi as compulsory subject:
   (a) Students who have not studied Punjabi up to Class-Xth.
   (b) Wards of defence personnel and Central government employee/employees, who are transferable on all India basis.
   (c) Foreigners.
7. 20% marks in each paper will be internal assessment based on the following parameters:
   a. Mid-Semester Test : 50%
   b. Academic Activity : 30%
      (Seminar, Project & Assignment)
   c. Attendance : 20%

INSTRUCTIONS FOR THE PAPER SETTERS
Note: The question paper of each subject covering the entire course shall be divided into three sections:

Section A (20 marks)
This section will have 6 short-answer questions from the entire syllabus. Students are required to attempt 4 questions from this section. Each question will carry 5 marks; the total weightage being 20 marks.

Section B (30 marks)
This section will consist of essay type/numerical questions from Unit-I of the syllabus. The candidate will be required to attempt two questions out of four questions. Each question will carry 15 marks; the total weightage being 30 marks.

Section C (30 marks)
This section will consist of essay type/numerical questions from Unit-II of the syllabus. The candidate will be required to attempt two questions out of four questions. Each question will carry 15 marks; the total weightage being 30 marks.

Important Note: In all numerical papers the paper setter is required to set numerical questions as follows:
   Section A : Four numerical questions out of six questions.
   Section B and C : At lease two numerical questions out of four questions.
SCHEME OF EXAMINATION FOR B.B.A (2017-2018)

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Paper Title</th>
<th>M.Marks</th>
<th>No. of lectures Per week</th>
<th>Tutorials Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST SEMESTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBA 101A/</td>
<td>PUNJABI / HISTORY AND CULTURE</td>
<td>50</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BBA 101B</td>
<td>OF PUNJAB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBA 102</td>
<td>BUSINESS STATISTICS*</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BBA 103</td>
<td>FUNDAMENTALS OF INFORMATION TECHNOLOGY</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 104</td>
<td>MANAGEMENT CONCEPTS AND PRACTICES</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 105</td>
<td>FINANCIAL ACCOUNTING*</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BBA 106</td>
<td>ESSENTIALS OF BUSINESS</td>
<td>100</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECONOMICS † I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>550</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECOND SEMESTER

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Paper Title</th>
<th>M.Marks</th>
<th>No. of lectures Per week</th>
<th>Tutorials Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBA 121A/</td>
<td>PUNJABI / HISTORY AND CULTURE</td>
<td>50</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BBA 121B</td>
<td>OF PUNJAB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBA 122</td>
<td>MANAGERIAL &amp; SOFT SKILLS MANAGEMENT</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 123</td>
<td>ESSENTIALS OF BUSINESS</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECONOMICS † II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBA 124</td>
<td>BUSINESS LAWS</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 125</td>
<td>PSYCHOLOGY FOR MANAGERS</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 126</td>
<td>FINANCIAL MANAGEMENT*</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>550</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ENVIRONMENT, ROAD SAFETY EDUCATION AND VIOLENCE AGAINST WOMEN & CHILDREN**

THIRD SEMESTER

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Paper Title</th>
<th>M.Marks</th>
<th>No. of lectures Per week</th>
<th>Tutorials Per Week***</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBA 201</td>
<td>ENGLISH &amp; BUSINESS COMMUNICATION SKILLS</td>
<td>50</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BBA 202</td>
<td>OPERATION RESEARCH*</td>
<td>100</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>BBA 203</td>
<td>MARKETING MANAGEMENT</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BBA 204</td>
<td>ECONOMICS OF MONEY AND BANKING</td>
<td>100</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
BBA 205 REGULATORY FRAMEWORK FOR COMPANIES 100 6
BBA 206 DIRECT TAX LAWS* 100 5 1 550

FORTH SEMESTER
BBA 221 ENGLISH & BUSINESS COMMUNICATION SKILLS 50 3
BBA 222 PROJECT MANAGEMENT 100 6
BBA 223 RESEARCH METHODOLOGY 100 6
BBA 224 HUMAN RESOURCE MANAGEMENT 100 6
BBA 225 GOODS AND SERVICES TAX (GST)* 100 5 1
BBA 226 DATABASE MANAGEMENT SYSTEM 100 6
TOTAL 550

FIFTH SEMESTER
BBA 301 INSURANCE AND RISK MANAGEMENT
BBA 302 INTERNATIONAL BUSINESS
BBA 303 BUSINESS ENVIRONMENT
BBA 304 ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT

FOR NEXT TWO PAPERS, STUDENT CAN OPT ONE AREA OUT OF THE THREE AREAS:

MARKETING MANAGEMENT
BBA 305 CONSUMER BEHAVIOR
BBA 306 SALES AND DISTRIBUTION MANAGEMENT

FINANCIAL MANAGEMENT
BBA 307 FINANCIAL MARKETS AND SERVICES
BBA 308 INVESTMENT MANAGEMENT

HUMAN RESOURCE MANAGEMENT
BBA 309 SOCIAL SECURITY AND LABOUR WELFARE
BBA 310 INDUSTRIAL RELATIONS AND LABOUR LEGISLATION

SIXTH SEMESTER
BBA 321 BUSINESS POLICY AND STRATEGY
BBA 322 PRODUCTION AND OPERATIONS MANAGEMENT
BBA 323 SOCIAL AND ETHICAL ISSUES IN BUSINESS
BBA 324 PROJECT REPORT & VIVA- VOCE
STUDENT TO CONTINUE WITH THE SAME OPTION AS IN FIFTH SEMESTER

MARKETING MANAGEMENT
BBA 325  ADVERTISING AND BRAND MANAGEMENT
BBA 326  MARKETING OF SERVICES

FINANCIAL MANAGEMENT
BBA 327  COST ANALYSIS AND CONTROL
BBA 328  ACCOUNTING FOR MANAGEMENT

HUMAN RESOURCE MANAGEMENT
BBA 329  HUMAN RESOURCE PLANNING AND PERFORMANCE MANAGEMENT
BBA 330  COMPENSATION MANAGEMENT

* Tutorial classes will be held for the subjects.

** This is a compulsory qualifying paper, which the students have to study in the B.A./B.Sc./B.Com./BBA 1st year (2nd Semester). If the student/s failed to qualify the paper during the 2nd Semester, he/she/they be allowed to appear/qualify the same in the 4th or 6th Semester/s.

*** Each unit of BBA will be divided into 2 Groups for the purpose of Tutorials.
<table>
<thead>
<tr>
<th>Business Vocabulary</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acceptance</td>
<td>gšt Br h ; t hē q h</td>
</tr>
<tr>
<td>2. Access</td>
<td>gj p</td>
</tr>
<tr>
<td>3. Account</td>
<td>b/y k</td>
</tr>
<tr>
<td>4. Accountant</td>
<td>b/y k elo</td>
</tr>
<tr>
<td>5. Account Book</td>
<td>tj hy l k</td>
</tr>
<tr>
<td>6. Acknowledgement</td>
<td>gj p o ; h d</td>
</tr>
<tr>
<td>7. Advance</td>
<td>g/r h</td>
</tr>
<tr>
<td>8. Alternative Cost</td>
<td>ft e bgb h k s</td>
</tr>
<tr>
<td>9. Amalgamation</td>
<td>; ūw o D</td>
</tr>
<tr>
<td>10. Amortization of Debts</td>
<td>e o f n Kd k fe st l o G s k b</td>
</tr>
<tr>
<td>11. Amortization of fixed Assets</td>
<td>n ub ; g s h dh fe st l o g s h</td>
</tr>
<tr>
<td>12. Annuity</td>
<td>t l o f e h</td>
</tr>
<tr>
<td>13. Anticipated Prices</td>
<td>n B Ṯ k Ṭ B s e h w s K</td>
</tr>
<tr>
<td>14. Arbitration</td>
<td>; k b ; h ft u b r h</td>
</tr>
<tr>
<td>15. Assessed Tax</td>
<td>f Bo η k o s e o</td>
</tr>
<tr>
<td>16. Assets</td>
<td>; g s h</td>
</tr>
<tr>
<td>17. Assets and Liabilities</td>
<td>b D dl o m Kn s / d D dl o m K</td>
</tr>
<tr>
<td>18. Authorized Capital</td>
<td>n f x e k o s g i j h</td>
</tr>
<tr>
<td>19. Audit</td>
<td>b j y k g V s l b</td>
</tr>
<tr>
<td>20. Audit Staff</td>
<td>b j y k g V s l b n w b k</td>
</tr>
<tr>
<td>21. Average</td>
<td>n i s</td>
</tr>
<tr>
<td>22. Average Productivity</td>
<td>n i s Ṯ g k d e s k</td>
</tr>
<tr>
<td>23. Average Income</td>
<td>n i s n k w d B</td>
</tr>
<tr>
<td>24. Back Log</td>
<td>f g S b k p e k f j n k</td>
</tr>
<tr>
<td>25. Balance Sheet</td>
<td>/ ; l o D h</td>
</tr>
<tr>
<td>26. Bankrupt</td>
<td>f d t l b h m k</td>
</tr>
<tr>
<td>27. Barter</td>
<td>t ; s t N ṯ d o k</td>
</tr>
<tr>
<td>28. Beneficial</td>
<td>b l G d k f e</td>
</tr>
</tbody>
</table>
29. Bilateral Agreement
30. Bill of Exchange
31. Bond
32. Book Value
33. Book Keeping
34. Break-Even Point
35. Breach of Trust
36. Broker
37. Capital Account
38. Capital Expenditure
39. Capital Formation
40. Capital Investment
41. Capital Gains
42. Capital Goods
43. Cash Account
44. Cash Balance
45. Cash Book
46. Census
47. Circulating Capital
48. Commerce
49. Commercial Capital
50. Commodity
51. Company
52. Competition
53. Corporation
54. Cost Account
55. Cost of Production
56. Current Account
57. Current Liabilities
58. Debenture
59. Debt Management
60. Deduct
61. Deferred Payment
62. Deflation
63. Demand for payment
64. Demonstration Effect
65. Depreciation
66. Depression
67. Devaluation
68. Discount Rate
69. Disinvestment
70. Dividend
71. Distribution
72. Documentary proof
73. Double Entry
74. Draftsman
75. Economic Indicator
76. Entrepreneur
77. Excise Duty
78. Export Tax
79. Expenditure
80. Fair Trade
81. Finance
82. Finance affairs
83. Financial Penalty
84. Fine Paper
85. Firm
86. Firm Offer
87. Fiscal Policy
88. Fiscal Year
89. Fixed Capital
90. Fixed Costs
91. Floatation
92. Foreign Exchange
93. Fringe Benefits
94. Glut
95. Goods Account
96. Gross Profit
97. Hidden Tax
98. Hoarding
99. Holding Company
100. Human Capital

HISTORY AND CULTURE OF PUNJAB – I

Instructions for the paper-setter and candidates: (for paper in Semester I & II)

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment. The paper-setter must put note (2) in the question paper.

3. One question from Unit-IV shall be set on the map.

Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   Map : 06 Marks
Explanatory Note: 04 Marks

In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.

3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB FROM THE Earliest TIMES TO 1849

Max. Marks: 50
Theory: 45
Internal Assessment: 05
Time: 3 Hours

Objectives: To introduce the students to the history of the Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I

UNIT II
4. Society and Culture under Maurayas
5. Society and Culture under Gupta
6. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III
9. Institution of Khalsa: new baptism; significance

UNIT IV
10. Changes in Society in 18th century: social unrest; emergence of misls and institutions-rakhi, gurmata, dal khalsa.
11. Society and Culture of the people under Maharaja Ranjit Singh
Suggested Readings:

1. Joshi, L.M (ed.) : History and Culture of the Punjab, Part-I, Publication Bureau, University, Patiala, 1989 (3rd edn.)
5. Basham, A.L : The Wonder That was India, Rupa Books, Calcutta (18th rep.), 1992
6. Sharma, B.N : Life in Northern India, Munshi Ram Manohar Lal, Delhi, 1966
7. Singh, Kirpal : History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala 1990 (3rd edn.).

Note: The following categories of the students shall be entitled to take option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:

A. That the students who have not studied Punjabi upto class 10th.
B. Ward of / and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners
BBAS102: BUSINESS STATISTICS

Objective: To impart the students about the basic knowledge of statistics.

UNIT-I
Statistics-Definition, Functions, Scope, Usage and Limitations of Statistics
Measures of Central Tendency: Types of Averages- Arithmetic Mean (Simple and Weighted), Median and Mode, Harmonic and Geometric Mean.
Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation and Coefficient of Variation.
Correlation Analysis: Meaning, Types, Measurement of Simple Linear Correlation, Karl Persons Correlation Coefficient Method, Rank Correlation Method (Excluding multiple correlations).
Regression Analysis: Simple Linear Regression, Why there are two Regression Lines, Estimation of Coefficient (Intercept and Slope Parameters). Properties of Regression Coefficient.

UNIT -II
Time Series Analysis: Components, Estimation of Trends (Graphical Method, Semi Average Method, Moving Averages Method and Method of Least Squares), Seasonal Variation.

Suggested Readings:
1. Sundaresan and Jayaseelan - An Introduction to Business Mathematics and Statistical Methods
4. Gupta S.P. - Statistical Methods
5. Navaneethan P. - Business Mathematics
6. Statistics - R.S.N. Pillai, Mrs. Bhagavathi
**BBAS103: FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**Objectives:** One cannot imagine any economy without support of IT. There is now hardly any activity which is done without support of IT. The basic objective of this paper is to provide fundamental knowledge about IT so that student can better perform in any area of operation and can even do excel in the field of commerce with IT specialization.

**UNIT–I**

**Computer Fundamentals:** Identifying Types of Computers, Introduction to the Concept of Bit, Byte, Word, Microprocessor, Chips, ROM, RAM, Buses, Ports, Hardware, Software, Operating Systems, System Softwares, Application Softwares, Various Input and Output Devices, Primary and Secondary Memory, Introduction to Windows.


**Excel Basics:** What is a Spreadsheet and why would I use One?, Create a Simple Spreadsheet, Common Definitions: Rows, Columns, and Cell, Formatting a Cell, Demonstration of Advanced Features (by Instructor), Charts, Graphs, Formulas, Sort, Find, and Filter. Basics of Microsoft Power Point.
UNIT- II


Suggested Readings:

Objective: The objective of the paper is to help the students understand the process of business management.


Planning: Concept, Process and Significance, Types, Relationship between Planning and Controlling, Decision Making; Concept, Types and Process, Effective Decision, Rationality in Decision Making, MBO.


Unit II

Staffing: Concept, Manpower Planning, Recruitment; Concept and Sources Selection; Concept, Selection Process and Tests, Placement and Induction.

Direction and Motivation: Concept, Principles, Effective Supervision, Techniques.


Coordination: Concepts, Importance, Internal & External Coordination.

Control: Concept, Steps, Types of Controlling, Techniques of Controlling.


Suggested Readings:

1. Peter F. Drucker, The Practice of Management
2. Weihrich and Koontz, Essentials of Management
3. Stoner and Freeman, Management
4. David R Hampton, Modern Management
6. VSP Rao & V. Hari Krishna, Management Text & Cases
BBAS105: FINANCIAL ACCOUNTING

Objective: The primary objective of the paper is to familiarize the students with the basic accounting principles and techniques of preparing and presenting the accounts for user of accounting information.

UNIT- I
Meaning and Uses of Accounting Information: Objectives and Nature of Accounting, Definition and Functions of Accounting, Book Keeping and Accounting, Interrelationship of Accounting with other Disciplines, Branches of Accounting, Limitations of Accounting, Accounting Equation. Accounting Principles, Accounting Concepts and Conventions, Accounting cycle, Journals, Ledger, and Trial Balance.
Cash Book and Bank Reconciliation Statement.
Depreciation Provisions and Reserves: Methods, Types and Accounting.
Final Accounts: Trading, Profit and Loss Account and Balance Sheet of a Sole Proprietary Concern.

UNIT II
Accounting for Issue and Forfeiture of Shares, Reissue of Shares, Employee Stock Option Plan, Right Issue and Bonus Share.
Accounting for Issue and Redemption of Debenture.
Final Accounts of Companies.
Practical Work: Computer Software Programs for Accounting and Preparation of Financial Statements.

Suggested Readings:
Objective: To study the basic concepts of micro and macroeconomics relevant for Business decision making and helping them to understand the application of economic principles in business management.

UNIT – I

Micro vs. Macro Economics
Theory of Demand, Law of Demand, Movement Along vs. Shift in Demand Curve.
Concept of Elasticity of Demand, Types of Elasticity of Demand (Price income and Cross), Factors Affecting Elasticity of Demand.
Measurement of Elasticity of Demand
Demand Forecasting: Need, Objectives and Methods.
Theory of Production: Meaning and Concept of Production, Factors of Production and Production Function with One Variable Inputs, Production Function and Technological Progress.
Law of Variable Proportions, Returns to a Scale.

UNIT – II

Concepts of Cost and Revenue
Types of Cost, Cost Function, Short run and Long run Cost Curves, Economies and Diseconomies of Scale.
Concept of Total, Average and Marginal Revenue, Relationship between AR and MR and through Elasticity of Demand.
Market Conditions:

Suggested Readings;
2. Shapiro, E., Macro economics Analysis, McGraw Hill Education.
3. Thomas F. Derenburg, Macro economics.
7. A. Kontsoyianis; Modern Micro-Economics.
8. M. Adhikary ; Business Economics.
SEMESTER II  
BBA121A : phpra j aGr g6j b k  
; w? no d| k

1a. n kxfBe g6 lp et Im Kd.hm KuDt im Kef t s kt Kd.kn fXn B
2a. uDt Im Kgj kphej lDhm Kd.kn fXn B
3a. uDt p'g kphb yeKdk; y6 gi l B s/ouBk$; l dKB
   eb;

1a. Bt Ad; j Z/ , ; gkJlvr pq f; f, ft uAuDt Im K15 eft s kt K
gk6e lgj lp : Bt of; nhnpbte'Ab fpUo; uwh VQ
   (pl't kpb t S s okf j f e db j f Kd'; s oZl h Xos hwks k gpl wF; x
   ;$plF gXhif of nr k; fe; gk/t Z < po; ls j TBk; j ftgI B f; x F
   s/PhVhrk /Y A; / ; /h b n gk6De, ftt eWOF eVn k b hEbQ
   : B, XoWplpbk; bi hs gks of j D x oKB Agos Dk eMfej ks K
   ns/âs KdHrT/he eft s kt K
2a. eEbfqflj , ; gkJlgA; fozO eWOf dt ât o ft uAuDt Im K6 ej lDhm K
gk6e lgj lp : Bt of; nhnpbte'Ab fpUo; uwh VQ
   (; Z lFcl', ePoK sAf; ft n K Bg wj WfYnh) fJ Zht h; dh ; ou
   dk dkt ns/dod ft SV/dkj h; eej lDhm K
   : BN s/ehw

1a. Bt Ad; j Z/ [ s e ft ZAg; z ; fJ s ft n kyn k(2 ft uAL) 5 nê
2a. fe; /fJ Z eft skdk; lo i KeAchGt (4 ft uAL) 5 nê
3a. fJ e ej lDhdk; lo (eElFghljlj ft Z/) 5 nê
4a. fe; /fJ Z et hi Kej lDhek dki l B, ouBkn s/; e dKB
   (pl't kpb t S, ftt eWOf, ; /i hs gks o, r fdn lk h; f; x, ox pho Yz
   ns/r hpuB f; x Cpo)
   (2 ft uAL, fJ Z et hns /fJ e ej lDhek ft ZA

5a. eloPmhlj ôfsj lo i KeKbi Bb ; PSh s gAfBN(2 ft uAL) 8 nê
6a. ft õkWfuB 6 nê
7a. s eBrehôpdkt bh(10 ft uA8) 8 nê

ft ôô BN L; wfl/gkmew bJ hj ôs/ft Z 6 ghlm v
Business Vocabulary

1. Imperfect Market
2. Imports
3. Import Duty
4. Imputed Income
5. Imprest Account
6. Income Statement
7. Index of Profit
8. Income Tax
9. Inflation
10. Intangible Assets
11. Investment
12. Invoice
13. Jobber
14. Job Casting
15. Joint Venture
16. Labour
17. Laissez Fair
18. Lease Holding Building and Property
19. Ledger
20. Ledger Folio
21. Liabilities
22. Liquidator
23. Market
24. Marketable Goods
25. Mechanization
26. Mercantilism
27. Monetary System
28. Money of Account
29. Monopoly
30. Mortgage
31. Net Investment
32. Net Profit
33. Notice of Stoppage
34. Office Expenses Account
35. Open Market Operations
36. Over Due
37. Over Head Cost
38. Partnership
39. Payable Accounts
40. Preference Shares
41. Premium
42. Price Control
43. Production
44. Profit Margin
45. Proprietor
46. Quasi Negotiable Instrument
47. Quotation
48. Rate of Exchange
49. Ready Delivery
50. Real Wages
51. Rebate
52. Recession
53. Receivable Accounts
54. Redemption of Mortgage
55. Receipts and Payment Account
56. Rent
57. Rent Account
58. Reserve Price
59. Revenue
60. Sales Tax
61. Sales Transfer Order
62. Security Bond
63. Service Goods
64. Shares
65. Share Capital
66. Share Holder
67. Share Market
68. Short Bills
69. Slump
70. Sole Proprietorship
71. Speculation
72. Statutory Company
73. Stipulated
74. Stock
75. Stock Exchange
76. Subsidiary Company
77. Surety
78. Tariff
79. Tax Exemption
80. Tax Base
81. Tax Evasion
82. Tax Equity
83. Tender
84. Tender money
85. Terms of Payment
86. Terms of Trade
87. Trademark
88. Transactions
89. Transfer Book
90. Under Value
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>91. Unproductive Expenditure</td>
<td>n D-Ｔ giorni kṭ-fyou</td>
</tr>
<tr>
<td>92. Unproductive Labour</td>
<td>n D-Ｔ bagi kṭ-feos</td>
</tr>
<tr>
<td>93. Validity Period</td>
<td>gqwkDs fwnlkD</td>
</tr>
<tr>
<td>94. Vertical Integration</td>
<td>; woĝ ; x NB</td>
</tr>
<tr>
<td>95. Wages</td>
<td>w i dơh</td>
</tr>
<tr>
<td>96. Wages Account</td>
<td>Tī oś bȳk</td>
</tr>
<tr>
<td>97. Wage Goods</td>
<td>w i dơht ; s K</td>
</tr>
<tr>
<td>98. Wage Book</td>
<td>Tī oś t j h</td>
</tr>
<tr>
<td>99. Wharf age</td>
<td>Tīs ołj h</td>
</tr>
<tr>
<td>100. Write Off</td>
<td>t ūv'yks/gkTĐk</td>
</tr>
<tr>
<td>101. Working Capital</td>
<td>u bol ɡĭ h</td>
</tr>
<tr>
<td>102. Yield</td>
<td>Tūgi</td>
</tr>
<tr>
<td>103. Zero Rate of Interest</td>
<td>ft n ki dh ṭơ'do</td>
</tr>
</tbody>
</table>

**Semester II**

**HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES**

**INSTRUCTIONS FOR THE PAPER –SETTER AND CANDIDATES: (FOR PAPER in semester 1 AND 2)**

1. The syllabus has been divided into four Units. There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 10 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 5 short answer type questions carrying 5 marks i.e. 1 mark each. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each Unit-IV in all. Each question will carry 10 marks.

2. For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   **The paper-setter must put note (2) in the question paper.**

3. One question from Unit-IV shall be set on the map.
Explanation:
1. Each essay type question would cover about one-third or one-half of a topic detailed in the syllabus.
2. The distribution of marks for the map question would be as under:
   - Map : 6 Marks
   - Explanatory Note : 4 Marks
   In case a paper setter chooses to set a question of map on important historical places, the paper setter will be required to ask the students to mark 6 places on map of 1 mark each and write explanatory note on any two of 2 marks each.
3. The paper-setter would avoid repetition between different types of question within one question paper.

PAPER: HISTORY AND CULTURE OF PUNJAB IN THE COLONIAL AND POST INDEPENDENCE TIMES

Max. Marks : 50
Theory : 45
Internal Assessment : 05
Time : 3 Hours

Objectives: To introduce the students to the history of Punjab region in modern times.

Pedagogy: Lectures, library work and discussions.

UNIT I

1. Introduction of Colonial Rule: administrative changes; means of communication; western education.
2. Agrarian Development: Commercialization of agriculture; canalization and colonization.
3. Social Classes: agrarian groups; new middle classes

UNIT II

5. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
6. Development of Press & literature: growth of press; development in literature

UNIT III

7. Emergence Of Political Consciousness: Agrarian uprising 1907; Ghadar.
8. Gurudwara Reform Movement: Jallianwala Bagh; foundation of SGPC and Akali Dal; Morchas.
9. Struggle for Freedom: activities of revolutionaries - Babbar Akalis, Naujawan Bharat Sabha; participation in mass movements - non co-operation, civil disobedience, Quit India.
UNIT IV

10. Partition and its Aftermath: resettlement; rehabilitation
12. MAP: Major Historical places: Delhi, Kurukshetra, Jaito, Ferozepur, Ambala, Amritsar, Lahore, Ludhiana, Qadian, Jalandhar, Lyallpur, Montgomery.

Suggested Readings:

1. Singh, Kirpal: History and Culture os the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).

BBA 122: MANAGERIAL & SOFT SKILLS MANAGEMENT

Objective: The basic objective of this paper is to develop the personality of the students to achieve excellence in their career development.

Unit I

Personal Development & Interpersonal Relationship; The Self Concept, Self Management Techniques. Significance of Interpersonal Relationship in Personal Life, Tips to Enhance Interpersonal Relationship, Team Building, Ethical Dilemmas, Exposure to Work Environment and Culture in Job, Improving Personal Memory and Other Skills (Rapid Reading, Notes Taking, Complex Problem Solving, Creativity), Sources and Skills involved in Managing Stress.

Career Development: The Career Autobiography, Developing Career Portfolio, the Job Search Process, Organizational Career and Upward Mobility, the Global Leaders Study, Alternative Career Paths, Resume Writing.
Unit II

Communication Skills:
Verbal Communication: Planning, Preparation, Delivery, Feedback and Assessment of Activities like Public Speaking, Group Discussion, Presentation Skill, Audio-Visual Aids, Personal Interview.
Non-Verbal Communication: Body Language; Personal Appearance, Posture, Gestures, Facial Expressions, Eye Contact, Space Distancing.
Other Skills: Negotiation Skills, Leadership Skills, Time Management Skills, Listening Skills.
Etiquettes: Etiquettes in Social as well as Office Atmosphere, Telephone Etiquettes, E-mail Etiquettes,

Suggested Readings:
2. Collins- Public speaking.
3. Devesh, Self Development.
5. John Collin, Perfect Presentation, Video Arts MARSHAL.

BBAS123 ESSENTIAL OF BUSINESS ECONOMICS II

Objective: The course aims at providing the knowledge of basic concepts of the Macro Economics. Modern tools of Macro Economic analysis are discussed at length.

UNIT – I

Nature and Scope of Macro Economics, Limitations of Macro Economics
Say's Law of Market: Meaning, Implications,
Classical Theory of Income Output and Employment:
Keynesian Theory of Employment, Aggregate Demand and Aggregate Supply function.
Consumption Function: Meaning, Factors influencing Consumption Function, Average and Marginal Propensities to Consume, Propensity to Save, Psychological Law of Consumption and its Importance.
UNIT – II
Investment: Meaning, Types, Factors Affecting Investment, Importance of Investment.
Multiplier: Meaning, Keynesian Income or Investment Multiplier, Leakages, Uses, Limitations of Multiplier.
Inflation: Meaning, Types, Causes, Effects, Measures to control it.

Suggested Readings:

BBAS124: BUSINESS LAWS

Objective: The objective of the paper is to impart basic knowledge of the important business laws.

UNIT- I
Special Contracts: Contingent Contracts, Quasi- Contracts, Contract of Indemnity and Guarantee, Contract of Bailment, Contract of Agency.
UNIT- II


Suggested Readings:


BBAS125: PSYCHOLOGY FOR MANAGERS

Objective: The objective of the paper is to provide broad understanding of basic concepts and techniques related to the study of human behaviours in work-environment and to manage behavioural aspects of organisation.

Unit-I


Perception: Perceptual Process; Error in Perception; Improving Perception.

Personality in Organisation: Determinants of Personality; Theories of Personality-Myers-Briggs-Types- Indicator (MBTI).
Workforce Emotions, Attitude and Organisational Commitment: Types of Emotions; Managing Emotions; The Five Dimensions of Emotional Intelligence; Components of Attitude; Cognitive Dissonance Theory of Attitude; Building Organisational Commitment.

**Unit II**

Motivation: Foundations of Employees Motivation; Content Theories of Motivation (Maslow, Herzberg, McGregor and McClelland).

Work Team and Conflict: Stages of Team Development; Team Norms. Team Cohesiveness; Social Loafing, Conflict: Types; Sources of Conflict; Resolving conflict.

Leadership: Concept of Transformational, Transactional and Charismatic Leadership; Behavioural Theory of Leadership; Managerial Grid Style; Gender Issues in Leadership.

Organisational Culture and Stress: Components of Culture; Strategies to Merge Different Culture; Strengthening Organisational Culture. Stress- Causes of Stress; Consequences; Stress Management Strategies.

Organisational Change: Forces for Change; Resistance to Change; Overcoming Resistance to Change.

**Suggested readings**

1. Robbins, Stephens P., Organisational Behavior
2. Davis, Keith, Human Behaviour at Work: Organisational Behaviour
3. Luthans, Fred, Organisational Behaviour
5. Mc Shane and Von Glinow., Organisational Behavior.

**BBAS126: FINANCIAL MANAGEMENT**

**Objective:** The objective of the paper is to familiarize the students with principles and practices of financial management.

**UNIT- I**

Cost of Capital: Determination of Cost of Capital, Components of Cost of Capital, Computation of Cost of Debt, Equity Capital, Preference Share Capital and Retained Earnings, Weighted Average Cost of Capital (WACC) and Marginal Cost of Capital.
UNIT- II

Sources of Finance.
Capital Structure, Meaning, Types of Leverage, Determinants of Capital Structure. Theories of Capital Structure.
Dividend Policy - Relevance and Irrelevance Theories.

Suggested Readings:

ENVIRONMENT, ROAD SAFETY EDUCATION AND VIOLENCE AGAINST WOMEN AND CHILDREN

UNIT I (Environment)

Note: The syllabus has 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topic from 2 to 11 and one each for the topics 1 and 12 to 15.

1. Environment Concept:
Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere; Natural resources – their need and types; Principles and scope of Ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

2. Atmosphere:
Parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures.

3. Hydrosphere:
Types of aquatic systems; Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage; pollution and pollutants of water, permissible limits, risks and possible control measures.
4. Lithosphere:
Earth crust, soil – a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

5. Forests:
Concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban Forests, Chipko Andolan.

6. Conservation of Environment:
The concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems – soil, water, air, wildlife, forests.

7. Management of Solid Waste:
Merits and demerits of different ways of solid waste management – open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

8. Indoor Environment:
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. Global Environmental Issues:
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.

10. Indian Laws on Environment:
Indian laws pertaining to Environmental protection: Environment (Protection) Act, 1986; General information about laws relating to control of air, water and noise pollution. What to do to seek redressal.

11. Biodiversity:
What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act, 2002.

12. Noise and Microbial Pollution:
Pollution due to noise and microbes and their effects.

13. Human Population and Environment:
14. Social Issues:
Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development; Consumerisms and waste generation.

15. Local Environmental Issues:
Environmental problems in rural and urban areas. Problem of Congress Grass & other weeds, problems arising from the use of pesticides and weedicides, smoking etc.

Practical
Depending on the available facility in the college, a visit to vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken.

Examination Pattern:
A qualifying paper of 50 marks comprising of fifty multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong answer or un-attempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added / included in the final mark sheet.

UNIT II (ROAD SAFETY)

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
3. Traffic Engineering – Concept & Significance.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

Note: Examination Pattern:

- The Environment and Road Safety paper is 70 marks.
- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted questions).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
The entire syllabus of Unit II is to be covered in 10 hours.
All the questions are to be attempted.
Qualifying Marks 33 per cent i.e. 23 marks out of 70.
Duration of examination: 90 minutes.
The paper setter is requested to set the questions strictly according to the syllabus.

Suggested Readings
2. Road Safety Signage and Signs (2011), Ministry of Road Transport and Highways, Government of India.

Websites:
(a) www.chandigarhpolicenic.in
(b) www.punjabpolice.gov.in
(c) www.haryanapolice.gov.in
(d) www.hppolice.nic.in

SYLLABUS ON “VIOLENCE AGAINST WOMEN & CHILDREN” AT UNDERGRADUATE LEVEL

UNIT III OF COMPULSORY PAPER ON ENVIRONMENT & ROAD SAFETY EDUCATION

AS PART OF SEMESTER - II
Unit – III

VIOLENCE AGAINST WOMEN & CHILDREN

1. Concept and Types of Violence: Meaning and Definition of violence; Types of Violence against women ï domestic violence, sexual violence (including rape), sexual harassment, emotional/psychological violence; Types of Violence against children ï physical violence, sexual violence, verbal and emotional abuse, neglect & abandonment.

2. Protective Provisions of IPC on Domestic Violence & Sexual Violence against Women:
Dowry Death ï Section 304B;
Rape ï Sections 375, 376(1), 376A, 376B, 376C, 376D and 376E;
Cruelty ï Section 498A;
Insult to Modesty – The Indian Penal Code does not define the word eve-teasing; there are three sections which deal with crime of eve-teasing. These are Sections, 294, 354 and 509of Indian Penal Code. Section 509 of the Indian penal code defines (Word, gesture or act intended to insult the modesty of a woman), Section 294 (Obscene acts and songs) and Section 354 (Assault or criminal force to woman with intent to outrage her modesty);

Hurt & Grievous Hurt Provisions – Sections 319 to 326;

Acid Attacks – Sections 326A and 326B;

Female Infanticide – Section 312, Section 313 of Indian Penal Code (Causing miscarriage without women\’s consent) and section 314;

Sexual Harassment – For providing protection to working women against sexual harassment, a new section 354 A is added; 354 B (Assault or use of criminal force to women with intent to disrobe); 354 C Voyeurism; 354 D (Stalking). All these provisions are added in IPC to protect women against acts of violence through Criminal Law (Amendment) Act, 2013; Human Trafficking and Forced Prostitution- Sections 370 and 370A

3. Protective Laws for Women:


3.2 The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 – Definition, Internal Complaint Committee, Local Complaint Committee, Procedure adopted by Committee for punishing accused.

4. Protective Provisions of IPC regarding Sexual Violence against Children:

Section 293 (sale etc. of obscene objects to young persons); 294 (obscene acts & songs); 305 (abetment of suicide of child); 315 to 317 (act causing death after birth of a child etc.); 361 (kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A (kidnapping or maiming a minor for purposes of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).

4.1 The Protection of Children from Sexual Offences Act, 2012: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.

Note: Instructions for Examination:

- Unit III of the paper dealing with Violence against Women and Children is of 30 Marks.
- It shall have 30 multiple-choice questions (with one correct and three incorrect choice options and no deduction of marks for wrong or un-attempted questions).
- Minimum two questions from each topic must be covered.
- All the questions are to be attempted
Qualifying Marks 33 percent
Duration of Examination 30 Minutes
The Paper Setter is requested to set the questions strictly according to the syllabus.

Pedagogy:

- The entire syllabus of Unit III is to be covered in ten hours in total, with each lecture of one-hour duration.
- The purpose behind imparting teaching-learning instructions is to create basic understanding of the contents of the Unit III among the students.

RELEVANT READING MATERIAL

Ahuja, Ram (1998), *Violence against Women*, New Delhi: Rawat Publication
NRHM, *Child Abuse, A Guidebook for the Media on Sexual Violence against Children*
The Protection of Children from Sexual Offences Act, 2012
The Protection of Women from Domestic Violence Act 2005
The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
UNO, *United Nations Secretary-General’s Study on Violence against Children*, adapted for Children and Young People
www.slideshare.net/HRLNIndia/a-life-free-from-violence
http://hrln.org/admin/issue/subpdf/Sexual_Harrassment_at_Workplace.pdf

**DRUG ABUSE: PROBLEM, PREVENTION AND MANAGEMENT**

Note: This is a compulsory qualifying paper, which the students have to study and qualify during three year of degree course.

The paper/Topic “Drug Abuse: Problem, Prevention and Management” having 2 credit/50 marks (40 theory+10 Internal) at undergraduate level, as a fourth part of the paper ‘Environment, Road Safety Education and Violence against Women and Children’ from the academic session 2017-18.

Main Objective

This module introduces to the students the problem of drug abuse and its adverse consequences for the society. The students would get an understanding of why drug abuse is such a serious problem to our society. The course also apprises them of how to prevent and manage this menace.

Learning objectives of the course

1. Understand the meaning of the term drug.
2. Understand the difference between use, misuse and abuse of drugs.
3. Differentiate between commonly abused legal and illegal drugs.
5. Understand the causes and consequences of drug abuse.
6. Identify and access safety measures for support to stay away/give up drug abuse.

**Pedagogy of the course work**

1. 70 % Lectures (Including expert lectures)
2. 30% assignments, discussion, seminars and class tests.

- A visit to drug de-addiction centre could also be undertaken

**Course content**

**UNIT I: Problem of Drug Abuse**

a) **Concept and overview**: what are drugs and what constitutes drug abuse? Historical perspective of drug abuse. How drug abuse is different from drug dependence and drug addiction? Physical and psychological dependence: concepts of drug tolerance and withdrawal symptoms.

b) **Types of drugs often abused and their effects**

**Stimulants**: tobacco Amphetamines: dl-amphetamine (Benzedrine ®), dextroamphetamine (Dexedrine®). Cocaine.

**Depressants**: Alcohol. Barbiturates: phenobarbitone (Nembutal®), secobarbital (Seconal®), Benzodiazepenes: diazepam (valium ®), alprazolam (Xanax®), flunitrazepam (Rohypnol®)

**Narcotics**: Morphine, heroin (‘Chitta’/ ‘Brown Sugar’), pethidine, oxycodone.

**Hallucinogens**: cannabis [‘Bhang’, marijuana (‘Ganja’), hashish (‘Charas’), hash oil]. MDMA (3,4- methylenedioxy methamphetamine) /’Ecstasy’/ ‘Molly’. LSD (lysergic acid diethylamide).

**Miscellaneous**: cough/cold medicines: diphendydramine (Benadryl®), chlorpheneramine maleate+ codeine+alcohol (Corex®). Iodex®, Vicks®, Amrutanjan® and correction fluid (Whitener).
UNIT II: Theories of consequences of drug abuse

a) Theories of drug abuse: Physiological theory. Psychological theory. Sociological theory.

b) Consequences of drug abuse: For individuals, families, society and economy.

Unit III: Extent and nature of the problem


UNIT IV: Prevention and management of drug abuse


Suggested readings:

5. 2003 National Household survey of Alcohol and Drug Abuse. New Delhi, Clinical Epidemiological Unit, AIIMS, 2004
THIRD SEMESTER

BBA 201: ENGLISH AND BUSINESS COMMUNICATION SKILLS

(i) There will be one paper of 45 marks. 5 marks are reserved for the Internal Assessment. Total is 50.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of communication and language learning skills.

(iii) For Unit I, the prescribed text is **Ten Mighty Pens**, ed., K.A. Kalia (Oxford University Press). The relevant sections, however, are as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The Model Millionaire : <em>Oscar Wilde</em></td>
</tr>
<tr>
<td>II.</td>
<td>The Gift of the Magi : <em>O. Henry</em></td>
</tr>
<tr>
<td>III.</td>
<td>The Judgement-seat of Vikramaditya : <em>Sister Nivedita</em></td>
</tr>
<tr>
<td>IV.</td>
<td>Fur : <em>Saki</em></td>
</tr>
</tbody>
</table>

(iv) For Unit II, there is no prescribed text, only suggested reading, listed towards the end. Unit II shall consist of the following sub-units:

*Business Communication:* It shall focus on different aspects of communication in general and business communication in particular, communication within organizations, types of communication, obstacles in communication.

*Writing Skills:* All types of Business letters, tender notices, auction notices, public notices; memos and advertisements relating to sales/marketing.

**Testing Scheme:**

The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:

| Q. 1. | It shall consist of 4 question/answers (not exceeding 100-120 words) out of which a student will be expected to attempt any 2. This question shall be based upon the prescribed text **Ten Mighty Pens.** | 5 marks |
| Q. 2. | It shall consist of two long question/answers (not exceeding 300-350 words) out of which a student will be expected to attempt only one. This question shall have internal choice and will be based upon the prescribed text **Ten Mighty Pens.** | 10 Marks |

**Note:** The questions 1 & 2 should be so designed as to cover all the chapters prescribed.

| Q. 3. | It shall consist of an Unseen Passage for Comprehension (not more than 300 words), with minimum five questions at the end. These questions should be | 5 Marks |
designed in such a way that we are able to test a student's comprehension ability, language/presentation skills and vocabulary etc.

| Q. 4. | It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given six words in one column and asked to match them with words/meanings in the next column. | 5 Marks |

**Section II (Based upon Unit II)**

| Q. 5. | This question shall test a student's ability to write business letter of various kinds (in not more than 250 words). There will be Internal Choice in the question. | 5 Marks |
| Q. 6. | This question shall be on Memos, Tender Notices/Auction Notices/Public Notices/Advertisements. (have to attempt four, each part of 2 ½ marks) | 10 marks |
| Q. 7. | Two short questions to test the students' understanding of various aspects of business communication. | 5 Marks |

**Suggested Reading:**

BBA 202: OPERATION RESEARCH

**Objective:** To make the students to understand the concept of operations Research and its applications in managerial decisions.

**UNIT-I**
Operations Research: Meaning, Significance and Scope.
Introduction to Linear Programming, Formulation of Linear Programming Problems, Graphical Method, Simplex Method.
Transportation Problem, Assignment Problem.

**UNIT-II**
Queuing Theory: Introduction, Arrival System, Queue Discipline, M/M/I Single Channel, M/M/I and M/M/S Model
Game Theory: Two Persons Zero Sum Games, Pure Strategies, Mixed Strategies, Dominance, Introduction to Frequency Problems, Classification of Sequencing Problems, Processing in Job through Two Machines.

**Practical Work :**

**Suggested Readings:**
   Frederick Hiller, Gerald Lieberman
Objective: The paper aims at making students to understand basic concepts, philosophies, process and techniques of marketing.

UNIT – I
Marketing Research: Meaning, Importance, Marketing Research Process.

UNIT – II

Suggested Readings:
BBA 204: ECONOMICS OF MONEY & BANKING

Objective: The paper aims at making students to understand basic concepts of economics of money and banking.

UNIT- I


UNIT- II

Banking: Meaning, Types and Functions of Banks, Management and Organisational Set Up of Commercial Banks. Central Banking: Origin & Evolution; Main Functions, Monetary Management.

Risk Management: Types of Risk, Management, Asset/Liabilities Management, Major Developments in Commercial Banking in India since Independence, Banking Sector Reforms, International Monetary Fund (IMF) and International Liquidity. WTO and GATT: Implications for India. Introduction to E-Banking and Electronic Fund Transfer (RTGS & NEFT), Cheque Truncation System (CTS).

Suggested readings

3. Khanna, Perminder : Advanced Study in Money and Banking; Theory & Policy, Relevance in Indian Economy. Atlantic Publisher, New Delhi.
BBA 205: REGULATORY FRAMEWORK FOR COMPANIES

Objective: The objective of the paper is to impart basic knowledge of the provisions of the Companies Act 2013 with relevant case laws.

UNIT- I
Formation of Company: Promotion, Incorporation, Capital Subscription, Commencement of Business, Pre-Incorporation Contract and Provisional Contracts.

UNIT II
Shares: Classes of Shares, Preference and Equity Shares, Public Issue of Shares, SEBI Guidelines, Employees Stock Option Scheme, Book Building Process, Allotment of Shares, Irregular Allotment, Issue of Shares. Listing of Shares, Sweat Equity Shares, Right Shares, Bonus Shares, Shares with Differential Rights, Share Certificate and Share Warrant, Calls, Forfeiture, Lien, Surrender of Shares, Membership of Companies.
Company Management: Directors, Managing Director, Appointment, Qualification, Rights, Responsibilities and Liabilities, Disqualification of Directors.
Meetings: Requisites, Statutory, Annual, Extra ordinary and Board Meetings, Resolutions, Types.

Suggested Readings:

5. ŔBharat Companies Act”, Bharat Law House, New Delhi.
Objective: The objective of the paper is to impart basic knowledge of the provisions of direct tax laws in India.

UNIT – I

Introduction, Definitions: Assessee, Concept of Income, Types of Income, Assessment Year & Previous Year, Agricultural Income & its Assessment. Residential Status & Tax Liability (Basis of Charge), Exempted Incomes.

Income from Salaries and House Property.

UNIT – II

Income from Profits and Gains of Business and Profession including Depreciation, Capital Gains, Income from other Sources.

Deemed Incomes and Clubbing of Incomes (Aggregation of Incomes), Set-Off and Carry Forward of Losses, Deductions to be made in Computing the Gross Total Income, Assessment of Individual.

Note: The paper setter will consider the changes up to 30th September of relevant year.

Practical Work:

1. Preparation of Form 16 and 16A
2. Different types of ITR Forms
3. Filing of Return by an Individual
4. PAN Form

Suggested Readings:

1. Income Tax Law and Practice - Dr. Vinod K. Singhania & Dr. Monica Singhania. (Taxmann Publications, New Delhi)
2. Income Tax Law and Accounts ï Dr. H. C. Mehrotra & Dr. S.P. Goyal (Sahitya Bhawan Publications, Agra)
3. Income Tax ï Dr. Garish Ahuja & Dr. Ravi Gupta (Bharat Publications, New Delhi)
FOURTH SEMESTER

BBA 221: ENGLISH AND BUSINESS COMMUNICATION SKILLS

Note:

(i) There will be one paper of 45 marks. 5 marks are reserved for the Internal Assessment. Total is 50.

(ii) The paper shall consist of Two Units. Unit I will be text specific and Unit II shall deal with different aspects of communication and language learning skills.

(iii) For Unit I, the prescribed text is Ten Mighty Pens Issues ed. K.A. Kalia (Oxford University Press).

The relevant sections, however, are as follows:

I. Chandalika: Rabindranath Tagore
II. A Bachelor's Complaint of the Behaviour of Married People: Charles Lamb
III. El Dorado: R.L. Stevenson
IV. Bores: E.V. Lucas

(iv) For Unit II, there is no prescribed text, only suggested reading, listed towards the end. Unit II shall consist of the following sub-units:

Writing Skills: This section shall focus on business précis-writing, curriculum vitae; short formal reports (not exceeding 200 words).

Modern Forms of Communication: Here special emphasis shall be given to teaching the format of e-mails, Fax Messages, Audio-Visual Aids, Power-Point Presentations and Non-Verbal Communication.

Testing Scheme: The examination paper shall be divided into two sections, corresponding to two units already proposed in the syllabus. The distribution of questions and marks in Section I shall be as follows:

Section I (It is text-based and corresponds to Unit I in the syllabus)

| Q. 1. | It shall consist of 4 short question/answers (not exceeding 100-120 words) out of which a student will be expected to attempt any two. This question shall be based upon the prescribed text Ten Mighty Pens. | 5 marks |
| Q. 2. | It shall consist of two long question/answers (not exceeding 300-350 words) out of which a student will be expected to attempt only one. This question shall have internal choice, and will be based upon the prescribed text Ten Mighty Pens. | 10 marks |

Note: The questions 1& 2 should be so designed as to cover all the chapters prescribed.
| Q.4. | It shall exclusively be a test of vocabulary, but designed strictly on the lines of various exercises given at the end of each chapter in the prescribed text. The candidate shall be given six words in one column and asked to match them with words/meanings in the next column. | 5 marks |
| Q.5. | The students shall be asked to write a short survey report on a situation, incident, business problem, or the possibility of starting a new commercial venture (in about 150-200 words). The students shall be given an internal choice in this question. | 10 marks |
| Q.6. | This will test the students' ability to write a Précis. A passage of about 200 words shall be given and the students shall have to write a précis of about 70 words (including the title). | 5 marks |
| Q.7. | Definition/format of Modern forms of communication to be tested Non verbal communication, e-mail, fax, Audio-Visual Aids and Power-Point Presentations. | 5 marks |
| Q.8. | Curriculum Vitae | 5 marks |
BBA 222: PROJECT MANAGEMENT

Objective: To enable the students to acquire basic knowledge of different facets of Project Management.

UNIT – I


Project Manager: Roles and Responsibilities, Project Management as a Profession.

Generating and Screening Ideas – Steps, Monitoring the Environment, Scouting for Project Ideas, Preliminarily Screening, Project Rating Index.


UNIT – II

Project Appraisal Techniques: Objectives, Types and Methods.

Project Risks: Meaning, Types, Measurement of Risk, Sensitivity Analysis, Stimulation, Monte Carlo. Decision Tree Analysis (Basic Concepts only).


Project Organisation and Control – Project Network Analysis (Basic concepts of PERT, CPM, Cost and Time Over Run).

Project Reporting: Meaning, Purpose, Process, Requirements of a Good Report, Methods, Principles of Good Reporting System.

Suggested readings:
2. Project Management: The Managerial Process (Special Indian Edit.) -Clifford F Gray, Oregon State University.
BBA 223: RESEARCH METHODOLOGY

Objective: To provide knowledge to the students about fundamentals of business research.

Unit-I


Unit-II


Suggested Readings:

Objective: The objective of the paper is to familiarize the students with the different aspects of managing human resource in the organization.

UNIT - I
Recruitment, Selection, Training and Development.
Placement and Induction, Transfers and Promotions.

UNIT – II
HR Department and Policies - Organisational Design of HR Department, Composition, Functions, HRM Environment.
HR Information System - Meaning, Need, Objectives, Process, Designing of HRIS, Computerized HRIS, Personnel Inventory.
HR Records - Meaning, Purpose, Essentials of Good Record Keeping, Significance, Description.
HR Research - Objectives, Kinds and Techniques.
HR & Audit - Objectives, Need, Process, Types and Approaches.
Practical Work: Case Studies on the Relevant Topics.

Suggested readings:
BBA-225: GOODS AND SERVICE TAX

Objective: Understanding of basics of GST

Unit I

Tax structure in India, Direct and Indirect Taxes, Overview of Goods and Services Tax, Implementation of GST, Reasons for GST introduction, Pros and cons of GST, Registration procedure under GST, CGST/ SGST Act, 2017, Classes of officers under GST, their appointment and powers; Levy and collection of CGST/ SGST; Composition Levy scheme; Time and value of supply.

Unit II

IGST Act, 2017: Definitions, Supplies in the course of inter-State trade or commerce, Supplies in the course of intra-State trade or commerce, Levy and collection of IGST, power to grant exemption from tax, place of supply under IGST; Input tax credit; Returns under GST; Refund of tax; offences and penalties, Prosecution and Appeals under GST, GST Portal: GST Eco system, GST suvidha provider.

References

2. Taxmann’s GST Ready Reckoner Updated till 18th June, 2017.
4. GST Ready Reckoner by CA Kesha R Garg, Bharat Law House, Delhi.
5. Goods and Services Tax in India -----Notifications by Government of India
6. GST Bill 2012
7. Integrated Goods and Services Tax Act 2017
BBA 226: DATABASE MANAGEMENT SYSTEM

Objective: The objective of the paper is to impart basic knowledge of database management systems.

UNIT – I

Data Models: Hierarchical, Network, Relational, E-R Model Concepts, E-R diagrams, symbols, Structure of Relational Data Model (Relations, Types, Attributes), Keys, Integrity Constraints, DDL, DML.

Relational Algebra and Relational Calculus:
Relational Algebra Operations Unions Intersections, difference, Cartesian product, Projection, Selection, Joint Examples of Queries Written in Relational Algebra.

Relational Calculus:
Triple Relational Calculus, Domain Relational Calculus, Basic Operations of Relational Calculus, Writing Queries in Relational Calculus, Difference between Triple Relations Calculus and Domain Relational Calculus and Between Relational Algebra and Relational Calculus.

UNIT – II
Relational Database Design: Normalization, its Need, Normal Forms, Functional Dependencies, Anomalies, Example of Normalization.

Securing the Database, Threats to Database, Concepts of Database Securing, Integrity, Difference between Securing and Integrity, Database Failures and Recovery Techniques.

Using DDL Commands to Create, Alter, Rename, Delete Tables, DML Commands to Insert, Update, Delete the Records, Giving Queries to RDBMS, DCLA Commands for Granting Revoking Privileges and Creating Users, Any RDBMS in Usage.

Suggested Readings:
1. Database System Concept Korth et. Al.
2. An Introduction o Database Design Date.
3. Object Oriented Database Design Harrington.
5. Database management and Design Hansen and Hansen.
FIFTH SEMESTER
BBA 301: INSURANCE AND RISK MANAGEMENT

Objectives: The objective of this course is to familiarize students with the principles and practices being followed in the insurance sector. The students will also learn risk management process and applications.

UNIT – I

UNIT- II
Risk and risk management process - Concept of risk, risk vs. Uncertainty, types of risks, risk identification evaluation. Risk management objectives-selecting and implementing risk management techniques. Commercial risk management applications- property, liability commercial property insurance different policies and contracts, business liability and risk management insurance, workers' compensation and risk financing.

Suggested Readings:

Note: Latest edition of text book must be used.
BBA 302: INTERNATIONAL BUSINESS

Objectives: The objective of this course is to familiarize students with the concepts, importance and dynamics of international business. The course also discusses theoretical foundations of international business to the extent these are relevant to understand the mechanics of global business operations and development.

Unit –I

Introduction to International Business: Globalization and its growing importance in world economy; Forces behind globalization; Criticism of globalization; International business contrasted with domestic business- complexities of international business.

Modes of entry in international business.

International Business Environment: Economic, Cultural, Political and Legal environments; Global Trading environment – recent trends in world trade in goods and services.


International Organizations: WTO- Its Objectives, principles, organizational structure and functioning. An overview of UNCTAD, World Bank and IMF.

Unit – II

Regional Economic Co-operation: Forms of regional groupings; Integration efforts among countries in Europe, North America and Asia. India’s recent Trade Agreements.

Developments and Issues in International Business: Foreign Direct Investments in India; Measures for promoting foreign investments in India. Outward Foreign Direct Investments from India; Indian joint ventures, acquisitions and greenfield investments abroad.


Foreign Trade Promotion Measures in India: Latest EXIM Policy.

Suggested Readings:

2. Francis Cherunilam, "International Business: Text and Cases" Prentice Hall of India
4. Justin Paul, "International Business" Prentice Hall of India

Note: Latest edition of text book must be used.

BBA 303: BUSINESS ENVIRONMENT

Objectives: The main objective of the course is to acquaint the students with various environmental factors that create a profound impact on the business organization. It would also make the students capable of analyzing and understanding the implications of different macroeconomic policies implemented by the Government.

Unit- I


Unit- II


Socio-Cultural Environment: Nature and Impact of Culture on Business, Social Responsibilities of Business, Social audit, Emergence of Middle Class and its influence on Business

Natural Environment: Ecological Issues and Indian Business.

Suggested Readings:
4. Dutt&Sundaram; *Indian Economy*, S. Chand& Sons.

Note: Latest edition of text book must be used.

**BBA 304: ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT**

**Objective:** To familiarize the budding entrepreneurs with the competencies and qualities of successful entrepreneurs and to help learners understand various issues involved in setting up a private enterprise and develop required entrepreneurial skills in economic development.

**UNIT-I**

**Entrepreneurship**- Entrepreneur, Entrepreneurship, Definition, Characteristics, Need, Theories, Difference between entrepreneur and self employed person- entrepreneur and manager, Intrapreneur, Intrapreneurship, Socio-Economic role of Entrepreneurship; Role of Entrepreneurship in Economic Development

**Entrepreneurial Motivation:** Entrepreneurial Motivation, Internal and External factors affecting motivation, Relation of Entrepreneurial Motivation and Entrepreneurial Behaviour

**Entrepreneurial Competencies:** Essential competencies of entrepreneur;

**Entrepreneurial Development Programmes:** EDPs, relevance and achievements; Role of Government in organizing EDPs, Critical Evaluation;

**Project Identification and Project Plan:** Considerations in Product/Project Selection, Market Survey, Project Classification, Writing a Project Plan/Proposal;

**Project Appraisal and Documentation:** Project Appraisal Criteria, Various formalities for Project Appraisal and clearance for availing financial support;

**UNIT-II**

**Small Business:** Small Business as a Seed Bed of Entrepreneurship: Evolution and development of Small Business, SSI, concept, definition, characteristics, classification, advantages and problems; Role of Small Business in the national economy;
The Start-Up Process: Procedure for setting up a small scale unit; Planning, Implementation, Initial Strategic Planning,


National Policies for small business development: Governmental and Non-Governmental policies and assistance in setting up SSI, Institutional support to small entrepreneurs from NSIC, SIDO and TCOs for entrepreneurship development in India

Practical Work: Project report for financial assistance from bank

Suggested Readings:

2. David H Holt Entrepreneurship - New venture Creation© PHI
3. Dr C B Gupta, Dr N P Srinivasan Entrepreneurship Development© Sultan Chand and Sons
4. Vasant Desai Dynamics of Entrepreneurship Development and Management© Himalaya Mumbai
5. Poornima M Charantimath Entrepreneurship and Small Business© Pearson Education
8. Mac J Dollinger Entrepreneurship Strategies and resources© Pearson Education Delhi

Note: Latest edition of text book must be used.

BBA 305: CONSUMER BEHAVIOUR

Objective: The course of Consumer Behaviour aims at enabling students to understand the process of consumer behaviour, issues and dimensions, various internal and external factors that influence consumer behaviour and to apply this understanding to the development of marketing strategy.

Unit I

Consumer Behaviour: Nature, characteristics, Scope, Relevance & Application; Importance of consumer behaviour in marketing decisions; Consumer Vs Industrial Buying Behaviour
Determinants of Consumer Behaviour: Role of Motivation; Personality and Self Concept; Attention and Perception; Consumer Learning; Consumer Attitudes- Formation and Change; Consumer Values and Lifestyles

External Determinants of Consumer Behaviour: Influence of Culture and Sub Culture; Social Class; Reference Groups and Family Influences; Basic models of consumer behaviour

Unit II

Consumer Decision Making Process: Problem Recognition- methods of problem solving; pre-purchase search influences- information search; alternative evaluation and selection; outlet selection and purchase decision (compensatory decision rule, conjunctive decision, rule, Lexicographic rule, affect referral, disjunctive rule); Post Purchase Behaviour; Situational Influences; Cognitive Dissonance

Diffusion of Innovation: Definition of innovation, product characteristics influencing diffusion, resistance to innovation, adoption process

Consumer Involvement: Role of Consumer Involvement; Customer Satisfaction; Consumer behaviour- interdisciplinary approach

Researching Consumer Behaviour: Online Customer Behaviour; Diversity of Consumer Behaviour; Role of Consumer Behaviour in Marketing Strategy;

Suggested Readings:

2. Consumer Behaviour – Buying, Having, and Being by M R Solomon, Pearson Prentice Hall

Note: Latest edition of text book must be used.
BBA 306: SALES AND DISTRIBUTION MANAGEMENT

Objectives: The purpose of this paper is to acquaint the student with the concepts which are helpful in developing a sound sales and distribution policy and in organizing and managing sales force and marketing channels.

UNIT-I

Introduction to Sales Management & Importance of Sales Force. Functions of sales manager. Nature and importance of Personal Selling and Salesmanship, objectives and theories of personal selling. Sales forecasting Methods, Sales Budget - Importance, Process of Sales Budget, Uses of sales budget, Sales territory considerations in allocation of sales territory, Sales Quota, Objectives, Principles of Ceiling Sales Quota, Administration of Sales Quota, Uses of Sales Quota.

UNIT-II


Suggested Readings:


Note: Latest edition of text book must be used.
Objectives: To advance the understanding of fundamental concepts of financial markets, financial instruments in various markets and important financial services.

Unit – I


Money Market  – Structure of Indian Money Market (Organized, Co-operative and Unorganized Sectors); Instruments of Money Market – Call/Notice/term Money, Repurchase Agreements, T-Bills, Commercial Bills, Commercial Papers, Certificate of Deposits and Money Market Mutual Funds; and Discount and Finance House of India.

Capital Market  – Indian Capital Market; Capital Market Instruments; Primary Market (New Issue Market and Listing of Securities); Secondary Market with special reference to Stock Exchanges and their functioning; Indian Clearing Corporation Ltd. and Role of Securities and Exchange Board of India.

Introduction to Commodity Markets

Overview of Euromarkets with special reference to Eurocurrency and Eurobonds

Unit - II

Financial Services  – Meaning and Importance.

Merchant Banking and Investment Banking  – A brief overview of Issue Management, Underwriting Services, Corporate Debt Restructuring, Project Counselling, Portfolio Management and Loan Syndication

Mutual Funds  – concept, advantages, mutual funds schemes (growth, income, balanced, gilt edged, equity linked and money market mutual funds)

Factoring Services  – concept, functions of a factor, and types of factoring.

Venture Capital Financing  – concept, features, and stages of financing

Securitization of Debt  – concept and process of securitisation
BBA 308: INVESTMENT MANAGEMENT

Objectives: To advance the understanding of fundamental concepts of security analyses, and working knowledge of portfolio management and evaluation

Unit – I


Security Analysis ų Meaning of Security Analysis

Fundamental Analysis ų Economic Analysis; Industry Analysis and Company Analysis.

Technical Analysis – Theoretical Framework; Charts- Candlestick Chart, Line Chart and Open High Low Close Chart; Overlays- Support, Resistance and Trend Line; Market Indicators-Advance Decline Index, Absolute Breadth Index and Traders' Index, Price Indicators- Relative Strength Index, Average Directional Index and Momentum, and Volume Indicators- On Balance Volume.

Efficient Market Hypothesis ų Concept, Forms and Random Walk Theory

Unit - II

Portfolio Management ų Concept and Markowitz Model


Portfolio Performance Evaluation ų Sharpe, Treynor and Jensen Models

Value vs. Growth Investing
Suggested Readings:
1. Investment Management by V.K.Bhalla ï S. Chand Publishing
2. Investment Management by Preeti Singh ï Himalaya Publishing.
4. Security Analysis and Portfolio Management by Fischer and Jordan ï Pearson Publications

Note: Latest edition of text book must be used.

BBA 309: SOCIAL SECURITY & LABOUR WELFARE

Objectives: The objective of this course is to acquaint the students with the two important aspects of Industrial Relations namely Social Security and Labour Welfare.

UNIT I


Employee’s State Insurance Act, 1948- Object & Scope; Definitions - Factory, Principle, Employer, Employee, Dependent, Insured Person and Employment Injury; Benefits under the Act- Sickness Benefit, Maternity Benefit, Disablement Benefit, Dependents Benefit, Funeral Benefit; Employees State Insurance Fund; Employee State Insurance Corporation - Constitution, Dispute & Claim under the Act.


UNIT II

The Employees Compensation Act, 1923 - History of the Act, Definition - Compensation, Wage, Workman, Dependent, Employer, Partial Disablement, Total Disablement, Arising Out Ofâ and â in the course of Employmentâ Notional Extension, Liability of Employer,
Compensation Calculation, Compensation Commissioner.

The Industrial Employment (Standing Order) Act, 1946 - Scope and coverage of the Act, Concept of Standing Order - Certification Process invites Modification, Interpretation & Enforcement of Standing Order.


SUGGESTED READINGS:

1. Dr. C.B. Mamoria and Dr. Satish Mamoria, Dynamics of Industrial Relations, Himalaya Publications
7. B.D.Singh, Industrial Relations and Labor Laws, Excel Books

Note: Latest edition of text book must be used.

BBA 310: INDUSTRIAL RELATIONS AND LABOUR LEGISLATIONS

Objectives: The objective of this course is to acquaint the students with the different aspects of Industrial Relations and the relating labour laws

UNIT-I

Industrial Relations: Concepts, Objectives, Scope, Importance, Participants, Essentials of effective Industrial Relations, Factors affecting Industrial Relations, Constraints of IR

Industrial Conflicts: Nature, Form, Causes, Effects

Collective bargaining: Nature and functions; Types of bargaining; Collective bargaining in the Indian context; Negotiating a collective bargaining agreement.

Grievance administration: Concept, Procedure, Guidelines, Discipline

UNIT-II


Payment of Wages Act, 1936: Introduction, Scope, Objectives, Definitions, Rules of payment of wages and deductions from wage.


SUGGESTED READINGS:

1. Dr. C.B. Mamoria and Dr. Satish Mamoria, Dynamics of Industrial Relations, Himalaya Publications
5. S C Srivastava, Industrial Relations and Labor Laws, Vikas Publishing House
7. B.D. Singh, Industrial Relations and Labor Laws, Excel Books

Note: Latest edition of text book must be used.
SIXTH SEMESTER

BBA 321: BUSINESS POLICY AND STRATEGY

Objectives: The course structure gives an insight into the strategic planning process done by organizations. The student is required to learn basics of that how a strategy is formed and finally implemented by organizations.

UNIT-I

Definition, nature scope and importance of strategy and strategic management. Strategic decision-making. Process of strategic management and levels at which strategy operates.


Environmental Appraisal: Concept of environment, components of environment (Economic, legal, social, political and technological). Environmental scanning techniques- ETOP, QUEST and SWOT (TOWS).

Internal Appraisal: The internal environment, organizational capabilities in various functional areas. Methods and techniques used for organizational appraisal (A brief overview of: Value chain analysis, Financial and non-financial analysis, historical analysis, Industry standards and benchmarking, Balanced scorecard and key factor rating).


UNIT-II


Strategic Analysis and choice- Corporate level analysis (BCG, GE Nine-cell, McKinsey’s 7-S Framework). Industry level analysis, Porter’s five forces model.


Strategic control and operational Control. Organisational systems and Techniques of strategic evaluation.

Suggested Readings:
4. Ghemawat, Strategy & The Business Landscape, Pearson Education Asia
BBA 322: PRODUCTION AND OPERATIONS MANAGEMENT

Objectives: This course aims to impart knowledge regarding production and operation management tools, techniques and processes and familiarize students how to take managerial decisions with respect to production function.

Unit I

Introduction to Production and Operations Management: Concepts, Functions, Scope, Types of Production System.


Facility Location and Layout: Facility Location - Importance, Factors in Location Analysis, Location Analysis Techniques, Facility Layout - Objectives, Advantages, Basic Types of Layouts

Production Planning & Control (PPC): Concepts, Objectives, Steps
Work Study - Productivity; Method Study; Work Measurement.

Unit- II

Production Techniques: Introduction to modern productivity techniques-Just in Time, Kanban system, Total Quality Management and Six Sigma.Make or Buy decisions.

Inventory Control and Management
Purchase Management - Objectives; Functions; Methods; Procedure
Stores Management - Types of Stores; Functions; Coding Methods
Inventory Management - Concepts; Classification; Objectives; Factors Affecting Inventory Control Policy; Inventory Costs; Inventory Control tools and techniques

Quality Management and Statistical Quality Control
Maintenance Management - Concepts; Objectives; Functions; Types of Maintenance TQM, Quality Specification, Design
Meaning and objectives of Statistical Quality Control.

Suggested readings:
1. Nair, Production & Operation Management, Tata McGraw Hill
2. Adam & Ebert, Production & Operation Management, Prentice Hall India
BBA 323: SOCIAL AND ETHICAL ISSUES IN BUSINESS

Objective: The objective of this paper is to familiarize the students with the importance of ethics in business and understanding of issues related to corporate social responsibility and corporate governance.

Unit 1


Corporate Social Responsibility: Social Responsibility of business with respect to different stakeholders, Arguments for and against social responsibility of business, Social Audit, Corporate Social Responsibility and Corporate Governance.

Unit 2

Corporate Governance: Conceptual framework of Corporate Governance, Need for Corporate Governance, Benefits, Historical background, Theories of Corporate Governance, OECD principles, Cadbury Committee Report, Corporate Governance Vs Corporate Excellence, Corporate Governance Reforms and Initiatives in India.
Suggested Readings:


**Note:** Latest edition of text book must be used.

**BBA 324: PROJECT REPORT AND VIVA VOCE**

The projects have to be submitted during 6th Semester. Projects have to be submitted in duplicate. For conducting research, a structured and scientific approach should be followed by students. Apart from introduction chapter, research project should have chapters related to review of literature (in brief), research methodology, data analysis and interpretation and summary and conclusion.

Viva Voce is to be conducted by an external examiner.
BBA 325: ADVERTISING AND BRAND MANAGEMENT

Objectives: The objective of this course is to provide an understanding of the basic principles of advertising management, nature, purpose & complex constructions in the planning and execution of a successful advertising program and to develop an interest of the brand concept and the operational aspects of managing a brand. The course will expose student to issues in brand management, faced by firms operating in competitive markets.

UNIT I

Advertising & Advertising Management: Introduction, scope, need & importance; types & classification of advertisement, advertising & the promotion mix, Role of advertising in Social & Economic development, Ethics in Indian advertising.

Advertising Planning: Advertising Objectives-DAGMAR, determining advertising budgets: percentage of sales method, objective to task method, competitive parity & all you can afford; Advertising planning and strategy, creative strategy development and implementation

Media planning & Scheduling: broadcast & non-broadcast media; Key factors influencing media planning; setting media objectives, media decisions; media class, media vehicle & media option; Scheduling: flighting, pulsing & continuous; developing media strategies, evaluation of different media and media selection, media buying, measuring advertising effectiveness

UNIT II

Brands and Brand Management: concept, nature, importance, brand evolution, brand life cycle, brand v/s generics, associating feelings with a brand; branding challenges and opportunities; Brand Identity: conceiving, planning and executing (Aaker model); Brand Loyalty: concept and measures of brand loyalty

Brand Equity: concept and measures of brand equity, cost, price and consumer based methods, sustaining brand equity

Brand Personality: concept, measures and formulation of brand personality; Brand Image Vs Brand Personality
**Brand Positioning:** Concept, repositioning, Celebrity Endorsement, Brand Extension, Differential Advantage, Strategies for Competitive Advantage, Brand Pyramid.

**Suggested Readings:**

5. Advertising Planning and Implementation by Sangeeta Sharma and Raghuvir Singh, PHI.

**Note:** Latest edition of text book must be used.

**BBA 326: MARKETING OF SERVICES**

**Objectives:** This course aims at enabling students to apply marketing concepts and principles to the unique challenges and opportunities of services marketing to create customer value.

**UNIT I**

**Introduction to Services Marketing:**

Meaning and Nature of Services, Growing Importance of Services Sector; Classification of Services; Differentiating goods from services; Introduction to services marketing: Growth and importance of services marketing.

**Understanding Consumer Behavior and markets:**

Consumer purchase process; consumer behaviour in service encounters; Customer Expectations and Perceptions; Market Segmentation and positioning of services.

**UNIT- II**

**Services Design and Development:** Creating new service, Identifying and classifying supplementary services, Service blue printing.

**Pricing of services:** Objectives and foundations for setting prices, Value based pricing.
**Services Distribution Management:** Distributing services; Options for service delivery, place and time decisions.

**Implementing Services Marketing:**

Defining and Measuring Service Quality; The GAP Model; Customer Feedback and Service Recovery; Managing relationships and building loyalty.

**Suggested Readings:**


**Note:** Latest edition of text book must be used.

**BBA 327: COST ANALYSIS AND CONTROL**

**OBJECTIVE:** The objective of this paper is to provide knowledge to the students about the various components of the cost and techniques of cost control.

**UNIT I**


**UNIT II**

Overheads: Collection, Classification, Allocation, Apportionment and Absorption of Overheads (Primary and Secondary Distribution), Machine Hour Rate. Standard Costing and Variance Analysis, Budgetary control
Suggested Readings:

2. S.N.Maheshwari: Cost and Management Accounting, Sultan Chand and Sons.
5. P.C. Tulsian, Bharat Tulsian: Cost Accounting, S. Chand Publishing

Note: Latest edition of text book must be used.

BBA 328: ACCOUNTING FOR MANAGEMENT

Objective: To acquaint students with concepts of cost and management accounting and their application in managerial decision making.

Unit I


Unit II

Absorption and Marginal Costing. Cost Volume Profit Analysis: Marginal Cost Statement/Equation; P/V ratio; Break Even Point (BEP), Break Even Chart; Margin of Safety; Decisions relating to Key Factor, Price fixation, Export Order, Make or Buy, Deletion or Addition to Product/Services, Sell or Process Further, Continue or Shut down, etc. Responsibility Accounting and Divisional Performance.

Suggested Readings:

2. Lal, Jawahar, Advanced Management Accounting, Text and Cases, S. Chand & Company, New Delhi.
BBA 329: HUMAN RESOURCE PLANNING AND PERFORMANCE MANAGEMENT

Objectives: The objective of this course is to help the students gain conceptual understanding of Human resource planning and performance management within an organization.

Unit- I


Human resource planning process: HRP Process, techniques of demand and supply forecasting, Problems in HRP and suggestions to effective HRP.

Career Planning and Development: Meaning, objectives, individual career planning, elements of career management programme, career stages, benefits and limitations.

Succession Planning: importance, challenges, components and suggestions.

Unit- II

Performance Management: Meaning, pre-requisites, principles, objectives, process, challenges, Performance appraisal and performance management.

Performance Planning: Features, objectives, goal setting, expectancy theory, competency mapping.

Performance Appraisal: Objectives, methods, limitations, potential appraisal.

Ethics in Performance Management: Ethical issues and dilemmas.
Suggested Readings:

5. Performance Management: Key strategies and practical guidelines by Michael Armstrong, Kogan Page
7. Strategic Human Resource Management by Tanuja Agarwala, Oxford University Press

Note: Latest edition of text book must be used.

BBA 330: COMPENSATION MANAGEMENT

Objectives: The objective of this course is to help the students understand basics of managing compensation systems of an organization and understand its application.

Unit I

Compensation management: concept, objectives, principles, importance of good compensation system, factors influencing compensation levels.

Theoretical dimensions of Compensation: economic theories, behavioral theories: content theories, process theories.

Job Evaluation: meaning, features, importance and methods, job evaluation and performance appraisal.

Unit II

Components of pay: basic pay, dearness allowance, Incentive plans: features, individual, group incentive plans, profit sharing schemes, Employee Stock Ownership.

Fringe benefits: need, objectives, types of fringe benefits, retirement benefits: provident fund, gratuity and pension.

Executive Compensation: meaning, components, and strategies: skill based pay, competency based pay, broad banding and variable pay system, new trends in compensation management.
Suggested Readings:


Note: Latest edition of text book must be used.
CURRICULA FOR

B.A. B.ED.

COURSE

WITH

CREDIT BASED SEMESTER SYSTEM

(SESSION 2017-18)
FOUR YEAR INTEGRATED COURSE

B.A. B.Ed.

The Institute started in July 2007 as a collaborative effort of three departments of Panjab University viz. Department of Education, Department of Lifelong Learning and Department of Community Education & Disability Studies. Presently, four year integrated B.A. B.Ed. course (approved by NCTE) is offered in the Institute of Educational Technology & Vocational Education with an intake of 50 students. This course is designed as per the latest guidelines of NCTE.

The objective of the Institute is to prepare prospective secondary school teachers, who are dedicated & committed to teaching profession, socially aware & concerned, morally upright and spiritually oriented. The focus of this four year course is to provide quality teacher education through a rigorous, consistent and comprehensive programme equipping with theoretical knowledge and practical pursuits.

Rules regulating admission and promotions to B.A. B.Ed. Four Year Integrated Course (8 semesters)

1. B.A. B.Ed. is a Four Year Integrated Course comprising of eight semesters. Each academic year is divided into two semesters:
   a) From July to December
   b) From January to May

2. Minimum qualifications for admission to first semester of the course will be: 10+2 Examination of any Board/University, which is recognized by the Panjab University as equivalent, to it with at least 50% marks (45% marks in case of SC/ST).

3. Every candidate admitted to the course shall pay such fee and funds or other charges as may be prescribed by the Syndicate/Senate from time to time.

4. A candidate admitted to the course shall be eligible to appear in a semester examination if he/she has attended at least 80% of the lectures required in prescribed course component during the semester and 90% for school internship. Provided that the deficiency in this attendance requirement may be condoned as follows:
   a) Up to 10% lectures in various special lectures/visits to schools or other institutions by the Head/Chairperson/Director.
   b) The Vice–Chancellor, in exceptional cases, on the recommendation of the Head/Chairperson/Director, may condone up to 10 lectures to the best advantage of the student, beyond the condonation done by the Head/Chairperson/Director.
5. 
   a) A paper of 100 marks will be equated with 5 credits.
   b) The total credits a student of B.A. B.Ed. Course will earn is 380. This also remains minimum numbers of credits that a student of B.A. B.Ed. Course must clear to pass the Course.

6. To be declared pass in a semester examination, a candidate must have obtained at least:
   a) 40% marks in each paper of the semester examination.
   b) 40% marks in the internal assessment/project reports/term papers/visits to schools or other institutions etc for each paper. These marks shall be on such basis/ criteria as approved by the Syndicate/ Senate from time to time.

7. 
   i) Promotion from 1st to 2nd, 3rd to 4th, 5th to 6th, 7th to 8th semester shall be allowed if a candidate has fulfilled the attendance and other requirements even though he/she has failed/ has failed to appear in the examination for the semester respectively from which he is being promoted, with a reappear.
   ii) Promotion from 2nd to 3rd, 4th to 5th, and 6th to 7th semester shall be allowed only if s/he has passed at least 60% of the papers of the 1st to 2nd, 3rd to 4th, and 5th to 6th semester respectively as the case may be.
   iii) A candidate who gets reappear in paper(s) may pass the same in a total of two consecutive chances irrespective of promotion. However, if a student has cleared 80% of the papers of all the semesters preceding the semester in which s/he has to be admitted, he will be entitled to avail one more chance to clear the remaining papers on the recommendation of the Head/ Chairperson/ Director, if the candidate fails to clear the remaining papers even after availing all these (three in all) chances, he will seek fresh admission in first semester provided he is eligible to continue as per rules. (This para was substituted by syndicate in its meeting held on 24.9.2006, Agenda Item- 71).
   iv) All the papers of the 4 year course must be passed within 6 years from the date of the admission to the first semester of the course. However, the number of chances to be availed per subject will be governed by University rules.

8. The medium of instruction shall be English only. However, examination may be allowed in English, Hindi or Punjabi.

9. Candidates will be allowed to improve their performance in any paper. The number of chance will be governed by the prevailing University rules.

10. The teaching learning processes will be as follows:
    a) In all the papers 60% academic transactions will be teacher directed by way of lectures, discussions and presentations by the teacher.
    b) 20% marks will be allocated to internal assessment based on mid term examination, classroom discussions, attendance, seminar and snap test.
c) The remaining 20% will be covered in the form of Individualized sessional work (supervised by the concerned teachers) comprising project work, team presentations, individual term papers, and assignment. In all papers except English (Compulsory) and Punjabi (Compulsory)/HCP. In these papers, C component mentioned above is not there.

11. For first three years, the course will consist of:

I. CORE SUBJECTS
   A). Paper I: Education 100 marks (5 credits)
   Paper II: Education 100 marks (5 credits)
   B). Paper III: English 50 marks (2.5 Credits)
   Paper IV: Punjabi 50 marks (2.5 Credits)
   OR
   History and Culture of Punjab 50 marks (2.5 Credits)

II. OPTIONAL SUBJECTS: These would include:

   Papers V & VI & VII : 100+100 + 100 marks+ 100 marks (15 Credits)

   The student is required to take up three elective/optional subjects from the nine options listed below.

   1) English
   2) Hindi
   3) Punjabi
   4) History
   5) Geography
   6) Economics
   7) Political Science
   8) Sociology
   9) Mathematics

   (Note 1: Out of languages, only one can be selected

   Note 2: Students who have already passed/pursuing the course with two optional/elective subjects can give one additional paper after completing the course)

III. PRACTICAL COURSES (COMPULSORY)

   Practical Courses will be split into three sections:

   i) SCHOOL RELATED PRACTICUM: (100 Marks – Internal: 5 Credits)
      
      This will involve activities related with school functioning / classroom teaching, specified for each semester.

   ii) LIFE SKILLS TRAINING: (100 Marks – Internal: 5 Credits)
This will involve training in two life skills in each semester

- Learning to know (cognitive abilities): decision making, problem solving, critical thinking skills and creative thinking skills
- Learning to be (personal abilities): skills of increasing internal locus of control and skills for managing feelings and stress
- Learning to live together (interpersonal abilities): self management skills, communication skills, skill of empathy, skill of cooperative and team work
- Learning to do (practical skills)

iii) TUTORIALS

The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.

IV. CONTINUOUS COMPREHENSIVE EVALUATION

All papers except B.A. compulsory papers will consist of 100 marks i.e. 60 marks (3 Credits) for theory paper + 20 marks (1 Credit) for individualized sessional work (Subject – related practicum) and 20 marks (1 Credit) for internal assessment. Compulsory papers have 40 marks (2 Credits) for external exam in theory and 10 marks (0.5 Credit) for internal assessment.

A. INDIVIDUALISED SESSIONAL WORK/ SUBJECT RELATED PRACTICUM will include the following:

a) Team presentations / quiz on the topic of that particular subject relating it with education (5 marks: 0.25 Credit)

b) Project work related to that paper( to be specified by the teacher concerned with in prescribed tentative projects (10 marks: 0.5 Credit)

c) Assignment/term paper (5 marks: 0.25 Credit)

Each paper of 100 marks (5 Credits) will be covered through 5 periods per week and papers carrying weightage of 50 marks (2.5 Credits) will be covered in 3 periods per week.

B. INTERNAL ASSESSMENT of 20 marks (1 Credit) will be based on scores of mid-term examination, attendance and classroom interactions.
12. The students will have two options in fourth year
   
i) Those who want to have degree in Bachelor of Education
   **B.Ed.(Elementary)**
   With a focus on pedagogy related to elementary school level
   
ii) Those who opt for **B.Ed (secondary)** will theoretical focus on secondary school level

13. IV Year details are as under – VII Semester

   • Papers in Education – 5 Compulsory
   • Choice of elementary education – 4 Compulsory pedagogy papers
   • Choice of secondary education – 2 teaching papers (selecting one out of three options and another out of seven options)

14. Fee Structure as per university rules

*Rules related to Credit based system mentioned above will be superseded by any rules which are prepared by University towards this.

Prof. Nandita
Chief Coordinator
### B.A. B.Ed.

#### SEMESTER–I (Session 2017-18)

**COURSE STRUCTURE FOR SEMESTER I**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC01</td>
<td>EDUCATION IN EMERGING INDIAN SOCIETY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-EDUC02</td>
<td>SCHOOL ORGANIZATION AND ADMINISTRATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-ENGC11</td>
<td>ENGLISH</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>ONE OF TWO</td>
<td>BABED-PBIC11</td>
<td>PUNJABI HISTORY &amp; CULTURE OF PUNJAB</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HCPC11</td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>THREE OF NINE</td>
<td>BABED-ECOO11</td>
<td>ECONOMICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ENGO11</td>
<td>ENGLISH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>GEOGRAPHY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>HISTORY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>POLITICAL SCI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>PUNJABI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>SOCIOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ECOO11</td>
<td>MATHEMATICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-SRPC11</td>
<td>SCHOOL RELATED PRACTICUM</td>
<td>1</td>
<td>4 (IN FIELD)</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>COMPULSORY</td>
<td>BABED-LSTC11</td>
<td>LIFE SKILLS TRAINING</td>
<td>1</td>
<td>4 (IN FIELD)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>
Objectives
At the end of the semester the students will be able to:
• describe development of Indian education from ancient period to an independent nation.
• describe the recommendations of various commissions since independence.
• state various provisions of education in Indian constitution.
• explain in detail the role of education in social and cultural change.
• explain the relationship of education with economic issues such as poverty, inequality & unemployment.

Course Content

Unit I
Evolution of Education in India: Education during Vedic, Buddhist, Medieval and British period.

Unit II

Unit III

Unit IV
Social, Cultural & Economic Perspectives: Education for Social Change; Culture – Concept, Features & Education for Development of Culture; Education in relation to Poverty, Inequality & Unemployment.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:
• For unit II, the class will be divided into groups constituting of 5 to 6 students and each team will be given an assignment for power-point presentation.
• Project work may be assigned to the group of students e.g. a locality may be identified and a sample survey be taken up to study relationship between poverty & unemployment in that region.

Evaluation Scheme
The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
  ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).
  iii) Supervised Sessional work: project work, individual term papers and seminars (20 marks: 1 credit).
  iv) Internal assessment based on terminal examinations, attendance, Classroom interactions (20 marks: 1 credit).

Suggested Readings

11. Govt. of India: Kothari Education Commission Report, New Delhi: Ministry of HRD.

PAPER II: BABED-EDUC02: SCHOOL ORGANIZATION AND ADMINISTRATION

Marks (Credits)

Total  = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Time= 3 Hours
Examination hours= 3 hours

Objectives
At the end of the semester, the students will be able to:
• differentiate between the concepts of school administration, school organization and school management.
• describe a school plant and its components.
• identify the need, scope and purpose of educational planning in terms of national and community needs.
• acquire knowledge of duties of school head and teachers.
• understand the concept of institutional planning and prepare a institutional plan.
• acquire knowledge about the preparation of time table & maintenance of different school records and registers.

Course Content
Unit-I
School Organization & Administration: Concept, Need, Objectives, Scope, Principles & Types of School Organization and Administration; Difference between School Management, School Administration & School Organization.
School Plant: Importance, Essential Characteristics & Maintenance of various School Components (Location, Buildings, Physical Equipments, Recreational Spaces and Textbooks).

Unit-II
**Planning in Education:** Meaning, Nature, Objectives, Scope & Approaches of Educational Planning (social demand approach; manpower requirement approach; and cost benefit analysis)

**Institutional Planning:** Meaning, objectives, characteristics, Scope & Steps involved in Institutional Planning.

---

**Unit-III**

**School Head:** Qualities and Role of Head in planning, monitoring, supervision and evaluation; Delegation of authority and accountability.

**Teacher:** Teaching as Profession – Characteristics, Professional traits of a teacher, Role of Teacher – Manager, facilitator, counsellor, and community leader.

Importance of Non-Teaching Staff; Staff Meetings- Types (Formal meetings, Informal meetings, Planned informal meetings & Emergency meetings).

**Discipline:** Concept, Courses of Indiscipline, Preventive and Remedial Measures

---

**Unit-IV**

**Time-Table:** Concept, importance, types, principles and problems of time-table construction; **School Records and Registers:** Types and need; How to maintain school records; Different types of records and registers viz. Teacher Diary, Cummulative Record Card, Attendance Registers of Teacher and Students, Admission & Withdrawal Register and Stock register.

**Co-curricular Activities:** Need, objectives, Principles, planning and organization of co-curricular activities- the school magazine, clubs and societies, sports, cultural, literary activities, social welfare activities.

---

**Teaching Learning Experiences**

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:

- The class will be divided into different groups and each group will survey a School of different type under the supervision of teacher and prepare a report.
- Participation in any two co-curricular activities organized in the Institution.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).

iii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).
v) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings

PAPER III: BABED-ENGC11: ENGLISH (COMPULSORY)

Marks (Credits)

Total = 50 (2.5)

Theory = 40 (2)

Internal Assessment =10 (0.5)

Examination hours= 3 hours

Objectives:
At the end of semester, the students will be able to:
- Make use of competence in all the four skills i.e. Listening, Speaking, Reading and Writing.
- Describe and use new pedagogic practices in the teaching of both language and literature.
• Devise and promote student centric pedagogic techniques for the teaching of English.
• Describe implications of teaching/learning language through literature.

Course Content
Prescribed text:
English at work( Selection from Poetry and Prose), Eds., T Viyay Kumar, B T Seetha, AV Suresh Kumar, YL Srinivas, New Delhi. Macmillian India Ltd 2012, revised Edition.

Poems 1-4
Song 36 from Giitanjali
From Home coming
Myriad winged bird
I know why the caged Bird sings

Prose chapters 1-4
Spoken English and Broken English
Principles of Good writing
The Conjurer’s Revenge
I have a Dream

Unit I
a) Poetry: Reference to Context
   4
   (one out of two passages to be attempted)

b) Questions from poetry
   6
   (two out of four to be attempted in 100-120 words)

Unit II
a) Prose: Reference to Context
   4
   (one out of two passages to be attempted)

b) Questions from prose
   6
   (two out of four to be attempted in 100-120 words)

Unit III
a) Paragraph writing (Descriptive and Narrative) one out of three to be attempted
   5

b) Comprehension of passage from prose text
   5

Unit IV
a) Grammar: Voice, Determiners, Modals, Antonyms
   6

b) Translation from Vernacular to English. Four out of six sentences
Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

Evaluation Scheme
i) Theory paper will consist of ten questions i.e. two questions from each unit with internal choice. The students will be required to attempt one question from each of the five units (40 marks: 2 credits).
ii) Internal assessment will be based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 credit).

Suggested Reading

PAPER IV: BABED-PBIC11: PUNJABI (COMPULSORY)

Marks (Credits)
Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)
Examination hours = 3 hours

Objectives
- टिम घ्येह ला मंडल वरिड़ शी भाषाके चा निवट अफिशेत बचले है।
- पन्ना्री मार्गित विच वर्चिन्ग देहाे उचाहारं वाचने साधनार्य टेस्ट है।
- बचले व्येह दिलीण्डं हूँ गुविट बरच ही मुख धेऊ बरच॥
- विभाजन दिली विभाजन शी पूरा ज्ञान, लेख ने संवेद वरच वाचे मुख टेस्ट है।

पठ्यकूप
1. अपूर्वितर भंजारी वरिड़ शी अफिशेत
2. लेख उचाहा
Course Content

Unit-I
1. व्यक्ति समेत, (संगठन) इंग्रजी माध्यम, धार्मिक विभिन्न, पंजीकृत, निदेशक, चेडीगुड़ी।
   5 marks

2. विषय दो श्रेणियों में वेंचर भाग (दो विभिन्न विषय) 5 marks

Unit-II
1. व्यक्ति में विभिन्न विभिन्न विभाग रूप से भाग बाहर विभिन्न विभिन्न विभाग भरें दो विभिन्न विभिन्न विभाग (दो विभिन्न सारणें दो श्रेणियों होंगे) 10 marks

Unit-III
1. लेख उद्देश्य (250 विचार हेतु) चँद्र वार्षिक वार्षिक वार्षिक वार्षिक (विभिन्न विभाग विभिन्न विभाग) 5 marks
2. विभिन्न उद्देश्य (चँद्र निश्चित विभाग) 5 marks

Unit-IV
विभागशह : विभागशह ती की पीछा हेतु चँद्र (सार्वजनिक, सार्वजनिक, सार्वजनिक विभिन्न विभाग) (विभिन्न विभाग विभिन्न विभाग)
विभागशह : पेय पैंट रूप से विभिन्न विभागशह दे उठाए तत्व रूप से संयोजन विभिन्न विभाग रूप से विभागशह (विभिन्न विभाग दो विभिन्न विभाग दो विभिन्न विभाग दो विभिन्न विभाग) (विभिन्न विभिन्न विभाग दो विभिन्न विभाग दो विभिन्न विभाग)
(विभिन्न विभिन्न विभाग दो विभिन्न विभाग दो विभिन्न विभाग दो विभिन्न विभाग) 10 marks

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 20% will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 40 marks (2 credit).

ii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 credit).

Suggested Books:
1. व्यक्ति भाषा (पंजीकृत, इंग्रजी माध्यम, धार्मिक विभिन्न विभाग, पंजीकृत, निदेशक, चेडीगुड़ी)
2. पंजीकृत भाषा (विशिष्ट) और विभागशह, इंग्रजी माध्यम (2006) लेख ती की पीछा पंजीकृत, निदेशक, चेडीगुड़ी।
3. पंजीकृत भाषा (विशिष्ट) और विभागशह, इंग्रजी माध्यम, धार्मिक विभाग, (1999), लेख ती की पीछा पंजीकृत, निदेशक, चेडीगुड़ी
4. पंजीकृत माध्यम दो विभिन्न विभिन्न विभाग, निदेशक, धार्मिक विभाग, (1968), लेख ती की पीछा पंजीकृत, निदेशक, चेडीगुड़ी।
At the end of the semester, the students will be able to:

- describe the history and culture of Punjab related to the ancient period.
- describe history of Punjab and its culture traced from the Harappan culture to the teachings of Buddhism and Jainism.

**Unit I**
Physical features of the Punjab and their impact on history
Sources of the early history of the Punjab

**Unit II**
Harappan culture: Extent principal places, town planning and causes of its disappearance
Features of social, economic and religious life of the Harappan people

**Unit III**
The Indo-Aryans: original home and settlement in Punjab; social, economic and religious life during the Rig Vedic age
Origin and evolution of the caste system, its merits and demerits

**Unit IV**
The Ramayana and Mahabharata and their historical importance
The teachings of Buddhism and Jainism and their impact on the Punjab

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 20% will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

Evaluation Scheme
The evaluation will be based on:

a. In all nine questions will be set. Each question will carry 8 marks. (40 Marks: 2 credits)
   i. First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 8 marks and shall be compulsory.
   ii. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions, distributed evenly, and the candidate shall attempt one question from each unit.

b. Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 credits).

Suggested Readings

OPTIONAL SUBJECTS - PAPER V and VI (100 Marks each)
The student is required to take up three elective/optional subjects from the following eight subjects. Each subject will be of 100 marks.

1) English
2) Hindi
3) Punjabi
4) History
5) Political Science
6) Economics
7) Sociology
8) Geography
1. ENGLISH (Elective)  
BABED-ENGO11

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3

Objectives
At the end of semester, the students will be able to:
- make use of competence in all the four skills i.e. listening, speaking, reading and writing.
- describe implications of teaching/learning language through literature.
- develop the power of imagination through literature.

Section A
The following units form Fluency in English Ed., Promotional Verma, Mukti Sanyal, Tulika Prasad, New Delhi. Macmillian India, 2009 (the prescribed text) are recommended for First Year.

Units: 1, 3, 5, 6, 7, 8, 9, 10, 12, 14, 16, 17


Course Content

Unit I
It shall be on literary terms/concepts. Eight terms will be given in all and the students will be required to do five in not more than 50-60 words each.

15

Unit II
The examiner will set eight short questions (to be answered in 30-40 words) from Fluency in English (the prescribed text), out of which students will be required to attempt any five.

5x3=15

Unit III
Letter writing (personal, social and official)

7
One out of three
Comprehension of passage from prescribed book “Fluency in English)

Unit IV
Applied grammar
1. Voice, Direct/Indirect, Transformation of sentences 5
2. Articles, Prepositions, Conjunctions 5
3. Antonyms, Synonyms (text based)
   Use of words/Phrases in sentence 5

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of
lectures, discussions and presentations. The remaining will be covered in the
form of individualized work comprising:
   • prepare a project report on literary work of any poet mentioned in the course
   content.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be four units of 15
   marks each.
ii) Supervised sessional work: project work, individual term papers and assignment
   (20 marks: 1 credit).
iii) Internal assessment based on terminal examinations, attendance, classroom
   interactions, snap test etc. (20 marks: 1 credit).

Suggested Readings:
   Grammar. New Delhi: PHI Learning Pvt Ltd.
   Publication Bureau, Panjab University.
   Composition. Mumbai: Orient Longman Ltd.
2. HINDI (ELECTIVE)
BABED-HINO11

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

Objectives

अध्यापन प्रक्रिया के समापन के उपरांत विद्यार्थीयों।

- लिए गए कविताओं की पाठ्यक्रम संदर्भ में व्याख्या करेंगे।
- पाठ्यक्रम में दी गई कहानियों के संदर्भ में व्याख्या प्रश्न करेंगे।
- आदिकाल के साहित्य का नामकरण, काल सीमा, परिक्रियाएँ और प्रवृत्तियाँ का वर्णन करेंगे।
- राज राज्यों तथा बीसल देव राज्यों का परिचय लिखेंगे।
- व्यवहारिक वाक्यांश का प्रयोग करेंगे।
- विपरीतार्थक शब्द समानार्थक शब्द, वाक्यांश के लिए एक शब्द का प्रयोग व्यवहारिक रूप से करेंगे।

Course Content

UNIT I
कवितालीक
सं॰ डा॰ शिवकुमार शर्मा, परिक्रमण व्यूरो, पंजाब विश्वविद्यालय, वण्डीगढ़ द्वारा प्रकाशित।
इन ४ कविताओं की स्तवाएं पाठ्यक्रम में निरीक्षण की गईं हैं: 
कबीर, रेदास, गुरुनानक देव, सूरदास, मीराबाई, तुलसीदास।
इस खण्ड में कवि परिचय, कविता सार तथा उद्देश्य सम्बन्धी प्रश्न पूछे जाएँगे।

(15)  

Unit II
समीच्छ कहानियाँ
सं॰ डा॰ तनजीवबाल खुराना, परिक्रमण व्यूरो, पंजाब विश्वविद्यालय, वण्डीगढ़ द्वारा प्रकाशित। निम्नलिखित सात कहानियाँ पाठ्यक्रम में हैं:
शतरंज के खिलाड़ी, समता, अभिशिषित का हृदय, मौत के मुंह में, न्याय मंत्री, गुलाब, चम्मा-अस्मय।
इस खण्ड में कथावस्तु, चरित्र-विचरण एवं उद्देश्य से सम्बन्धित कुल दो प्रश्न पूछे जाएँगे।

(15)  

Unit - III
हिंदी साहित्य का इतिहास
आदिकाल का नामकरण, काल सीमा, परिक्रियाएँ, प्रवृत्तियाँ और पृथ्वी राज राज्यों तथा बीसल देव राज्यों का परिचय।

(15)  

20
Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

Project

1. हिंदी की किसी एक पुस्तक की समीक्षा।
2. पाठ्यक्रम में दिए गए कावियों में से किसी दो का काव्य परिचय लिखें।

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits). Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit (15x4 = 60 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

1) सं॰ डा॰ लक्ष्मीचन्द्र खुराना; 2007, पत्रिकाशील व्यूरो, पंजाब विश्वविद्यालय, वर्दीगढ़ द्वारा प्रकाशित।
2) मनोहर लाल आजवर्दन; 2006, तरंगें, पंजाब यूनिवर्सिटी पत्रिकाशील ब्यूरो, वर्दीगढ़।
3) सं॰ डा॰ संसार वर्मा; 2006 आदर्श एकांकी संघ, पंजाब यूनिवर्सिटी पत्रिकाशील ब्यूरो, वर्दीगढ़ द्वारा प्रकाशित।
4) विहित भारतीय; 2003, समीक्षालोक, इन्डिया प्रकाशन, दिल्ली।
5) जैन निर्मला; 2006, नई समीक्षा के प्रतिमान, नेशनल पत्रिकाशील हाउस, दिल्ली।
6) चंद्रीचंद्र राजेश्वर प्रसाद; 2008 हिंदी व्याकरण, उपकार प्रकाशन, आगरा।
7) साहनी एस. वि. शर्मा आदि. पी.; 2007 द्वारा प्रकाशित हिंदी व्याकरण, साहनी प्रकाशन, आगरा।
8) इंडिया लाल वर्मा; 1995, झांसी की रानी गयूर प्रकाशन, झांसी।
9) नवंवर दत्तवायल; 2009, हिंदी साहित्य का इतिहास, गयूर पेपरबैंक्स, नोयडा।
10) राजसाह तलवार; 2009, निबंध बोध, स्पेक्ट्रम बुक्स प्रा. लिए, दिल्ली।
3. PUNJABI (ELECTIVE)  
BABED-PBIO11

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours = 3 hours

Objectives

- निस धेंपट सा भंडार निमित्त विभिन्नरूपीय है भालूभाव भंडारी तत्कालीन केंद्र विभाग देखा है।
- पंजाबी साहित्य के निर्देशों विभिन्न विभागरूपीय है दिशायादर्श धीर जाता है।
- साहित्य दे तृणों घेरे ईश्वर नाटकारी देखा है।

इतिहास
1. भालूभाव भंडारी विभित्तिक गति अपना रहता
2. पंजाबी साहित्यी
3. भालूभाव भंडारी लेख निर्देश
4. साहित्य के तृण

वेतन
1. तत्कालीन (मिथुन) डॉ. समितेश सिंह, भालूभाव भंडारी विभित्तिक (1901 तिथि: इंग्री 2000 तिथि: उत्कृष्ट), ध्वनिवेशता विप्रति, ध्वनि पुस्तकालय, चौकीडार।
2. तत्कालीन, मेहता सिंह में, ध्वनिवेशता विशिष्ट, ध्वनि पुस्तकालय, चौकीडार द्वारा (शीर्षक प्रेम दिवस ' दिवस' दिवसीय की ध्वनि देखा)

Course Content

UNIT - 1

(२) तत्कालीन (मिथुन: डॉ. समितेश सिंह) ध्वनि दिवस भरें ध्वनि विभिन्न शारीरिक विभागिता (दे दिवस ' दिवस')
(३) 'बान' तत्कालीन (मिथुन: मेहता सिंह में) दिवसीय की ध्वनि विभिन्न शारीरिक विभागिता (दे दिवस ' दिवस')

UNIT – 2

(२) बाद-बंधन दिवस ' दिवसीय विभिन्न विभिन्न ध्वनि दिवस अवधारणा साधन सबसे (दे दिवस ' दिवस')
(३) दिवसीय वेतन दिवस (दे दिवस ' दिवस) (मात्रियां ध्वनि, हिंदु, भाषाक) ध्वनि दिवस भाषाक विभिन्न शारीरिक ध्वनि (दे दिवस ' दिवस')

22
UNIT – 3

Teaching Learning Exercises

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

Project work

- Teaching Learning Exercises

Suggested Readings

1) दृष्टि-संग्रह (भाष.), धृ. मंड. मिश्र में धर्मशास्त्र विभिन्न, पन्नान छूटकिल्लादिती, छंडीगढ़ (विश्वकुल बन विंटेज इल्लाटी थूंड बे)
2) धर्मशास्त्र नाम दिनांक 1700 तिथि. वेब(2003), पन्नान छूटकिल्लादिती, छंडीगढ़
3) धर्मशास्त्र नाम दिनांक 1700 तिथि. वेब(1972), पन्नान छूटकिल्लादिती, धर्मशास्त्र
4) धर्मशास्त्र नाम दिनांक 1700 तिथि. वेब(1968), लुव्वेंड्र वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, लुव्वेंड्र वुके, वुके, कुलिया नाम।
4. HISTORY
BABED-HISO11
HISTORY OF INDIA UPTO 1200 A.D

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours = 3 hours

Objectives

At the end of the semester the student will be able to:

• describe history in the context of Indian geography and socio-cultural milieu before 1200 A.D.
• explain, analyze and relate major political, social, religious and cultural changes of the time from beginning of Indus-valley civilization up to the rise of Rajput powers.

Course Content

Unit-I
i) Geography and history: the physical features and their influence on the course of Indian history
ii) Major sources of ancient Indian history: literary sources; archaeological findings; inscriptions; coins; travel accounts
iii) Harappan civilization: extent; town planning; social conditions; economy and religion

Unit-II
i) Vedic period: original home of the Aryans; political, social-economic and religious life in the early Vedic period developments in the later Vedic period
ii) Jainism and Buddhism: causes responsible for the rise of new religions; life and teachings of Mahavir Swami; life and teachings of Gautam Buddha
iii) Greek invasion: political conditions on the eve of Alexander's invasion; Alexander's invasion and its impact

Unit-III
i) The Mauryan Empire: conquests of Chandragupta Maurya; Ashoka's Dhamma; administration under the Mauryas
ii) Post Mauryan period: decline of the Mauryan Empire; Kanishka and his achievements
iii) The Gupta Empire: achievements of Samudragupta and Chandragupta-II; social, economic, cultural and scientific developments under Guptas
Unit-IV
i) The age of Vardhanas: campaigns of Harsha Vardhan; administration; literary and religious activities of Harsha Vardhan
ii) The Rajputs: origin of the Rajputs; polity, society and culture under the Rajputs
iii) Map:
   a) Important historical places: Taxila, Indraprastha, Kuruksetra, Kannauj, Patliputra, Ujjain, Bodhgaya, Varanasi, Sopara, Ajanta, Ellora, Sanchi, Tanjore and Kanchi
   b) Extent of the Mauryan empire
   c) Gupta empire under Samudragupta

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work comprising:
- use of maps for depicting territorial regions during the empires of Mauryans and Guptas etc.
- visit to Buddha / Mahavir temple of the region.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
iii) Supervised sessional work: project work, individual term papers and assignment (20 marks: 1 credit).
iv) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

Suggested Readings

5. POLITICAL SCIENCE
BABED-POLO11

POLITICAL THEORY- I

Marks (Credits)

Total = 100 (5)

Theory = 60 (3)

Sessional Work = 20 (1)

Internal Assessment = 20 (1)

Examination hours=

3 hours

Objectives
At the end of semester, the students will be able to:

• differentiate the concept of political science and politics.
• describe and discriminate the various ancient, traditional and modern political theories.
• describe relationship between political science and other social sciences and education.
• explain the concept of state and its importance.
• discuss the relationship of state with other institutions i.e. the government, society, association and the nation.
• describe and discriminate the theories of the origin of state like evolutionary and social contract.
• explain and discriminate the liberal, Marxian and Gandhian viewpoint about the origin of state.
• highlight and differentiate characteristic features of theories of sovereignty.

Course Content

Unit-I
Political theory: ancient, traditional and modern
Distinction between political science and political theory
Relationship of political science with economics, history, and sociology
Unit-II
The state: definition, elements and its distinction from government and society
Theories of the origin of state: social contract, historical/evolutionary

Unit-III
State: liberal, Marxian and Gandhian view
Functions of state: liberal and socialist perspective with special reference to education
Welfare state: concept and functions

Unit-IV
Sovereignty: definition, attributes and types
Theories of sovereignty: monistic and pluralistic
Political System : a) Meaning & Characteristics, Functions according to David Easton & Almond & Powell.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work comprising:

- preparing scrap book on the functions of state.
- Role of Social Media in relation to political scenario.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.

ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

iii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).

iv) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

Suggested Readings
Objectives

At the end of semester, the students will be able to:

- describe the origin of economics.
- explain the various types and time periods of production.
- describe the various forms of markets.
- develop rudimentary understanding of how and why consumers, firms, and markets in the economy function the way they do.
- know the functioning of competitive and noncompetitive product markets and performance of the markets for resources.

Course content

Unit-I


Unit-II


Market Forms and Revenue: Behaviour of Average Revenue and Marginal Revenue under Perfect and Imperfect Competition; Relationship between Average Revenue, Marginal Revenue and Elasticity of Demand.

Unit-III

Price and Output Determination: Price and Output Determination of the Firm and Industry under Perfect Competition in the Short and Long run; Firm’s Equilibrium under
Monopoly in the Short and Long run; Discriminating Monopoly, and Monopolistic Competition.

**Unit-IV**

*Distribution:* Marginal Productivity Theory and Modern Theory of Wage Determination, Concept of Rent and Quasi Rent; Ricardian Theory and Modern Theory of Rent; Concept of Interest, Classical and Loanable Funds Theory; Concept of Profit, Gross and Net Profit, Risk and Uncertainty Theories of Profit.

**Teaching Learning Experience**

In this paper, 60% academic transactions will be directed by teachers in the form of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work comprising:

- Market survey of consumer surplus
- Market survey of law of demand
- Market survey of monopolistic competition and selling cost.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.

ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

iii) Supervised sessional work: project work, individual term papers and assignment (20 marks: 1 credit).

iv) Internal Assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

**Suggested Readings:**

10. Samuelson, P.A. (1972) : Arth-Shastar Ek Prarmbhik Vishleshan, Punjabi University, Patiala

7. SOCIOLOGY
BABED-SOCO11
FUNDAMENTALS OF SOCIOLOGY

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment =20(1)
Examination hours =
3 hours

Objectives
At the end of the semester, the student will be able to
• describe fundamentals of sociology to the beginners of the subject;
• describe about sociology as a discipline.
• discuss study of various terms, concepts and processes which help in formulating a sociological viewpoint and an easy comprehension of the discipline at later stages.

Course content

Unit-I
Introduction to Sociology: Origin and Development; Nature and Significance. Relationship of Sociology with other Social Sciences –Anthropology, History and Psychology.

Unit-II

Unit-III
Culture: Meaning and Features, Culture and Civilization, Cultural Lag, Acculturation, Assimilation, Cultural Pluralism. Dimensions of Culture: Cultural Trait, Cultural Patterns, Cultural Complexes, Cultural Relativism

Unit-IV
Socialization: Meaning, Stages, Agencies and Theories of Mead and Cooley. Social Control: Meaning, Types and Agencies – Formal and Informal
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:

- Create a poster that compares the theories of origin of society.
- A seminar on effective means of social control by using visual aids.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits). There shall be 9 questions in all.

ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

iii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).

iv) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

Suggested Readings


8. GEOGRAPHY
BABED-GEOO11
PHYSICAL GEOGRAPHY (GEOMORPHOLOGY)

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
</tr>
<tr>
<td>Examination hours= 3 hours</td>
</tr>
</tbody>
</table>
Objectives
At the end of semester, the students will be able to:-
- describe the basic concepts and theories in physical geography.
- describe various movements, landforms resulting from forces of compression and tension.
- explain origin, characteristics and various classification of rocks.
- explain concept of geomorphology and applied geomorphology and discuss their applications to environmental hazards management.

Course Content

UNIT-I
Nature & Scope of Geography: Place of Physical Geography within the discipline of Geography, Divisions of Physical Geography (Geomorphology, Climatology, Oceanography and Biogeography).
Interior of the Earth: Constitution, Isostasy, Continental Drift (with special reference to Wegener’s Theory and Plate Tectonics).

UNIT-II
Movements of the Earth: Orogenic and Epeirogenic (with special reference to Geosyncline theory); landforms resulting from forces of Compression and Tension; Earthquakes and Volcanoes (causes, types and distribution)

UNIT-III
Rocks: Origin, classification and characteristics.
Major Land Forms: Mountains, plateaus and plains in the world.
Erosion cycle by Davis.

UNIT-IV
Geomorphic Agents and Landscapes: Fluvial, Glacial, Aeolian, Coastal and Karst.
Applied geomorphology: applications to transport, land use, environmental hazards, management etc.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:
- project report on land forms occur in India.
- seminar on effects of erosion.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
iii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).

iv) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

**Suggested Readings**


9. **MATHEMATICS**

BABED-MATO11

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory = 60 (3)</td>
<td></td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
<td></td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
<td></td>
</tr>
<tr>
<td>Examination hours= 3 hours</td>
<td></td>
</tr>
</tbody>
</table>

**Objectives**

At the end of the semester, the students will be able to:

- apply transformation of axes, rotation of axes & invariants.
- understand the basic concepts of plane geometry w.r.t. pair of straight lines, circle & conic.
- describe the special properties of parabola, ellipse & hyperbola.
- describe concept of differential calculus like e-s definition of limit of function, continuity of functions and classifications of discontinuities.
- understand and apply the rule of successive differentiation.
- use different mean value theorems.
- perform elementary operations on matrices; inverse of matrix.
- explain independence of row and column vectors, row rank, column rank and rank of matrix.
- apply matrices to a system of homogenous and non-homogeneous equations.
- describe Cayley-Hamilton theorem and its use in finding inverse of a matrix.
- describe De moiver’s theorem and its applications.
- understand and apply Gregory’s series & summation of series.

**UNIT-I: PLANE GEOMETRY-I**

i. Transformation of axes in two dimensions: Shifting of origin, rotation of axes, invariants.
Pair of Straight Lines: Joint equation of pair of straight lines and angle between them, Condition of parallelism and perpendicularity, Joint equation of the angle bisectors, Joint equation of lines joining origin to the intersection of a line and a curve.

ii. Circle: General equation of circle, Circle through intersection of two lines, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, angle of intersection and orthogonality, power of a point w.r.t. circle, radical axis, co-axial family of circles, limiting points.

UNIT-II: PLANE GEOMETRY-II

i. Conic: General equation of a conic, tangents, normals, chord of contact, pole and polar, pair of tangents from a point, equation of chord in terms of mid-point, diameter.

ii. Conjugate diameters of ellipse and hyperbola, special properties of parabola, ellipse and hyperbola, conjugate hyperbola, asymptotes of hyperbola, rectangular hyperbola. Identification of conic in general second degree equations.

UNIT-III: CALCULUS-I

i. Properties of real numbers: Order property of real numbers, bounds, l.u.b. and g.l.b. order completeness property of real numbers, archimedian property of real numbers.

Limits: e -d definition of the limit of a function, basic properties of limits, infinite limits, indeterminate forms.

Continuity: Continuous functions, types of discontinuities, continuity of composite functions, continuity of \( f(x) \), sign of a function in a neighborhood of a point of continuity, intermediate value theorem, maximum and minimum value theorem.

ii. Mean value theorems: Rolle’s Theorem, Lagrange’s mean value theorem, Cauchy’s mean value theorem, their geometric interpretation and applications, Taylor’s theorem, Maclaurin’s theorem with various forms of remainders and their applications. Hyperbolic, inverse hyperbolic functions of a real variable and their derivatives, successive differentiations, Leibnitz’s theorem.

UNIT-IV: TRIGONOMETRY & MATRICES

i. Trigonometry: D’Moivre’s theorem, application of D’Moivre’s theorem including primitive nth root of unity. Expansions of \( \sin nq \), \( \cos nq \), \( \sin n \), \( \cos n \) \( n \in \mathbb{N} \). The exponential, logarithmic, direct and inverse circular and hyperbolic functions of a complex variable. Summation of series including Gregory Series.


Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work like:

• teacher may familiarize the students with examples of course content
• teacher will give extensive practice in the mathematical skills.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.

ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2 x 6 = 12 marks).

iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from each of four units (one from each subpart of the unit) of the syllabus will be set, out of which the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).

iv) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20 marks: 1 credit).

iii) Internal Assessment based on terminal examinations, attendance & classroom interaction (20 marks: 1 credit).

**References:**

GENERAL PRACTICUM

BABED-SRPC11
SCHOOL RELATED PRACTICUM

(INTERNAL)

MARKS 100
CREDITS 5

• Survey on awareness of RTE.
• Students will survey a school for SWOT analysis.

BABED-LSTC11
LIFE SKILLS TRAINING

MARKS 100 (INTERNAL)
CREDITS 5

Following two skills will be selected:
• Skill of creative thinking
• Skill of communication

For skill of creative thinking; Brain storming session and steps of creative problem solving will be used by the teachers to orient the students and provoke them for creative expressions.
For skill of communication, the students will participate actively in giving presentations (subject related), speak on various issues in morning assembly and express themselves effectively in the class, in various activities of different papers. These will be supervised by the teacher educators of the institution.

TUTORIALS
The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.
### B.A. B.Ed.

#### SEMESTER–II (Session 2017-18)

#### COURSE STRUCTURE FOR SEMESTER II

<table>
<thead>
<tr>
<th>S.N.</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC03</td>
<td>PHILOSOPHICAL &amp; PSYCHOLOGICAL FOUNDATIONS OF EDUCATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-EDUC04</td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-ENGC21</td>
<td>ENGLISH</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>ONE OF TWO</td>
<td>BABED-PBIC21</td>
<td>PUNJABI HISTORY &amp; CULTURE OF PUNJAB</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HCPC21</td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>THREE OF NINE</td>
<td>BABED-ECOO21</td>
<td>ECONOMICS ENGLISH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ENGO21</td>
<td>GEOGRAPHY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-GEOO21</td>
<td>HINDI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HINO21</td>
<td>HISTORY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO21</td>
<td>POLITICAL</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO21</td>
<td>SCIENCE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO21</td>
<td>PUNJABI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO21</td>
<td>SOCIOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-MATO21</td>
<td>MATHEMATICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-SCHOOL</td>
<td></td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
PAPER I: BABED-EDUC03: PHILOSOPHICAL AND SOCIOLOGICAL FOUNDATIONS OF EDUCATION

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

hours= 3 hours

Objectives
At the end of semester, the students will able to:

- define the concept of education and give details of its parameters.
- identify the relationship between philosophy and education.
- identify the relationship between sociology and education.
- describe the philosophy of the educational thinkers, prescribed in the syllabus.
- identify the relationship of education with socio-cultural change, modernization and social mobility.

Course Content:

Unit I
Education: meaning and concept, comparison of education with training, instruction and indoctrination, salient features of education, scope of education.
Types of education – formal, in-formal and non formal

Unit II
Philosophy: concept, nature, scope and relationship with education
Sociology: concept, nature, scope and relationship with education

Unit III
Educational thinkers of India: Guru Nanak, Gandhi, Vivekananda and Tagore; their philosophies and educational priorities

Unit IV
Education as a function of socio-cultural change: modernization, socialization, social stratification, social mobility

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include projects like:
Students will be divided into teams of 5-6 students. Each team will prepare sessional papers on any one school with respect to socio-cultural belief of school. All the teams will be evaluated by the concerned teacher.

Evaluation Scheme
The evaluation will be based on:
vi) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
vii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).
viii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).
ix) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings
PAPER II: BABED-EDUC04: PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

hours= 3 hours

Objectives
At the end of semester, the students will be able to:

• describe concept of educational psychology and explain its significance
• discuss the meaning of intelligence, measurement and theories.
• understand individual differences, their meaning, areas & role in individual development.
• understand the nature and needs of exceptional children.
• understand the recent trends in the education of exceptional children.

Course Content
Unit I
Psychology: meaning, nature and scope
Educational psychology: concept, nature, scope and objectives.
Role of psychology in Educational theory and educational practices
Unit II
Intelligence: meaning and concept, nature, theories of intelligence (Spearman, Thurstone, Guilford, Gardner), concepts of IQ, EQ and SQ, measurement of intelligence
Unit III
Aptitudes and their Measurement
Attitude and their Measurement
Interests and their Measurement
Unit IV
Exceptional children- concept, types of exceptional children and their needs
Trends in the education of exceptional children: inclusive education, mainstreaming, normalization, least restrictive environment, deinstitutionalization
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include projects like:
1. Use of an intelligence test: understand the rationales of an intelligence test. Administer it on a small group and write its interpretations.
2. Visit to a recognized school and make a summary on problems and needs of the adolescents.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).
iii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).
x) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings


PAPER III: BABED-ENGC21: ENGLISH COMPULSORY

Marks
(Credits)

Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10
(0.5)
Examination
hours= 3 hours

Objectives:
At the end of semester, the students will be able to:
• Make use of competence in all the four skills i.e. Listening, Speaking, Reading and Writing.
• Describe and use new pedagogic practices in the teaching of both language and literature.
• Describe implications of teaching/learning language through literature.

Course Content

Prescribed text:
<table>
<thead>
<tr>
<th>Unit</th>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit I</strong></td>
<td>Poetry: Reference to Context</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(one out of two paragraphs to be attempted)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questions from poetry</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(two out of four two be attempted in 100-120 words)</td>
<td></td>
</tr>
<tr>
<td><strong>Unit II</strong></td>
<td>Prose: Reference to context</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(one out of two paragraphs to be attempted)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questions from prose</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(two out of four two be attempted in 100-120 words)</td>
<td></td>
</tr>
<tr>
<td><strong>Unit III</strong></td>
<td>Letter Writing (personal and official)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Grammar: Narration, Preposition, Conjunctions, synonyms</td>
<td>5</td>
</tr>
<tr>
<td><strong>Unit IV</strong></td>
<td>Comprehension of unseen passage</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Translation from Hindi to English. Four out of six sentences</td>
<td>4</td>
</tr>
</tbody>
</table>

**Teaching Learning Experiences**

In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

**Evaluation Scheme**
i) Theory paper will consist of ten questions i.e. two questions from each unit with internal choice. The students will be required to attempt one question from each of the five units (40 marks: 2 Credits).

ii) Internal assessment will be based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit).

**Suggested Readings:**


**PAPER IV: BABED-PBIC21: PUNJABI (COMPLUSORY)**

**Marks (Credits)**

- **Total** = 50 (2.5)
- **Theory** = 40 (2)
- **Internal Assessment** = 10 (0.5)
- **Examination hours** = 3 hours

**Objectives**

- हिंदी पेपर का भंडार बनाने की प्रभावना और निरीक्षण का केंद्रित अभिव्यक्ति करना है।
- हिंदी भाषा के लिए वर्तमान के शिक्षण के लिए बनाए जाने वाले साधनों का उपयोग करना है।
- हिंदी भाषा का वर्तमान स्तर में उपचार और समस्याओं की हल करने के के प्रश्नोत्तरी में बनाए जाने वाले उत्तरों का निरीक्षण करना है।
- हिंदी भाषा के माध्यम से विभिन्न स्तरों के लिए कविता, कहावत, संस्कृति आदि का विभिन्न लिपियों का मिश्रण विभाजन करना है।

पाठ्यक्रम

1. भंडार बनाने का केंद्रित अभिव्यक्ति करना है।
Unit-I
1. वर्ग वर्गीकृति (मध्ये दो पहलेड लेख) प्रमुख लिखें जिमे तिन वर्गीकृति दर प्रकार दाम वे मात्र स्पष्ट (2 लिखें लिखित) 5 marks
2. वर्गीकृति मूलयों लिहिने मनोरंजन वर्गांमधील लिखें धारवधाकरण वर्ग (ते लिखें लिखित) 5 marks

Unit-II
वर्गीकृति मूलयों लिखें मध्यें प्लॅटद देखील पृथक (प्लॅट 4 मामले देखील रूपभाषा ते लेख्या)
अठपूर्वांत लिखेंं पृथक ते प्लॅटद लिखित 10 marks

Unit-III
1. मूलया गुंड लेनमार्क प्रकार (मध्यें, मध्यमांकज्ञता ते वेब वेब तल मध्यमांक) 5 marks
2. भ्रमणेंं: अभ्यास के आधार घड़ीपटिके। 5 marks

Unit-IV
सिद्धांत : समांद देखील लिखित
1. पृथक ते पृथक गुण : पृथक लीला वन्यजीवां, भंडारी दे भंडारी पत्तीमध (मध्यम साठ पहाड) पत्तीमध पत्तीमध दे सिद्धांत पत्तीमध : पत्तीमध दे बैलचौबाट
2a. लिखित पृथक
लेट : वेब वेब राजें ध्वसतील सिद्धांतल दे उदाहरण तल दी ध्वसतील ध्वसतील पाठ पृथक लिखेंं 2 पृथक लिखित सेट सिद्धांत सिद्धांत लिखेंं ध्वसतील। (जिथे अठपूर्वांत लिखेंंं पृथक तलें उन)

10 marks

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form internal assessment based on terminal examination, attendance, classroom interactions, etc. (20%).
Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of eight questions i.e. two questions from each unit with internal choice. The students will be required to attempt one question from each of the four units (40 marks: 2 Credits).

ii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit)

Suggested Books:

1. व्यक्ति वार्तामंगल. डा. परमेंद्र वेंड, भारतीय वि. विद्या संस्थान, छिन्निगढ़।
2. भौसागर डप्पा लिखी अथवा हिन्दी वयस्क भाषा (2006) लेख गीता पुस्तकालय, छिन्निगढ़।
3. भौसागर अभिव्यक्ति के अभिव्यक्ति देने के भौसागर मंगल, भौसागर अंडटी विचारितें टेलिस्ट बूंदे बेंक, छिन्निगढ़।
4. भौसागर मेजब लेखाक महत्व, भौसागर मरूदीय विचारितें टेलिस्ट बूंदे बेंक, छिन्निगढ़।
5. न्यूबीयोर्क मिश्र (डा.) वार्ता भौसागर विचारित, भौसागर मरूदीय विचारितें टेलिस्ट बूंदे बेंक, छिन्निगढ़ 1999
6. नास्त्रत, वेल्ज्नी, भौसागर विचारित देने वृंद वर्ण अथवा सागर धुर्य, नास्त्रत, भारतीय वि. विद्या संस्थान, छिन्निगढ़।
7. आयुतिल भौसागर विचारित नियमरत देने वृंदीयविचार बुधवार बेंक (2004), आयुतिल ध्विविचार, छिन्निगढ़।
8. आयुतिल भौसागर वाणि हर्जन देने हिन्दीवाणि प्राकृत कारक हिन्दीवाणि मिश्र (1983), बारू लाजवा चैफ भौसागर अभिव्यक्ति।
9. आयुतिल भौसागर वाणि हर्जन से सूचना उत्थान कारक (1998), वार्तामंगल आयुतिल ध्विविचार, छिन्निगढ़।
10. भौसागर विचारित नियमरत अथवा हिन्दीवाणि बुधवार (डा.), वेल्ज्नी पुस्तकालय, छिन्निगढ़, 2008
11. सुषमा हर्जन. सुषमा सुभाष चैफवाल (2008), लेख गीता पुस्तकालय, छिन्निगढ़।
PAPER IV: BABED-HCPC21: HISTORY AND CULTURE OF PUNJAB

Marks (Credits)

Total  = 50 (2.5)
Theory = 40 (2)
Internal Assessment =
10 (0.5)

Examination

hours= 3 hours

Objectives
At the end of the semester, the students will be able to:

• discuss the impact of Alexander invasion
• highlight the developments that occurred during the period of Mauryas, Kushnas, Guptas, Pushyabhutis and Turkish invasion

Course Content
Unit-I
Alexander's invasion on Punjab
Impact of Alexander’s invasion on Punjab

Unit II
Social, economic and religious life in Punjab during Mauryas reign
Social and religious life in Punjab during Kushnas reign

Unit III
Depiction of Punjab in the accounts of Chinese Travellers- Fahien & Hwen Tsang
Social and cultural life in Punjab during Guptas reign
Punjab under the Pushyabhutis

Unit IV
Society and culture in Punjab on the eve of Turkish invasion
Development of art, Literature and education in Punjab (with special reference to Taxila)

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 %).

Evaluation Scheme
The evaluation will be based on:

In all, nine questions will be set. Each question will carry 8 marks (40 marks: 2 Credits).

iii. First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 8 marks and shall be compulsory.
iv. Rest of the paper shall contain 4 units. Each unit shall have two essay type questions and the candidate shall attempt one question from each unit.

v. Each essay type question will be set on half of the topics and not on a single sub-topic.

vi. Internal Assessment based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit).

**Suggested Readings**


---

**OPTIONAL SUBJECTS - PAPER V and VI (100 Marks each)**

The student is required to take up three elective/optional subjects from the following eight subjects. Each subject will be of 100 marks.

1) English
2) Hindi
3) Punjabi
4) History
5) Political Science
6) Economics
7) Sociology
8) Geography

**1. ENGLISH (ELECTIVE)**

BABED-ENGO21

**Marks (Credits)**

- **Total = 100 (5)**
- **Theory = 60 (3)**
- **Sessional Work = 20 (1)**
- **Internal Assessment = 20 (1)**

**Examination hours= 3 hours**

**Objectives**

At the end of semester, the students will be able to:
• make use of competence in all the four skills i.e. listening, speaking, reading and writing.
• describe implications of teaching/learning language through literature.
• develop the power of imagination through literature.

Section A
The following Essays, Stories and Plays from the Prescribed book “A Collection of Essay, Short Stories and One Act Plays, Ed R.K. Kaushik and S.C. Bhatia, New Delhi OUP, 2006 ( included in section A ) are recommended for second semester
Essay 1-6
Stories 1-6
Plays 1-4

Unit I
Literary terms/concept (five out of eight) 15

Unit II
Ten short questions to be attempted out of fourteen, based on A Collection Essay, Short Stories and one Act Plays” (each to be answered in not more than 30-40 words) 15

Unit III
Paragraph writing (based on outline, situation, a string of question) Use of the same words: as different parts of speech (text based) 7

Unit IV
Applied grammar
1. Correction (Match Columns) 8
2. Translation from vernacular into English 7

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations by the teacher. The remaining will be covered in the form of individualized work comprising of a project on:
• preparing a report on writings of any writer mentioned in course content.

Evaluation Scheme
The evaluation will be based on:
1) Theory paper will consist of 60 marks (3 credits). There shall be four units of 15 marks each.
2) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).
3) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).
Suggested Readings:

2. HINDI (ELECTIVE)

BABED-HINO21

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

Objectives

अध्ययन प्रक्रिया के समापन के उपरान्त विद्यार्थीं -
• उपन्यास की परिभाषा, तत्त्व और वर्णकर्त्थ करें।
• कहानी की परिभाषा, तत्त्व और वर्णकर्त्थ के संबंधित दो प्रश्नों का उत्तर लिखें।
• झारखंड की राजी के संदर्भ में उसके नामकरण, कथावस्तु चरित्र, उद्देश्य के आधार पर समीक्षा करें।
• भक्तिकाल की परिस्थितियों का संक्षेप वर्णन करें।
• संत काव्य प्रेमाध्यानक रामकाव्य व कृष्ण काव्य में विभेद विशेषताएं लिखें।
• मुहावरों व लोकोक्तियों का प्रयोग करें।
• लिए गए मुहावरे व लोकोक्तियों का प्रयोग करें।
• विज्ञ पत्र लेखन की विधि का प्रयोग करें हेतु एक विज्ञ पत्र लिखें।
• परिभाषित शब्दावली का प्रयोग करें (संलग्न शब्दावली)।

Course Content

Unit I

समीक्षा विद्यालय
केवल उपन्यास और कहानी;
कृति उपन्यास की परिभाषा, तत्त्व और वर्णकर्त्थ समझने।
भाषा कहानी की परिभाषा, तत्त्व और वर्णकर्त्थ प्रश्न पूछे जाएं।
# Unit II

ज्ञानी की जानी-व्यवस्थन लाल वर्मा - मंगोल प्रकाशन, ज्ञानी नामकरण, कथावस्तु, चरित्र, उद्घाटन के आधार पर समीक्षात्मक प्रश्न पूछे जायेंगे। इस खण्ड में संदर्भ सहित व्याख्या पूरी नहीं पूरी जायेंगी।

# Unit III

व्यावहारिक व्याकरण
कद्व भवितकाल की परिवर्तनियाँ, सल्लकाव्य प्रेमासाक्षात काव्य, रामासाक्षात्र कृष्ण काव्य की विशेषताएँ, कबीर, जायसी, सूरदास और तुलसी

# Unit IV

(क) निजी पत्र-लेखन
(ख) परिभाषिक शब्दावली (संलग्न शब्दावली)

## A
1. Abbreviation
2. Absence
3. Accommodation
4. Advice
5. Allegiance

## B
11. Basic pay
12. Birth Date
13. Block
14. Board
15. Break in Service

## C
17. Cancel
18. Clarification
19 Closing Balance
20. Committee
21. Competence

## D
28. Dealing Assistant
29. Dearness Allowance
30. Department
31. Deputy Secretary
32. Dissent

## E
36. Encashment
37. Entry
38. Evidence
39. Expert
40. Export

## F
42. Fitness Certificate
43. Fresh Receipt (F.R.)

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Abbreviation</td>
<td>संक्षिप्ति</td>
</tr>
<tr>
<td>1</td>
<td>Absence</td>
<td>अनुपस्थिति, निरस्तरतिती</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Accommodation</td>
<td>परस्परी, सलाह, सूचना, संसाधन</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Advice</td>
<td>परामर्श, सलाह, सूचना, संसाधन</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Allegiance</td>
<td>निष्ठा</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Basic pay</td>
<td>मूल वेतन</td>
</tr>
<tr>
<td>11</td>
<td>Birth Date</td>
<td>जन्म तिथि, जन्म की तारीख</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Block</td>
<td>खंड, व्याख्य</td>
</tr>
<tr>
<td>13</td>
<td>Board</td>
<td>बोर्ड, मंडल</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Break in Service</td>
<td>सेवा में व्याख्यान</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Cancel</td>
<td>रद्द करना</td>
</tr>
<tr>
<td>17</td>
<td>Clarification</td>
<td>स्वपनिकरण</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Closing Balance</td>
<td>अंत--शेष, रोकः बाकीन</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Committee</td>
<td>समिति</td>
</tr>
<tr>
<td>20</td>
<td>Competence</td>
<td>स्थानित</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Dealing Assistant</td>
<td>संवाहित सहायक</td>
</tr>
<tr>
<td>28</td>
<td>Dearness Allowance</td>
<td>महागाई संस्था</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Department</td>
<td>विभाग</td>
</tr>
<tr>
<td>30</td>
<td>Deputy Secretary</td>
<td>उपसाहित</td>
</tr>
<tr>
<td>31</td>
<td>Dissent</td>
<td>विसम्बिति, विस्मिति, विविधता, अहसमिति</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Encashment</td>
<td>भुगतान, लुधाना</td>
</tr>
<tr>
<td>36</td>
<td>Entry</td>
<td>प्रविष्टि, इंद्राज, प्रवेश</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Evidence</td>
<td>साहित्य, गवाही, प्रमाण</td>
</tr>
<tr>
<td>38</td>
<td>Expert</td>
<td>विशेषज्ञ</td>
</tr>
<tr>
<td>39</td>
<td>Export</td>
<td>निर्यात</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>अक्षर</th>
<th>शब्द</th>
<th>संक्षिप्ति</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Fitness Certificate</td>
<td>स्वस्थता प्रमाणपत्र, योग्यता प्रमाणपत्र</td>
</tr>
<tr>
<td>42</td>
<td>Fresh Receipt (F.R.)</td>
<td>नई आवश्यकि</td>
</tr>
</tbody>
</table>
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits)
   Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit.
   \[(15 \times 4 = 60 \text{ marks}).\]

ii) Supervised sessional work: project work, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Project
1. हिंदी के किती भी उपन्यासकार के उपन्यास की समीक्षा
2. पारिभाषित शब्दावली से संबंधित कविता संज्ञात सैमार करें।

Suggested Reading
1. दिशित भागीरथ (2003), समीक्षालेख, इन्द्रप्रस्थ प्रकाशन, दिल्ली।
2. जैन निर्मला (2006), नई समीक्षा के प्रतिज्ञा, तेजसल पुस्तकशाला हाउस, दिल्ली।
3. चतुर्वेदी राजेश्वर प्रसार (2008) हिंदी व्यक्तरण, उपकार प्रकाशन, आगरा।
4. सहाली एस. श्री. शर्मा आद. पी. (2007) संवैधानिक हिंदी व्यक्तरण, सहाली प्रकाशन, आगरा।
5. वृद्धावन लाल वर्मा (1995) झांसी की राजी, मयूर प्रकाशन, झांसी।
6. कविता हरदयाल (2009) हिंदी साहित्य का इतिहास, मयूर पे珀ब्रेक्स, लोहड़ा।
7. राजाराम कल्पना (2009) जिबेंथ बोध, स्पेक्ट्रम बुक्स प्रा. लि., दिल्ली।

3. PUNJABI (ELECTIVE)

**BABED-PBIO21**

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Theory = 60 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>100 (5)</td>
</tr>
<tr>
<td>Sessional Work</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Examination hours</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

**Objectives**

- लिखित पेपर से मंजूर हिंदी साहित्यकारों की आधुनिक विषय में विषयीय समस्याओं का पूरा विश्लेषण केन्द्रित है।
- संगठन तथा धर्म तथा इनके संकल्पनात्मक विचार में सम्बन्धित है।
- पंजाबी साहित्य से विषय विषयक हिंदी साहित्यकारों की विद्वानों के पूरे ज्ञान है।
- साहित्य से विषय विषयक सम्पूर्ण विषयीय समाधान है।
- पंजाबी साहित्य साहित्यीय लेखकों का साहित्यीय में समाधान।

**पाठ्यक्रम**

1. आधुनिक पंजाबी वर्तन्य एवं भाषा
2. पंजाबी तात्पर्य
3. पंजाबी साहित्य से विषय
4. टेक्स्ट लेखन एवं समाप्ति
5. साहित्य अभ्यास

**लेखन**

1. तत्काल पर्यावरण (टंकी) ब्रह्मबहुत्व सिद्ध, आधुनिक पंजाबी विषय (1901 तीन: डे, 2000 तीन: डे), ग्रामीणवाद तथ्य, पंजाब प्राकृतिकता, खंडीवाद।
2. संस्कृत, भारतीय अधिम धार्मिक, धीरे पर्यावरण, नलियाड़।
3. लिखित, आधुनिक एवं प्राचीन, समाप्ति पर्यावरण, नलियाड़।
Teaching Learning Exercises

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

Project Work

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

Suggested Books:

<table>
<thead>
<tr>
<th>Category</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Learning Exercises</td>
<td>Teaching Learning Exercises</td>
</tr>
<tr>
<td>Project Work</td>
<td>Project Work</td>
</tr>
<tr>
<td>Suggested Books</td>
<td>Suggested Books</td>
</tr>
<tr>
<td>Teaching Learning Exercises</td>
<td>Teaching Learning Exercises</td>
</tr>
<tr>
<td>Project Work</td>
<td>Project Work</td>
</tr>
<tr>
<td>Suggested Books</td>
<td>Suggested Books</td>
</tr>
</tbody>
</table>
4. HISTORY
BABED-HISO21

HISTORY OF INDIA 1200-1750 A.D.

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

hours= 3 hours

Objectives:

At the end of the semester, the students will be able to:

• discuss the important phases of Indian history with the beginning of Turkish invasion which had tremendous influence in Indian society and polity.
• discuss the politics and establishment of new forms of political institution from the period 1200 to 1750 A.D.
• explain in detail study the rise of new languages, religious beliefs and social custom.
• highlight main trends in Indian history prior to the advent of the British power.

Course content

Unit-I

1) Establishment and Consolidation of the Delhi Sultanate: The conquests of Muizuddin of Ghor and their impact; the consolidation of Turkish rule under Ilutmish and Balban
2) The Khalijis: The Conquests of Alauddin Khillji; his administrative, agrarian and market reforms
3) The Tughluqs: Muhammad bin Tughluq’s administrative experiments and their impact; Feroze Shah Tughluq’s administrative and economic reforms and their consequences

Unit-II
1) The Vijaynagar Kingdom: Establishment and expansion; administration and economy
2) Foundation of Mughal Empire: Political conditions of India on the eve of Babur's invasion; conquests of Babur; causes of his success
3) The Afghans: Establishment of second Afghan empire under Sher Shah Suri and his administrative reforms

Unit-III
1) The Mughal Empire under Akbar: His relations with the chiefs of Rajputana; his religious policy; his civil administration
2) The Reigns of Jahangir and Shahjahan: The influence of Nurjahart on Mughal politics; the Deccan policies of Jahangir and Shahjahan
3) The Decline of Mughal Empire: Causes responsible for the decline; responsibility of Aurangzeb

Unit-IV
1) The Rise of the Marathas: Shivaji and his administration
2) Bhakti Movement: Causes responsible for the rise of Bhakti movement; main features; prominent Bhakti saints
3) Map:
   a) Important Historical Places-Lahore, Delhi, Agra, Mathura, Fatehpur Sikri, Chittor, Jaipur, Udaipur, Panipat, Lucknow, Ahmednagar, Poona, Surat, Golkunda, Bijapur, Daultabad
   b) The empire of Alauddin Khalji
   c) The Mughal Empire under Aurangzeb

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:
1) prepare a project report on one historical place situated in Delhi, Agra, or Jaipur etc and explore importance of the place and trends of changes beyond specified periods
2) Identification of important and prominent Bhakti Saints of the region and sketch life history and important preaching’s of those saints.

Evaluation Scheme
The evaluation will be based on:

v) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
vi) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
vii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

5. POLITICAL SCIENCE
BABED-POLO21

POLITICAL THEORY-II

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination
hours= 3 hours

Objectives

At the end of the semester, the students will be able to:
• describe and differentiate the meaning and features of the concept of power, authority and legitimacy;
• explain the meaning, characteristics and significance of the term political culture;
• discuss the meaning of political socialization, its relevance and different agents of political socialization;
• analyze the interrelationship between political culture and political socialization;
• understand the concept of rights and duties of education;
• know the human rights, meaning, significance of universal declaration of human rights.
• describe the significance of environmental education and its protection;
• differentiate the concept of liberty, equality and justice, their kinds and their significance to the civic society and explain how three of these are complimentary to each other;
• describe the concept, theories and types of democracy and how it can be made more practical.

Course Content

Unit-I
Power, authority, legitimacy: meaning and characteristics
Political culture: meaning, characteristics and types
Political socialization: meaning, characteristics and agencies; role of education in political socialization

Unit-II
Rights and duties: meaning, types and relation between the two; essentials of education for practicing rights and duties
Universal declaration of human rights
Environmental education and its protection: issues and decision making

Unit-III
Liberty: meaning, types of its safeguards
Equality: meaning, types and relationship between liberty and equality
Justice: meaning and its various dimensions

Unit-IV
Democracy: meaning, characteristics and types, education for strengthening democracy.
Theories of democracy: Liberal, Marxian and Elitist
Democracy and local self government

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:
- poster making on the environment protection and education.
- making bibliography on any of the topics in the syllabus with minimum 20 books.

Evaluation Scheme
The evaluation will be based on:
vi) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

Suggested Reading

6. ECONOMICS
BABED-ECO-O21
MACRO-ECONOMICS

Objectives
This paper aims to familiarize the student with the generally accepted principles of macroeconomics. It deals with aggregates i.e. consumers as a whole, producers as a whole, exporters and importers as a whole, the effects of government spending and taxation, and the monetary policy of the central bank. The course includes the basic theories of determination of income, consumption, investment, employment, money and interest, inflation, Monetary and Fiscal policies, and business cycles.

Course content
Unit-I
Consumption Function: Average and Marginal Propensity to Consume, Keynes’ Psychological Law of Consumption.
Investment Function: Types of Investment, Investment Demand Schedule and Factors Affecting Investment Decisions, Marginal Efficiency of Capital, Static and Dynamic Multiplier.

Unit-II
Determination of Income and Employment:

Unit-III
Theories of Money and Interest: Functions and Role of Money, Money Market and Capital Markets.
Banking: Major Functions of Commercial Banks; Credit Creation and Credit Control.

**Unit-IV**
Inflation and Macro–Economic Policies: Theories of Inflation; Cost-push and Demand-pull, Measures to Control Inflation, Monetary and Fiscal Policies for Stabilization.
Trade Cycle: Meaning and Phases

**Teaching Learning Experiences**
In this paper, 60% academic transactions will be directed by teachers in the form of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:

- to explore some of the investment type in their own respective areas
- to visit one of the commercial bank in their surrounding and prepare a list of important functions the bank is performing and compare it with some other banks.

**Evaluation Scheme**
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

**Recommended Readings:**
SOCIETY
BABED-SOCO21
SOCIAL STRATIFICATION

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

Objectives
After the completion of the semester, the students will be able to:
  • describe concept and meaning of social stratification.
  • explain elements of social stratification.
  • analyze the theories of social stratification.
  • describe the concept, meaning and indicators of social mobility.

Unit I
Social stratification – meaning, features and functions; inequalities – social and natural.
Elements: Differentiation, Hierarchy, Ranking, Reward, Evaluation.

Unit-II
Theories of social stratification:
Functionalist – Davis and Moore.
Conflict – Karl Marx.
Class, Status, Party– Max Weber

Unit-III
Forms of Social stratification: Caste, Class, Race and Gender.
Interface between caste and class.

Unit-IV
Social Mobility – Meaning, types, factors.
Indicators – Education, Occupation, Income.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:
  • create a poster that compares the three major theories of social stratification
  • social reformers who fought against caste discrimination Or social reformers who worked for the welfare of women.

Evaluation Scheme
The evaluation will be based on:
  i) Theory paper will consist of 60 marks( 3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be
It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings
8. GEOGRAPHY
BABED-GEOO21
PHYSICAL GEOGRAPHY (CLIMATOLOGY & OCEANOGRAPHY)

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours = 3 hours

Objectives
At the end of the semester, the students will be able to:
- define climatology and discriminate climate and weather.
- describe physical structure of the atmosphere and highlight attributes of each division of atmosphere.
- discuss meaning and distribution and its types of Insolation.
- discuss various types of atmosphere distribution like tropical cyclones, temperate cyclones and anticyclones.
- enumerate and describe characteristics of each of the forms of condensations, precipitation forms.
- describe bases of various classifications of climate.
- define concept of oceonology, explain its features and factors controlling world patterns of distributions of temperature and salinity.
- describe movements of oceanic waters, and explain characteristics features of waves and currents.
- describe types of marine flora, fauna and deposits and give reasons how these may be used as storehouse of resources for the future.

Course Content

UNIT-I
Definition of Climatology: Concepts of Climate and Weather, Nature and scope of climatology
Climate: Elements and Controls.
Physical Structure of the Atmosphere: Troposphere, Tropopause, Stratosphere, Ozonosphere, Mesosphere, Thermosphere and Exosphere (attributes of these layers).
Physical and Chemical Composition of the Atmosphere: Dust particles, Vapour Particles, Active gases, Inert gases.
Insolation and Temperature: Distribution of Insolation (horizontal); Distribution of Temperature (vertical, horizontal, annual, seasonal and diurnal), mechanism of heat transfer

UNIT-II
Atmospheric Pressure and Wind Distribution: Atmospheric disturbances: Tropical Cyclones, Temperate Cyclones and Anticyclones, air masses
Atmospheric Moisture: Condensation forms: cloud, dew, fog, frost and snow. Precipitation: forms and types, world patterns (spatial and seasonal).

Introduction to Koppen’s classification of world climate

Role of Climate in Human Life: Atmospheric pollution and global warming: causes, consequences and measures of control

UNIT-III
Oceanography: Definition, nature and scope, Topography of the Ocean Basins; Continental Shelf, Continental Slope, Abyssal Plain, Ridges, Deeps and Trenches, trough, guyot, seamount

Temperature and Salinity of ocean waters: World patterns and controlling factors

UNIT-IV
Movements of Oceanic Waters: Waves, Tides and Currents; Surface currents of the oceans;

Marine Deposits and Corals: Origin and types. Oceans as storehouse of resources for the future,

Role of ocean currents in heat distribution over the globe.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work.

1. The teacher will assign to record temperature in the locality of the students for one week and report the implications of this recording. In case it is possible, short field trips may be organized.

2. The teacher will assign collection of Flora, Fauna and Deposits from the respective area of habitation of students.

3. Throughout the course, conscious effort will be made to make the students aware of the significance of climate to human life. Slides, photographs, documentaries on oceans may be used to illustrate the various aspects of oceanography.

Evaluation Scheme
The evaluation will be based on:

v) Theory paper will consist of 60 marks (3 Credit) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

vi) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

vii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

9. MATHEMATICS
BABED-MATO21

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

Objectives
At the end of the semester, the students will be able to:
• understand the various concepts related to sphere, cylinder, cone and conicoids.
• discuss the curvature of a curve at a point.
• describe the reduction formulae.
• apply the definite integrals in finding the volumes and surfaces of solids of revolution.
• find out the relation between roots and co-efficients.
• describe the Newton’s method of divisors.
• explain the Descartes’ and Ferrari’s method for a bi-quadratic.

UNIT-I: SOLID GEOMETRY-I
i. Transformation of axes: Shifting of origin and rotation of axes.
   Sphere: Section of a sphere and a plane, spheres through a given circle, intersection of a line and a sphere, tangent line, tangent plane, angle of intersection of two spheres and condition of orthogonality, power of a point w.r.t. a sphere, radical axis, radical center, co-axial family of spheres, limiting points.
ii. Cylinder: Cylinder as a surface generated by a line moving parallel to a fixed line and through a fixed curve, different kinds of cylinders such as right circular, elliptic, parabolic and hyperbolic cylinders in standard forms, enveloping cylinders.

UNIT-II: SOLID GEOMETRY-II
i. Cone: Cone with a vertex at the origin as the graph of a homogeneous equation of second degree in x,y,z, cone as a surface generated by a line passing through a fixed curve and a fixed point outside the plane of the curve, reciprocal cones, right circular and elliptic cones, right circular cone as a surface of revolution obtained by rotating the curve in a plane about an axis, enveloping cones.

UNIT-III: CALCULUS-II
i. Concavity, convexity and points of inflexion, Multiple points, Asymptotes, Tracing of curves (Cartesian and parametric co-ordinates only).
   Curvature: Curvature of a curve at a point, radius of curvature of cartesian, parametric, polar curves and for implicit functions , evolute and involute, chord of curvature.
ii. Integral calculus: Integration of hyperbolic and inverse hyperbolic functions. Reduction Formulae.
   Numerical Integration: Trapezoidal, Prismoidal and Simpson Rules.
   Application of definite integral: Summation of Series, Quadrature, rectification, volumes and surfaces of solids of revolution (Cartesian co-ordinates only).

UNIT-IV: THEORY OF EQUATIONS
i. Euclid’s algorithm, synthetic division, roots and their multiplicity. Complex roots of real polynomials occur in conjugate pairs with same multiplicity. Relation between roots and co-efficients, Transformation of equations, Descartes’ Rule of Signs.

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work like:
• teacher may familiarize the students with examples of course content
• teacher will give extensive practice in the mathematical skills.
Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2 x 6 = 12 marks).
iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from each of four units (one from each subpart of the unit) of the syllabus will be set, out of which the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).
iii) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20 marks: 1 credit).
iv) Internal Assessment based on terminal examinations, attendance & classroom interaction (20 marks: 1 credit).

References:

ONLY IN SEMESTER II
ENVIRONMENT AND ROAD SAFETY EDUCATION (COMPULSORY)

UNIT I (ENVIRONMENT)
course)

1) Environment concept: introduction, concept of biosphere-lithosphere, hydrosphere, atmosphere; natural resources-their need and types; principles and scope of ecology; concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession
2) Atmosphere: parts of atmosphere, components of air; pollution, pollutants, their sources, permissible limits, risks and possible control measures
3) Hydrosphere: types of aquatic systems; major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water
shortage; pollution and pollutants of water, permissible limits, risks and possible control measures

4) Lithosphere: earth crust, soil-a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures

5) Forests: concept of forests and plantations, types of vegetation and forests, factors governing vegetation, role of trees and forests in environment, various forestry programmes of the govt. of India, urban forests, chipko andolan

6) Conservation of environment: the concepts of conservation and sustainable development, why to conserve, aims and objectives of conservation, policies of conservation; conservation of life support systems-soil, water, air, wildlife, forests

7) Management of solid waste: merits and demerits of different ways of solid waste management- open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming

8) Indoor environment: pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics

9) Global environmental issues: global concern, creation of UNEP; conventions on climate change, convention on biodiversity; stratospheric ozone depletion, dangers associated and possible solutions

10) Indian laws on environment. : Indian laws pertaining to environmental protection: environment (protection) act, 1986; general information about laws relating to control of air, water and noise pollution. What to do to seek redressal

11) Biodiversity: what is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; hotspot zones of the world and India, biodiversity act, 2002

12) Noise and microbial pollution: pollution due to noise and microbes and their effects

1) Human population and environment: population growth and family welfare programme, human health, HIV AIDS, human rights

2) Social Issues: environmental ethics: issues and possible solutions, problems related to lifestyle, sustainable development: consumerisms and waste generation

3) Local environmental issues: environmental problems in rural and urban areas, problem of congress grass & other weeds problems arising from the use of pesticides and weedicides smoking etc.

Practical
Depending on the available facility in the institute, a visit to vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/trees could be taken and report be prepared.

Evaluation Scheme
Above 15 topics to be covered in 25 hour lectures in total, with 2 lectures in each topics from 2 to 11 and one each for the topics 1 & 12 to 15.

**UNIT II (ROAD SAFETY)**

1. Concept and Significance of Road Safety.
2. Role of Traffic Police in Road Safety.
4. Traffic Signs.
5. How to obtain Driving License.
7. Common Driving mistakes.
8. Significance of First-aid in Road Safety.
9. Role of Civil Society in Road Safety.

**Examination Pattern :**

- Seventy multiple choice questions (with one correct and three incorrect alternatives and no deduction for wrong or un-attempted question).
- The paper shall have two units: Unit I (Environment) and Unit II (Road Safety).
- Unit I shall comprise of 50 questions with minimum of 2 questions from each topics 1, and 12 to 15 and minimum of 4 questions from topics 2 to 11.
- Unit II shall comprise of 20 questions with minimum of 1 question from each topics 1 to 10.
- The entire syllabus of Unit I is to be covered in 25 hours and that of Unit II is to be covered in 10 hours.
- All questions are to be attempted.
- Qualifying Marks 33 per cent i.e. 23 marks out of 70.
- Duration of examination : 90 minutes.
- The paper setters are requested to set the questions strictly according to the syllabus.

**Suggested Readings**


Websites:
www.chandigarhpolice.nic.in
www.punjabpolice.gov.in
www.haryanapolice.gov.in
www.hppolice.nic.in

GENERAL PRACTICUM

BABED-SRPC21
SCHOOL RELATED PRACTICUM

MARKS 100
(INTERNAL)
CREDITS 5

Following individual/ cooperative activities will be taken up:
• Visit to a recognized school for exceptional children and prepare a report.
• They will visit an area where migratory population dominates that habitation and study the relationship between education and social mobility.

BABED-LSTC21
LIFE SKILLS TRAINING

MARKS 100
(INTERNAL)
CREDITS 5

Two skills will be taken up:
1 Skill of decision making
2 Skill of problem solving

TUTORIALS
The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.

..
### Course Structure for Semester III

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Nature</th>
<th>Subject Code</th>
<th>Subject Title</th>
<th>Lecture</th>
<th>Practical</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Compulsory</td>
<td>BABED-EDUC05, BABED-EDUC06</td>
<td>Human Development, School Community Participation</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Compulsory</td>
<td>BABED-ENGC32</td>
<td>English</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>One of Two</td>
<td>BABED-PBIC32, BABED-HCPC32</td>
<td>Punjabi History &amp; Culture of Punjab</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Compulsory</td>
<td>BABED-SRPC32</td>
<td>School Related Practicum</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Compulsory</td>
<td>BABED-LSTC32</td>
<td>Life Skills Training</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total** | 40
Objectives

After the completion of the semester, the students will be able to:
• describe the concept of human development and its significance for education.
• discuss the principles of human growth and development.
• describe the role of education in development and growth.
• enumerate different stages of growth and development in the life span of human being. Describe characteristics features of each stage.
• explain various theories of human development.

Course Content

Unit I  
Human Development: need, scope, significance and principles. Role of education in human development

Unit II  
Developmental aspects: physical, intellectual (with special reference to linguistic), emotional, social and spiritual.

Unit III  
Stages of growth and development in the life span with their characteristics features
a) Pre-natal period and birth
b) Infancy
c) Early childhood
d) Late childhood
e) Adolescence

Unit IV  
Theories of human development: psycho analytical theory (Freud), psycho social theory (Erikson), behavioral theory (Bandura), cognitive theory (Piaget).

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:
• trace a family tree of own or others family and study the hereditary similarities and variations in physical, temperamental aspects of members of different generations

Evaluation Scheme
The evaluation will be based on:
  xi) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in
all. Each question will carry 12 marks.

xii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).

xiii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).

xiv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings

PAPER II: BABED-EDUC06: SCHOOL COMMUNITY PARTICIPATION

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours = 3 hours

Objectives
After the completion of the semester, the students will be able to:
- describe the concept of Universalisation of Elementary Education and its significance.
- discuss concept of Sarv Shiksha Abiyan and its implementation.
- define the meaning and concept of Life Long Education.
- describe concept and implementation of Vocationalization of Education.
- understand the role of NCERT, SCERT, SIE, DIET, Village Education Committees, NGO’s and Parent-teacher Associations.
Course Content

Unit I  Universalization of Elementary Education: concept, significance, measures, progress since Independence, initiatives taken for UEE. Sarv Shiksha Abhiyan: concept, implementation and hurdles in implementation.

Unit II  Life Long Education: concept, importance, techniques and causes of slow progress.

Unit III  Vocationalization of Education: concept, importance, recommendations by different Commissions and implementation.

Unit IV  Role of different Agencies: NCERT, SCERT, SIE, & DIET in Education. Role of village education committees, parent-teacher associations, NGO’s for promotion of Education

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising:

- visiting a school at the time of parent-teacher meet and spend one day with the teacher to understand functioning of PTA’s.
- meet one or two members of a village education committee and prepare a report on the role, functions and status of VEC in promotion of primary education of that village.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).

iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings

PAPER III: BABED-ENG32: ENGLISH (COMPULSORY)

Marks (Credits)

Total Marks (Credits) = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)

Objectives of Teaching English
After instructions, the students shall be able to:

• Make use of competence in all the four skills i.e. Listening, Speaking, Reading and Writing.
• Describe and use new pedagogic practices in the teaching of both language and literature.
• Devise and promote student centric pedagogic techniques for the teaching of English.
• Describe implications of teaching/learning language through literature.

Prescribed Text


Poetry Section
1. Ode to Autumn
2. The Road Not Taken
3. Money Madness
4. I, too

Prose Section
1. Mr Know all
2. Film Making
3. Not Just Oranges
4. A Talk on Advertising

Unit I
Long answer type questions from Poetry in 100-120 words: three out of four to be attempted 6
Reference to context from poetry. One out of two passages to be attempted 4

Unit II
Long answer type questions from Prose (in about 100-120 words) two out of four to be attempted 6
Ref to context from prose, one out of two passages to be attempted 4

Unit III
1. Paragraph writing (based on post reading activities suggested in the prescribed texts)
   One out of three to be attempted. The examiner will set three topics for paragraph writing from the post reading activities suggested in the prescribed text.

2. Note Making (one out of two to be attempted)
   The examiner will set two paragraphs based on the prescribed text for note making.

Unit IV
Grammar
1. Non finite verbs
2. Punctuation (a short paragraph)
3. Do as directed
   Remove “too”, Interrogative, Assertive to Negative, Exclamatory to Assertive

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc.

Evaluation Scheme
The evaluation will be based on:
   i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (40 marks: 2 Credits).
   ii) Internal assessment based on terminal examinations, attendance and classroom interactions etc. (10 marks: 0.5 Credit).

Suggested Readings
2. Colours of Expression by Harbhajan Singh published by Chandigarh: Publication Bureau, Panjab University.
Objectives

• लिखित पेपर पर मंदिर विलिंगालिखित ही लिखित देने साधू बनता है।
• लिखित का चुनावी अपितुत्तर बनने ही मुख वैद्य बनता है।
• लिखित का विभिन्न भेद देना विभिन्न देना विभिन्न देना विभिन्न देना है।
• लिखित पंडूर लगीं लिखित के उद्दीपन धर्म पुरातात्त्व कूट विभाग है।
• पंजाबी बँधा बने मंदिर की पूरी बनता है।

प्रकार

1. पंजाबी मंदिरालिखित पर लिखितालिखित पर अपितुत्तर
2. लिखित पंडूर
3. पंजाबी बँधा
4. लिखितकर

लेख

पंजाब भाषा (मंथन): पंजाबी मंदिर अविद्यु, परिपातविद्यु, कविता, पंजाब शृंगारमिटी, चंडीगढ़।

Course Content

Unit-I

(डे) पंजाबी मंदिर (संध: पंजाबी मंदिर अविद्यु) भुमिका लिखें लिखे लिखे लिखे लिखे लिखे लिखे 5 अंक
(डौ) लिखित देने मंदिर लिखित बने मंदिरालिखित लिखित बने मंदिरालिखित लिखित बने मंदिरालिखित 5 अंक

Unit-II

(डे) पंजाबी मंदिर लिखें मंधेब िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं िंदिलं 10 अंक

Unit-III

(डे) पंजाबी बँधा से मंधेब, विलिंग दे विलिंग (ई पृष्टलं लिखे लिखे लिखे लिखे) 10 अंक
Unit-IV

Teaching Learning Experiences

In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, class interactions, snap test etc.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of eight questions two from each unit. The students will be required to attempt one question from each of the four units (40 marks: 2 Credits).

ii) Internal assessment based on terminal examinations, attendance, classroom interactions etc. (10 marks: 0.5 Credit).

Suggested Readings

1) ਪੰਜਾਬੀ ਅਧਿਕਾਰ ਪੁਸਤਕਾਂ ਦੇ ਅਧਿਕਾਰ, ਪੰਜਾਬ ਦੱਬਲ ਕਕਸਪ੍ਰੇਸ, ਪੰਜਾਬ ਦੱਬਲ ਕਕਸਪ੍ਰੇਸ, ਪੰਜਾਬ ਦੱਬਲ ਕਕਸਪ੍ਰੇਸ, ਪੰਜਾਬ ਦੱਬਲ ਕਕਸਪ੍ਰੇਸ.
2) ਪੰਜਾਬੀ ਅਧਿਕਾਰ ਪੰਜਾਬੀ ਅਧਿਕਾਰ, ਪੰਜਾਬ ਸਟੈਟ ਪੰਜਾਬੀ ਇਕਾਸਟ ਪੰਜਾਬੀ ਇਕਾਸਟ ਪੰਜਾਬੀ ਇਕਾਸਟ.
3) ਦੇਸ਼ਕ ਟੀਲ ਦੀਸ਼ਤਲਵਾਲਿਕਾ ਦੀਸ਼ਤਲਵਾਲਿਕਾ ਦੀਸ਼ਤਲਵਾਲਿਕਾ ਦੀਸ਼ਤਲਵਾਲਿਕਾ, ਸੰਪਾਦਨ, 1981
6) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 1999 ਸੰਪਾਦਨ, 1999
7) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 1997 ਸੰਪਾਦਨ, 1997
8) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 1999 ਸੰਪਾਦਨ, 1999
9) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 2012 ਸੰਪਾਦਨ, 2012
10) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 2000 ਸੰਪਾਦਨ, 2000
11) ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ ਅਭਿਆਸ, ਸੰਪਾਦਨ, 2004 ਸੰਪਾਦਨ, 2004
Objectives
After the completion of the semester, the students will be able to:
• describe the religion, political conditions of Punjab.
• explain characteristic features of society and culture in Punjab during Turko-Afghan rule.
• highlight characteristics features of society in Punjab during Mughal regime.
• discuss concept, salient features and impact of Bhakti movement and Sufism on society of Punjab.
• describe life, travels and teachings of Guru Nanak with special emphasis on concept of Langar and Sangat.
• trace the development of Sikhism in Punjab.
• explain the contributions of Guru Angad Dev, Guru Amar Das and Guru Ram Das.
• describe how Adi Granth was compiled.

Course Content
Unit-I
Society and culture in Punjab during the Turko-Afghan rule
The Punjab under the great Mughals

Unit II
Bhakti movements – salient features and impact on society
Sufism in Punjab – salient features and impact on society

Unit III
Guru Nanak – life and travels
Teaching of Guru Nanak, concept of Langar and Sangat and Gurudawara
Development of Sikhism under Guru Angad Dev

Unit IV
Development of Sikhism – contribution of Guru Angad Dev, Guru Amar Das and Guru Ram Das
Compilation of Adi Granth and martyrdom of Guru Arjun Dev

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc.

Evaluation Scheme
In all, nine questions will be set. Each question will carry 8 marks.
vii. First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 8 marks and shall be compulsory. Rest of the paper shall contain four units. Each unit shall have two essay type questions and the candidate shall attempt one question from each unit. Each essay type question will be set on half of the topics and not on a single sub-topic. (40 marks: 2 Credits)

ii) Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks: 0.5 Credit).

Suggested Readings
5. Singh, K.(1990), History and Culture of the Punjab-Part II (Medieval Period). Publication Bureau, Punjabi University, Patiala.

(C) OPTIONAL SUBJECTS (PAPER V and VI)
The student is required to take up three elective/optional subjects from the following nine subjects in semester I these will continue till semester VI. Each of these optional papers will be of 100 marks.

i) English
ii) Hindi
iii) Punjabi
iv) History
v) Political Science
vi) Economics
vii) Sociology
viii) Geography
ix) Mathematics

1. ENGLISH (ELECTIVE)
BABED-ENGO32

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
</tr>
</tbody>
</table>

Objectives
After the completion of the semester, the students will be able to:
- make use of competence in all the four skills i.e. listening, speaking, reading and writing.
- describe implications of teaching/learning language through literature.
- develop the power of imagination through literature.
Text Prescribed:
William Shakespeare: The Merchant Venice

Literary terms and definitions:
Drama, Liturgical Drama, Miracle Plays, Mystery Plays, Catharsis, Tragic Hero, Revenge Tragedy, Poetic Drama, Nyth and Drama, Rithual and Drama, Yaksgana, Theory, Indian theory of drama, Pupperty, Verse drama, Ardhnarishwra, myth of Dionysus, Organic unity, Interlude, Mimesis.

Unit I
Five literary terms out of eight are to be attempted in about 50-60 words 15

Unit II
Reference to context from the prescribe play
The examiner will set three passage/stanzas from the prescribed play. The students will attempt any two out of three.
Long answer type question in about 300-350 words from prescribed text. One out of two is to be attempted

Unit III
Dialogue Writing 7
Identify figures of speech in sentences 8
Simile, Metaphor, Alliteration, Assonance

Unit IV
Grammar and composition: (15 marks)
1. Idioms and Phrases
2. Complete the incomplete sentences
3. Combine two sentences into one with conjunctions
4. One word substitution
5. Comprehension (unseen passage)

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:
• preparation of report on literary works of Jane Austen

Evaluation Scheme:
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 Credits). There shall be four units of 15 marks each.
ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

2. Hindi (Elective)
BABED-HINO32

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
</tbody>
</table>

उदेश्य
अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थी: 
• दिए गए कवियों की पाठमानसत के सन्दर्भ में व्याख्या—सहित खंड करेंगे।
• कवि—परिचय, सार और उदेश्य सम्बन्धित प्रश्न कर सकेंगे।
• एक सार हरिशंकर सन्दर्भ सहित व्याख्या करेंगे।
• पाठों के चरित्र विचार, तत्वों के आचार पर नाटक की समीक्षा तथा समस्या कर सकेंगे।
• तर्कगणि व उसे संबंधित लघु प्रश्नों के उत्तर लिख सकेंगे।
• शैलिकाल की परिस्थितियाँ, नामकरण, सीमा निर्धारण, प्रूढ़ियाँ, शैलिकाल और शैली मुक्त काव्य की प्रमुख विशेषताओं का वर्णन कर सकेंगे।
• शैली काव्य के प्रमुख कवियों के सम्बन्ध में समीक्षात्मक प्रश्न का उत्तर दे पाएंगे।
• आधुनिक काव्य के केंद्र कविता खंड में से भारतेन्दु गुप्त, द्विचौरी गुप्त, छायावाद, प्रगतिवाद, प्रयोगावाद, और नई कविता के प्रमुख प्रूढ़ियों सम्बन्धित समीक्षा लिख सकेंगे।

Course Content
Unit I

<table>
<thead>
<tr>
<th>तर्कगणि—मनोहर ताल आनन्द</th>
</tr>
</thead>
<tbody>
<tr>
<td>पंजाब सूचिपत्र पथलेखन ब्यूरो, लण्डन</td>
</tr>
<tr>
<td>मित्रसिद्ध कवि पाठमान में निर्धारित हैं :</td>
</tr>
<tr>
<td>मैथिलीशायर गुप्त, जयशंकर प्रसाद, चूर्णकान्त चिह्नानी निराला, चुम्बकनानन्द पंत</td>
</tr>
<tr>
<td>(क) सन्दर्भ—सहित व्याख्या—खंड करने होंगे। कुल चार खंड पूछे जाएंगे।</td>
</tr>
<tr>
<td>(ख) कवि—परिचय सार और उदेश्य सम्बन्धी प्रश्न पूछे जाएंगे।</td>
</tr>
</tbody>
</table>

Unit II

<table>
<thead>
<tr>
<th>एक सरल हरिशंकन</th>
</tr>
</thead>
<tbody>
<tr>
<td>डा. लक्ष्मी नारायण लाल, राजस्थान एण्ड सिन्ह नई दिल्ली</td>
</tr>
<tr>
<td>(क) सन्दर्भ सहित व्याख्या के लिये दो खंड पूछे जाएंगे, उत्तर एक का ही देना होगा।</td>
</tr>
<tr>
<td>(ख) पाठों के चरित्र विचार, तत्वों के आचार पर नाटक की समीक्षा तथा समस्या सम्बन्धी प्रश्न पूछे जाएंगे उत्तर एक का ही देना होगा।</td>
</tr>
</tbody>
</table>
Unit III
हिंदी साहित्य का इतिहास—रीतिकाल (केवल काव्य खण्ड)
रीतिकाल की परिस्थितियां, नामकरण, सीमा निर्धारण, प्रबंधितं, रीतिवाद और रीति मुक्त काव्य की प्रमुख विशेषताएं, रीति काव्य के प्रमुख कवि—केशव, बिहारी, पनानंद पर आधारित समीक्षात्मक प्रश्न।

Unit IV
हिंदी साहित्य का इतिहास—आधुनिक काल केवल काव्य खण्ड
आधुनिक काल के केवल कविता खण्ड में से भारतेंदु युग, द्वितीय युग, छायावाद, प्रगतिवाद, प्रवारितवाद और नई कविता की केवल प्रमुख प्रबंधितं पर आधारित समीक्षात्मक प्रश्न।

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining will be covered in the form of individualized work comprising of a project on:
1. पाठ्यक्रम में दिये गये किसी भी एक कवि के कविताओं की समीक्षा करें।
2. रीति काल के किसी एक कवि के लेखन कार्य की समीक्षा करें।

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits)
   Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (15x4 = 60 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

संदर्भग्रंथ सूची
1- बाहरी हरदेव (2004) हिंदी उद्वभव विकास और रूप, किलाव महल, इलाहाबाद।
2- सिंह बहादुर (2008) हिंदी साहित्य का इतिहास, भाव प्रकाशन, यमुना नगर।
3- साहनी एस.बी. एवं शर्मा अरविंद. (2007) समवाल हिंदी व्याकरण, साहनी प्रकाशन, आगरा।
4- चुटुर्गी राजेंद्र प्रसाद (2008) हिंदी व्याकरण, उपकार प्रकाशन, आगरा।
5- नगेन्द्र इंद्रदास (2009) हिंदी साहित्य का इतिहास, मंगूर पेपरबैक्स, नोएडा।
3. PUNJABI (ELECTIVE)
BABED-PBIO32

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

Objectives

- हिंदी भाषा में इतिहास विषय की अध्यायों को सही तरीके से समझते हैं।
- सही समय में हिंदी भाषा विषय की अध्यायों को सही तरीके से समझते हैं।
- पांडव सामुदायिक विभागों के इतिहास के उदाहरण को सही तरीके से समझते हैं।
- बौद्ध सामुदायिक विभागों के इतिहास के उदाहरण को सही तरीके से समझते हैं।
- जानिंदारी ज्ञान को बहुत बढ़ाने के लिए समझते हैं।

पाठ्यक्रम

1. पांडव सामुदायिक विभागों
2. सही समय में हिंदी भाषा विषय की अध्यायों
3. पांडव सामुदायिक विभागों के इतिहास (1701 ई. से 1900 ई.
4. सही समय में हिंदी भाषा विषय की अध्यायों
5. सही समय में हिंदी भाषा विषय की अध्यायों

वेबस

1. पांडव सामुदायिक विभागों (संशोधन एवं विश्लेषण)
2. सही समय में हिंदी भाषा विषय की अध्यायों (संशोधन एवं विश्लेषण)
3. पांडव सामुदायिक विभागों के इतिहास (1701 ई. से 1900 ई.
4. सही समय में हिंदी भाषा विषय की अध्यायों (संशोधन एवं विश्लेषण)
5. सही समय में हिंदी भाषा विषय की अध्यायों (संशोधन एवं विश्लेषण)

Course Content

<table>
<thead>
<tr>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT – 1</td>
<td>8</td>
</tr>
<tr>
<td>(II) अपनी सामाजिक समस्याओं (संशोधन एवं विश्लेषण) पुस्तक से प्रमुख सामुदायिक विषयों (या विषयों विभाग)</td>
<td>8</td>
</tr>
<tr>
<td>(III) भाषा काल से प्रकट सामुदायिक विषयों (संशोधन एवं विश्लेषण) पुस्तक से प्रमुख सामुदायिक विषयों (या विषयों विभाग)</td>
<td>8</td>
</tr>
<tr>
<td>UNIT – 2</td>
<td>8</td>
</tr>
<tr>
<td>(II) अपने सामुदायिक विषयों सही समय में हिंदी भाषा विषय की अध्यायों (संशोधन एवं विश्लेषण) पुस्तक से प्रमुख सामुदायिक विषयों (या विषयों विभाग)</td>
<td>8</td>
</tr>
<tr>
<td>(III) सही समय में हिंदी भाषा विषय की अध्यायों (या विषयों विभाग)</td>
<td>8</td>
</tr>
<tr>
<td>UNIT – 3</td>
<td>7</td>
</tr>
<tr>
<td>जानिंदारी ज्ञान को बढ़ाने के लिए हिंदी भाषा विषय की अध्यायों (या विषयों विभाग)</td>
<td>7</td>
</tr>
</tbody>
</table>

85
UNIT – 4

(II) वेगळी मार्गदर्शी राह रिसिविंग (1701 ते 1900 श्री) मूल बांधपाक, बिंगांना येण बांधिया होता (चें क्रॉफ काळात येणे युक्त) (येणे देणे दिव्य)

(III) डब्ल्युजे बांधपाक : मूल लघु माखन, तम मोहितपाक, बज़ेलडी, मंधुरपाक, (येणे युक्त देणे दिव्य)

5 अंक

(IV) डब्ल्युजे गिलानीमध्ये : टांब्लाली बांध, बिररडी बांध, अधिक, गुठ्ध बांध, जन्मददान, धंश देणे दिव्य

(येणे युक्त देणे दिव्य)

5 अंक

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining will be covered in the form of individualized work comprising of a project on:

- भौतिकी अंशांच्या वाद्यांमध्ये अंश शक्तिशाली दिव्य
- भौतिकी मार्गदर्शी दिव्य दुर्गीद स्वेट टिक्केंट रचना वेगळण

Evaluation Scheme

The evaluation will be based on:

Theory paper will consist of 60 marks (3 Credits).

i) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

ii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings:

1. भौतिकी अंशांचा सारांश (मापा: ) लाक्षण मिठ, धवळीवेर्ष विभिन्न, इंग्रज यूनिवर्सिटी, चेंडीगढ़ (किंउपार्श्व बाथी: वायु वनीकर, भौतिकी वैज्ञान, शास्त्र चौकेता लघु माखन अयां,मार्गदर्शी, धीर भौतिकी)

2. भौतिकी मार्गदार्शी लाक्षण विभिन्न (1968) विविध माध्यम बंटल, धवळीवेर्ष विभिन्न मिठ विभिन्न वैज्ञान, लाक्षण चौकेता सामर्थ्यां

3. भौतिकी मार्गदार्शी लाक्षण विभिन्न (1987) इंग्रज यूनिवर्सिटी, चेंडीगढ़

4. भौतिकी मार्गदार्शी लाक्षण विभिन्न (1972) इंग्रज यूनिवर्सिटी, पटिक्का

5. मैन लाक्षण, अभिज्ञान दर मैनलाक्षण, विभिन्न विभिन्न वैज्ञान, चेंडीगढ़
Objectives
After the completion of the semester, the student will be able to:
- describe the cause for the rise of British power in India.
- describe with a focus on the rise of national consciousness against the British Colonialism in 1857.
- describe the role of nationalist leaders like Gandhi and other political leaders in freedom struggle of India.
- describe and differentiate various socio-religious reform movements for modernizing India.
- explain the growth of communal politics and ideology that became an important cause of partition of India.

Unit-I
Foundation of British rule: Circumstances leading to the battles of Plassey and Buxar and their significance; Dual system of Clive; reforms of Warren Hastings
Administrative reforms: Reforms of Cornwallis, William Bentinck and Dalhousie
The uprising of 1857: Political, socio-religious, economic and immediate causes; failure; results; nature of the uprising

Unit-II
Economic changes: British agrarian policies; commercialization of agriculture; rural indebtedness; de-industrialization and growth of modern industry; theory of economic drain
Socio-religious reform movements: Brahmo Samaj; Aligarh Movement; Arya Samaj; Ramakrishna Mission; Swami Vivekananda's contribution
Depressed classes movement: Contribution of Jyotiba Phule, B.R. Ambedkar and Mahatama Gandhi

Unit-III
Growth of political consciousness: Causes for the growth of political consciousness/nationalism; foundation of the Indian National Congress; national movement up to 1919
Indian National Movement: Gandhi's emergence; circumstances leading to the non-cooperation movement and its significance; demand for complete independence; the civil disobedience movement
Rise of communal politics: Factors responsible for the growth of communal politics; separate electorate; Muslim League and Pakistan resolution

Unit-IV
Towards partition and independence: Quit India Movement; British proposals for independence; Indian independence act of 1947
Significant developments after independence; 1947-64: making of the constitution; integration of princely states; the reorganization of states; industrial and agricultural development

**Map:** Important historical places - Delhi, Calcutta, Madras, Bombay, Goa, Pondicherry, Surat, Plassey, Buxar, Gwalior, Jhansi, Hyderabad, Sabarmati, Amritsar, Lucknow, Lahore and Aligarh
Extent of the British Empire in 1856
Republic of India in 1950

**Teaching Learning Experiences**
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:
- to prepare a scrapbook or project report on freedom struggle of India.
- documentary movie (Indian independence struggle and partition)

**Evaluation Scheme**
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits). The syllabus has been divided into four units. There shall be 9 questions in all. The first question shall be short answer type containing 10 questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 6 short answer type questions i.e. 2 marks of each. It shall carry 12 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit. Each question carries 12 marks. The paper-setter would avoid repetition between different types of questions within one question paper.

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit)

**Suggested Readings**


5. **POLITICAL SCIENCE**

**BABED-POLO32**

**INDIAN GOVERNMENT AND POLITICS**

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total = 100 (5)</strong></td>
</tr>
<tr>
<td><strong>Theory = 60 (3)</strong></td>
</tr>
<tr>
<td><strong>Sessional Work = 20 (1)</strong></td>
</tr>
</tbody>
</table>
Objectives
After the completion of the semester, student will be to:

- describe the making of India’s constitution, composition and characteristics of the constituent assembly.
- highlight the nature of Indian constitutional system.
- describe the nature and types of fundamental rights.
- discuss the directive principals of state policy, meaning of directive principals of state policy, utility of directive principals and how they are different from fundamental rights.
- explain the nature of Indian federalism and centre-state relations.
- describe the constitutional provisions about the election, powers and functions of the Indian President.
- explain the Indian parliamentary system, composition of the cabinet and powers and functions of the Prime Minister.
- enumerate the features of Indian judicial system, powers of the supreme court and composition and jurisdiction of the High Courts.
- discriminate the role of Governors, powers and functions of the council of ministers and Chief Minister and explain the composition and powers of state assembly.

Course content

Unit-I
Basic Features of Indian Constitution.
Preamble and its perceptions.
Indian Federalism- Meaning & its features.
Centre State Relations (Legislative, Administrative & Financial).

Unit-II
Fundamental Rights (Art14-Art 32)- Meaning, Explanation, Criticism & Importance.
Fundamental Duties- Meaning, Explanation, Evaluation (Criticism & Importance).

Unit-III
President: election, powers, position and changing role
Parliament: composition, powers and role
Indian cabinet and Prime Minister: election, powers and position
Supreme Court and High Court: composition, powers and role in the Indian constitutional process

Unit-IV
Governor : Appointment, powers and role.
State Legislature : Composition, powers and role of Legislative Assembly/Vidhan Sabha.
Council of Ministers and Chief Minister : Election, powers, position and role..
High Court : Composition, powers and its role.
Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:

- corporative working method (making a mock parliament in question answer mode)
- role of mass media in political education
- field trip to the Vidhan Sabha, Secretariat and High Court.

Evaluation Scheme

The evaluation will be based on:

1) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

2) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

3) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

5) Brass, P. (1990), Politics of India since Independence. , Hyderabad Orient Longman.
13) Iqbal, N. (1967), State Politics in India. , Meerut, Meenakshi Parkashan.

6. ECONOMICS
BABED-ECOO32
MACRO-ECONOMICS

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

Objectives
After the completion of the semester, the students will be able to:

• describe the concept and scope of macro economics.
• describe the various theories of income and employment.
• discuss concept and functions of consumption and investment.
• discuss concept and various theories of money and interest.
• describe concept and process of banking and functions of commercial banks.
• describe concept, theories, measures of control of inflation.
• enumerate and discuss various policies to stabilize prices in the Indian economy.

Course content
Unit-I
Introduction: Meaning and Scope of Macro-Economics.

Unit-II
Consumption and Investment Functions: Average and Marginal Propensity to Consume; Static and Dynamic Multiplier; Marginal Efficiency of Capital. Investment: Types, Investment Demand Schedule and Factors Affecting Investment Decisions.

Unit-III
Theories of Money and Interest: Functions and Role of Money, Money Market and Capital Markets.
Banking: Major Functions of Commercial Banks; Credit Creation and Credit Control.
Unit-IV
Inflation and Macro–Economic Policies: Theories of Inflation; Cost-push and Demand-pull, Measures to Control Inflation, Monetary and Fiscal Policies for Stabilization.
Trade Cycle: Meaning and Phases

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:

- to explore some of the investment type in their own respective areas
- to visit one of the commercial bank in their surrounding and prepare a list of important functions the bank is performing and compare it with some other banks.

Evaluation Scheme
The evaluation will be based on:

iv) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

v) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

vi) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings
Objectives
After the completion of the semester, the students will be able to:

- describe meaning, characteristics and elements of social structure.
- discuss the concept, types and factors of social change.
- explain different processes of social change.

Unit -1
Social Structure: Meaning, Characteristics, Elements- Status, Role, Power and Prestige, Norms and Values.

Unit-II
Social Change: Meaning and Features.
Types of Social Change: Evolution (Comte), Revolution (Marx), Development- Changing Connotations.

Unit-III

Unit-IV

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising:

- Collect a number of pictures that illustrate achieved and ascribed status to create a photo-essay showing how the two statuses are very different.
- Debate on internet / mobile use.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings


Further Readings :


8. GEOGRAPHY
BABED-GEOO32
RESOURCES & ENVIRONMENT: WORLD PATTERNS

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
</tr>
</tbody>
</table>

Objectives
After the completion of the semester, the students will be able to:

- describe concept of resources and their interface with environment.
- examine use and misuse of various resources and analyze future prospects.
- discuss various methods and approaches of conservation and management of natural resources.
• discriminate the quantitative and qualitative aspects of human resources in spatial perspectives and the associated environmental problems.

Course Content

Unit-I  Meaning, nature and components of environment. Nature and definition of resources. Resources: Environment interface

Unit-II  Classification of resources: renewable and non-renewable: biotic (forests, wildlife, live-stock, fisheries, agricultural crops) & abiotic (land, water, minerals)

Unit-III Distribution, availability, utilization and conservation of water, minerals and energy resources, their economic and environmental significance and sustainability
Types and distribution of forests- their economic and environmental significance and conservation
Types and distribution of fisheries- their economic and environmental significance and conservation
Major soil types and their distribution-problems of soil erosion and soil conservation

Unit-IV  Human resources: quantitative and qualitative aspects of population; number, distribution, density, growth, literacy and urbanization
Population resources relationship: population-resource regions of the world

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising:
• to survey local area to study biotic resources of the area.
• mapping of a local area; urban and rural, and compare causes of pollution in these areas.

Evaluation Scheme
The evaluation will be based on:
 i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
 ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
 iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

9. MATHEMATICS
BABED-MATO32

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

Objectives
After the completion of the semester, the student will be able to:

- state definitions of various mathematical terms required in the course.
- derive the tests and theorems prescribed in the statement of the syllabus.
- explain limits and continuity of functions of two and three variables.
- State and prove various theorems related to advanced calculus.
- solve problems related with various classes of differential equations.
- solve problems related with transformations and its details, prescribed in the syllabus.

UNIT-I: ADVANCED CALCULUS
i. Limit and continuity of functions of two and three variables, Partial differentiation, Change of variables, Partial derivation and differentiability of real-valued functions of two and three variables, Schwarz and Young’s theorem, Statements of Inverse and implicit function theorems and applications.
ii. Vector differentiation, Gradient, Divergence and Curl with their properties and applications. Euler’s theorem on homogeneous functions, Taylor’s theorem for functions of two and three variables, Jacobians, Envelopes, Evolutes, Maxima, minima and saddle points of functions of two and three Variables, Lagrange’s multiplier method.

UNIT-II: DIFFERENTIAL EQUATIONS
i. Exact differential equations, First order and higher degree equations solvable for x, y, p, Clairaut’s form, Singular solution as an envelope of general solutions, Geometrical meaning of a differential equation, Orthogonal trajectories.
ii. Linear differential equations with constant coefficients, Linear differential equations with variable coefficients- Cauchy and Legendre Equations, Linear differential equations of second order- transformation of the equation by changing the dependent variable/the independent variable, methods of variation of parameters and reduction of order, Simultaneous Differential Equations.
UNIT-III: STATICS-I
i. Basic notions, Composition and resolution of concurrent forces, Components of a force in
given directions, Resolved parts of a force, Resultant of any number of coplanar
concurrent forces.
ii. Equilibrium conditions for coplanar concurrent forces, equilibrium of a body resting on a
smooth inclined plane, Equilibrium of three forces acting at a point – Triangle law of
forces, £-µ theorem, Lami’s theorem, Parallel Forces.

UNIT-IV: STATICS-II
i. Moments and Couples – Moment of a force about a point and a line, centre of parallel
forces, theorems on moment of a couple, Equivalent couples, Varignon’s theorem,
generalized theorem of moments, resultant of a force and a couple, resolution of a force
into a force and a couple, reduction of a system of coplanar forces to a force and a couple.
Equilibrium conditions for any number of coplanar non-concurrent forces.
ii. Friction: Definition and nature of friction, laws of friction, equilibrium of a particle on a
rough plane, Problems on ladders, rods, spheres and circles.

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions
and presentations. The remaining will be covered in the form of individualized sessional work
like:
• teacher may familiarize the students with examples of course content.
• teacher will give extensive practice in the mathematical skills.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be
 compulsory. It will consist of ten short answer type questions of which six are to be
attempted (2 x 6 =12 marks).
iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from
each of four units (one from each subpart of the unit) of the syllabus will be set, out of which
the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).
iv) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20
marks: 1 credit).

References:
4. D. Soma Sundaram and B. Choudhary : A First Course in Mathematical Analysis, Narosa
5. P. K. Jain and S. K. Kaushik : An Introduction to Real Analysis, S. Chand & Co., New Delhi,
   2000.

GENERAL PRACTICUM

BABED-SRPC32
SCHOOL RELATED PRACTICUM

MARKS 100 (INTERNAL)
CREDITS 5

The students will take up following projects:
- team project with 4-5 students to study the status of implementation of Sarv Shiksha Abhiyan in a particular sector and report against criteria of school enrolment, and other facilities.
- Identify 5 children in lower classes study their physical and social aspects of development.

BABED-LST32
LIFE SKILLS TRAINING

MARKS 100 (INTERNAL)
CREDIT 5

- Skill of social relations
- Skill of cooperative and team work

These skills will be polished through school related practicum / projects which involve team work and social interactions. The training will be imparted under the supervision of tutors.

TUTORIALS
The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.
## COURSE STRUCTURE FOR SEMESTER IV

<table>
<thead>
<tr>
<th>S.N.</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC07</td>
<td>CURRICULUM DEVELOPMENT &amp; EVALUATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-EDUC08</td>
<td>GUIDANCE AND COUNSELLING</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-ENGC42</td>
<td>ENGLISH</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>ONE OF TWO</td>
<td>BABED-PBIC42</td>
<td>PUNJABI HISTORY &amp; CULTURE OF PUNJAB</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HCPC42</td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>THREE OF NINE</td>
<td>BABED-ECOO42</td>
<td>ECONOMICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ENGO42</td>
<td>ENGLISH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-GEOO42</td>
<td>GEOGRAPHY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HINO42</td>
<td>HINDI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO42</td>
<td>HISTORY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-POLO42</td>
<td>POLITICAL SCIENCE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-PBIO42</td>
<td>PUNJABI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-SOCO42</td>
<td>SOCIOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-MATO42</td>
<td>MATHEMATICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-SRPC42</td>
<td>SCHOOL RELATED PRACTICUM</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IN FIELD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>COMPULSORY</td>
<td>BABED-PIPC42</td>
<td>PRE-INTERNSHIP PROGRAMME</td>
<td></td>
<td></td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IN FIELD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>COMPULSORY</td>
<td>BABED-LSTC42</td>
<td>LIFE SKILLS TRAINING</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IN FIELD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>42.5</strong></td>
</tr>
</tbody>
</table>
PAPER- I: BABED-EDUC07: CURRICULUM DEVELOPMENT AND EVALUATION

Marks (Credits)
Total  = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 Hours

Objectives
After the completion of the semester, the students will be able to:
• describe the nature and characteristics of curriculum.
• explain the various foundations & components of curriculum.
• differentiate among goals, aims & objectives.
• differentiate among general objectives, course objectives and lesson objectives.
• state levels of course content.
• discuss the need & guiding principles of curriculum development.
• discuss different methods and media used in transactional processes.
• explain different types of evaluation.

Course Content
Unit I
Curriculum: Meaning, Nature, Scope and Philosophical, Sociological and Psychological foundations; Difference between Syllabi & Curriculum; National Goals, Aims & Objectives of a Course, Instructional Objectives, formulating Objectives at different levels of Bloom’s Taxonomy.

Unit II
Curriculum Development: Concept & Guiding Principles.
Course Content: Subject Derivation of Course Content, dividing Subjects into Units & Lessons, Sequence of Contents into Subject centered, Activity centered and Core centered Curriculum.

Unit III
Transactional Processes: Methods & Media, Lecture, Discussion, Tutorials, Laboratory work, Individualized Instruction, Multimedia & Online Instructions..

Unit V

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:
i) Choose a topic from your own area of specialization and write behavioral objectives at different level
   Prepare at least 5 test items of different type.
To critically review secondary school textbooks in order to understand the progression of concepts; the requirement of diverse learning expenses opportunities for individual learning capacities and pace; conceptual demands, scope for spiral learning

**Evaluation Scheme**

The evaluation will be based on:

xv) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

xvi) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).

xvii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).

xviii) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

**Suggested Readings**


**PAPER-II: BABED-EDUC08: GUIDANCE AND COUNSELLING**

Marks (Credits)
Objectives

After the completion of the semester, the students will be able to:

- explain the nature and scope of guidance and counselling.
- discuss the need and principles of guidance and counseling.
- understand different types of guidance.
- explain different types of tools and techniques, their needs and importance.
- describe various guidance and counselling services available in schools.
- explain the organization of guidance programme.

Unit I

Unit II

Unit III
Tools of Guidance & Counselling:

Tools of Guidance
a) Intelligence Tests: Verbal and Non-verbal
b) Aptitude Tests: General and Specific Aptitude Tests
c) Interest Inventories: Vocational/Occupational Interest Inventories, General Interest Inventories
d) Personality Test: Rorschack Ink Bolt Test, Eysenck Personality Questionnaire, Thematic Apperception Test
e) Achievement Test

Techniques of Counselling:

a) Observation
b) Interview
c) Case Study
d) Cumulative Record and Anecdotal Records.

Unit IV

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising:
Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).

iii) Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 credit).

xix) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings

Objectives of Teaching English

After the completion of the semester, the students will be able to:

- Describe and use new pedagogic practices in the teaching of both language and literature.
- Devise and promote student centric pedagogic techniques for the teaching of English.
- Describe implications of teaching/learning language through literature.

Prescribed Text


Poetry Section

1. Goodbye Party for Miss Pushpa T S
2. I Will Embrace only the Sun
3. Refugee Mother and Child
4. This is a Photograph

Prose Section

1. On Shaking Hands
2. No Man is an Island
3. Freedom of the Press
4. An Excerpt from Decolonizing the Mind

Course Content

UNIT I

Questions from Poetry in 100-120 words three out of four are to be attempted, selecting.

UNIT II
Long Answer type questions from Prose (in about 100-120 words) two out of four are to be attempted

UNIT III
Paragraph Writing (based on post reading activities suggested in the prescribed texts) one out of three is to be attempted

Report writing (with internal choice)

UNIT IV
Grammar
Use nouns as verbs or vice versa
Combining pairs of sentences using words give in the bracket
Text based idioms and phrase

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions etc.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (40 marks: 20 Credits).

ii) Internal assessment based on terminal examinations, attendance and classroom interactions etc. (10 marks: 0.5 Credit).

Suggested Readings

PAPER IV: BABED-PBIC42: PUNJABI (COMPULSORY)

Marks (Credits)
Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)
Examination Hours= 3 Hours

Objectives

- हिम पेषण द्वारा निलाष्टर विद्यार्थियों द्वारा हिस्ट्री रंगभूमि विषय में विषय का वेदान्त करना है।
- अध्याय 1 में विषय की रंगभूमि विषय का वेदान्त करना है।
- अध्याय 2 में विषय की रंगभूमि विषय का वेदान्त करना है।
- अध्याय 3 में विषय की रंगभूमि विषय का वेदान्त करना है।

पाठ्रोम

- हिस्ट्री (पाठ: वर्तमान समय) हिस्ट्री रंगभूमि, भविष्यवाणी विज्ञान और वर्तमान जीवनमयी शिक्षा, विज्ञान
- हिस्ट्री के क्षेत्र में विषय की रंगभूमि

Unit-I

- हिस्ट्री (पाठ: वर्तमान समय) हिस्ट्री रंगभूमि विज्ञान विज्ञान के विषय का वेदान्त करना है।
- हिस्ट्री के क्षेत्र में विषय की रंगभूमि का वेदान्त करना है।

Unit-II

- हिस्ट्री रंगभूमि विज्ञान वि-क्षेत्रों द्वारा प्रकट होती है (क्षेत्र का वेदान्त करना है) 10 marks

Unit-III

- अध्याय के अधिक विषय का वेदान्त
- अध्याय के अधिक विषय का वेदान्त

Unit-IV

- हिस्ट्री रंगभूमि विज्ञान
- हिस्ट्री के क्षेत्र में विषय की रंगभूमि (भारतीय, मलयालम, 
- हिस्ट्री के क्षेत्र में विषय की रंगभूमि (भारतीय, मलयालम, 

Teaching Learning Experiences

In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions etc.

Evaluation scheme

The evaluation will be based on:
i) Theory paper will consist of eight questions two from each unit. The students will be required to attempt one question from each of the four units (40 marks: 2 Credits).

ii) Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks: 0.5 Credit).

**Suggested Readings**

1. [Title](author) (1999), [Publisher], [Location].
2. [Title](author) (2000), [Publisher], [Location].
3. [Title](author) (2004), [Publisher], [Location].
4. [Title](author) (2005), [Publisher], [Location].
5. [Title](author) (2012), [Publisher], [Location].

**PAPER IV: BABED-HCPC42: HISTORY AND CULTURE OF PUNJAB**

*(COMPULSORY)*

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 50 (2.5)</td>
</tr>
<tr>
<td>Theory = 40 (2)</td>
</tr>
<tr>
<td>Internal Assessment = 10 (0.5)</td>
</tr>
<tr>
<td>Examination Hours = 3 Hours</td>
</tr>
</tbody>
</table>

**Objectives**

After the completion of the semester, the students will be able to:

- describe the transformation of Sikhism.
- explain impact of Khalsa on the society of Punjab.
- explain struggle for sovereignty and role of Dal Khalsa.
- explain Ranjit Singh’s empire and significant development that occurred during medieval period.

**Course Content**

**Unit I**
Transformation of Sikhism – Guru Hargobind’s new policy
Martydom of Guru Teg Bahadur

**Unit II**
Foundation of Khalsa by Guru Gobind Singh
Impact of the foundation of the Khalsa on the society in Punjab

**Unit III**
Banda Bahadur and his achievements
Sikh struggle for sovereignty from 1716 to 1765 and the role of Dal Khalsa, Rakhi, Gurmat and Misls

Unit IV
Ranjit Singh’s rise to power, civil and military administration, relations with the British
Development of language, literature, education, art and architecture in the Punjab during the medieval period

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions etc.

Evaluation Scheme
In all, nine questions will be set. Each question will carry 8 marks.

viii. First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 8 marks and shall be compulsory. Rest of the paper shall contain four units. Each unit shall have two essay type questions and the candidate shall attempt one question from each unit. Each essay type question will be set on half of the topics and not on a single sub-topic (40 marks: 2 Credits).

ii) Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks : 0.5 Credit).

Suggested Readings
4) Singh, K. (1990), History and Culture of the Punjab. Part -II (Medieval Period). Publication Bureau, Punjabi University, Patiala, (3rd edn.).

(C) OPTIONAL SUBJECTS (PAPER V and VI)
The student is required to continue three elective/optional subjects from the following nine subjects. Each paper will be of 100 marks.
1) English
2) Hindi
3) Punjabi
4) History
5) Political Science
6) Economics
7) Sociology
8) Geography
9) Mathematics

ENGLISH (ELECTIVE)
BABED-ENGO42
Objectives
After the completion of the semester, the students will be able to:

- make use of competence in all the four skills i.e. listening, speaking, reading and writing.
- describe implications of teaching/learning language through literature.
- develop the power of imagination through literature.

Text Prescribed
An Anthology of English Verse
Prescribed poems
i) John Donne: The Sun Rising
ii) Alexander Pope: From Essay on Man
iii) Thomas Gray: Elery written in the Country Churchyard
iv) William Black: The Tiger
v) William Wordsworth: Tintern Abbey
vi) John Keats: Ode to Nightingale
vii) Tennyson: Ulysses
viii) Browning: My Last Duchess
ix) Mattew Arnold: To Marguerite
x) Hopkins: Pied Beauty
xi) A K Ramanijan: History
xii) WB Keats: A Prayer for my Daughter
xiii) TS Eliot: Journey of the Magic
xiv) Thomas Hardy: The Darking Thrush
xv) Philip Larkin: The Trees

Literary Terms

Course Content
Unit I
Five literary terms out of eight are to be attempted in about 50-60 words.

Unit II
Short Answer type questions in about 50-60 words from prescribed text. Five out of seven are to be attempted.
Long answer type questions in about 100-120 words from prescribed text. Three out of five are to be attempted.

**Unit III**

Precisi writing 7
Identifying figures of speech in sentences, metonymy, epithet, oxymoron, epigram, (unseen) 8

**Unit IV**

Grammar
  i) Choose the correct meaning 5
  ii) Complete the incomplete sentences 5
  iii) One word Substitution 5
  iv) Comprehension (unseen passage)

**Teaching Learning Experiences**

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations by the teacher. The remaining will be covered in the form of individualized work comprising of a project:
  • preparation of Report on literary works of G.B. Shaw.

**Evaluation Scheme**

The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 Credits) There shall be four units of 15 marks each.
  ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
  iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

**Suggested Readings**

2. HINDI (ELECTIVE)
BABED-HINO42

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours = 3 Hours

Semester-IV

Objectives
अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थीः

- एकांकी के तत्वों के आधार पर समीक्षात्मक प्रश्न करेंगे।
- पाठ्य क्रम में लिखा गया नाटक और एकांकी की परिभाषा, तत्त्व और वर्गीकरण पर आधारित दोनों विषयों समबंध प्रश्न करेंगे।
- व्यवहारिक व्यक्तित्व समबंध प्रश्न का उत्तर करेंगे।
- निर्दिष्ट विषय पर सार लेखन करेंगे।
- विशाल विषयों का प्रयोग व्यवहारिक रूप में करेंगे।
- देवनागरी लिपि के विकास व गुणों को जानकर दोष व सुधारों के उपायों को तैयार करेंगे।

Unit I
आदर्श एकांकी संग्रह सं. सं. संसार चन्द्र, पंजाब यूनिवर्सिटी पुलिकेंसन ब्यूरो, चन्द्रीगढ़ द्वारा प्रकाशित।
क. एकांकी के तत्वों के आधार पर समीक्षात्मक प्रश्न ,सार--लेखन, चरित्र--चित्रण, उदेश्य समवेते ख. संदर्भ सहित व्याख्या नहीं पूर्ण हो जायेगी।

15

Unit II
समीक्षा सिद्धांत: केवल नाटक तथा एकांकी
परिभाषा, तत्त्व और वर्गीकरण पर आधारित नाटक तथा एकांकी दोनों विषयों समबंध प्रश्न पूर्ण हो जायेगे।

15

Unit III
(क) तकनीकी शब्दावली : केवल प्रशासकीय शब्दावली, (सलाम शब्दावली।)

प्रशासनिक शब्दावली
1) Acceptance
2) Account
3) Accuse
4) Acknowledge (fact etc.)
5) Acknowledgement due
6) Ballot Paper
7) Ban
8) Bonafide

प्रशसनिक शब्दावली
स्वीकृति
लेखा, खाता, हिसाब
अभियोग लगाना
अमिलीकार करना, मानना कबूल करना
रसीद, पाबंदी सहित
मतपत्र, मतपत्री
प्रतिक्रिया, रोक, पाबंदी
सद्भावी, वास्तविक, असली
<table>
<thead>
<tr>
<th>Number</th>
<th>Term</th>
<th>Hindi Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Book –Fair</td>
<td>पुस्तक मेला</td>
</tr>
<tr>
<td>10</td>
<td>Bureau</td>
<td>कार्यालय, ब्यूरो</td>
</tr>
<tr>
<td>11</td>
<td>Cabinet</td>
<td>मंत्री मंडल</td>
</tr>
<tr>
<td>12</td>
<td>Candidate</td>
<td>अयस्क, प्रारंभ, उपमंडल</td>
</tr>
<tr>
<td>13</td>
<td>Care-taker</td>
<td>रखवाला, अयस्क</td>
</tr>
<tr>
<td>14</td>
<td>Cashier</td>
<td>रोकडिया</td>
</tr>
<tr>
<td>15</td>
<td>Censure</td>
<td>मिठा प्रस्ताव, परिनिधा</td>
</tr>
<tr>
<td>16</td>
<td>Decorum</td>
<td>शिफट, शालीनता</td>
</tr>
<tr>
<td>17</td>
<td>Defacto</td>
<td>वस्तुतः</td>
</tr>
<tr>
<td>18</td>
<td>Defaulter</td>
<td>ज्युटिकारी, चूक करने वाला, वाकीदार</td>
</tr>
<tr>
<td>19</td>
<td>Defendant</td>
<td>प्रविष्टिवादी</td>
</tr>
<tr>
<td>20</td>
<td>Depreciation Charge</td>
<td>मूल्यांक, अयस्क, द्वारा प्रभार</td>
</tr>
<tr>
<td>21</td>
<td>Eligible</td>
<td>आयापत, आयापत-स्थिति, आयापतक</td>
</tr>
<tr>
<td>22</td>
<td>Emergency</td>
<td>उपवासी</td>
</tr>
<tr>
<td>23</td>
<td>Emigrant</td>
<td>रोजगार, नौकरी, नियोजन</td>
</tr>
<tr>
<td>24</td>
<td>Employment</td>
<td>रोजगार कार्यालय, रोजगार दफ्तर</td>
</tr>
<tr>
<td>25</td>
<td>Employment Exchange</td>
<td>संरक्षण</td>
</tr>
<tr>
<td>26</td>
<td>Faculty</td>
<td>विशेष, रूपया लगाना</td>
</tr>
<tr>
<td>27</td>
<td>Finance</td>
<td>राजपत्रित अधिकारी</td>
</tr>
<tr>
<td>28</td>
<td>Gazetted Officer</td>
<td>राजविधानिक</td>
</tr>
<tr>
<td>29</td>
<td>Gazetteer</td>
<td>राजपत्रित पद</td>
</tr>
<tr>
<td>30</td>
<td>Gazetted post</td>
<td>अनुदान, स्वीकार करना</td>
</tr>
<tr>
<td>31</td>
<td>Grant</td>
<td>प्रोत्साहन</td>
</tr>
<tr>
<td>32</td>
<td>Incentive</td>
<td>सूचक, अनुमूलक</td>
</tr>
<tr>
<td>33</td>
<td>Index</td>
<td>आदार</td>
</tr>
<tr>
<td>34</td>
<td>Initials</td>
<td>बीमा किया हुआ पत्रा</td>
</tr>
<tr>
<td>35</td>
<td>Insured Letter</td>
<td>अन्तरिक्ष</td>
</tr>
<tr>
<td>36</td>
<td>Interim</td>
<td>निर्णय</td>
</tr>
<tr>
<td>37</td>
<td>Judgment</td>
<td>अधिकार—क्षेत्र</td>
</tr>
<tr>
<td>38</td>
<td>Jurisdiction</td>
<td>खाता</td>
</tr>
<tr>
<td>39</td>
<td>Ledger</td>
<td>पदतोड़दार</td>
</tr>
<tr>
<td>40</td>
<td>Lessee</td>
<td>संपर्क अधिकारी</td>
</tr>
<tr>
<td>41</td>
<td>Liaision Officer</td>
<td>अनुमोदन, भरण—पोषण, रख—रखाव</td>
</tr>
<tr>
<td>42</td>
<td>Maintenance</td>
<td>व्यक्त, बालिंग, मेजर, प्रादेश या प्रक्षेत्र, व्यवस्थाकर्म, मेजर या अर्थस्थान, नाबालिक, अभ्यासक एकाधिकारी, एकाधिकार राजदृष्टिकरण संधियाँ, समाजीय की बातचीत</td>
</tr>
<tr>
<td>43</td>
<td>Major</td>
<td>विवस्त्रति लेख, असहमति लेख</td>
</tr>
<tr>
<td>44</td>
<td>Manager</td>
<td>अनुमूलक, अनुमोद, अभ्यासक योजना आयोग</td>
</tr>
<tr>
<td>45</td>
<td>Minor</td>
<td>पूर्तित, अप्रति कार्यअधिकारि सार्वजनिक, आम, सरकारी, लोक गणपूर्ति, कोर्स</td>
</tr>
<tr>
<td>46</td>
<td>Monopoly</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Nationalization</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Negotiation</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Note of Dissent</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Notification</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Oath Commissioner</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Offender</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Permissible</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Planning Commission</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Precedence</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Procedure</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>Public</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Quorum</td>
<td></td>
</tr>
</tbody>
</table>
### Unit IV

#### Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:

- 50 ऐसे समावेशित शब्दों की सूची बनायें जो मिन्नार्क्य योग्य हो।
- पाठ्यक्रम में दी गयी एकांक में से 4–5 विद्यार्थी के समूह में एकांक प्रस्तुत करें।

#### Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits)

Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (15x4 = 60 marks).

ii) Supervised sessional work: project work, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

#### Suggested Readings

1. चन्द्र संसार (2006) आदर्श एकांकी संग्रह, पंजाब यूनिवर्सिटी पब्लिकेशन ब्यूरो, चन्द्रीगढ़।
2. कृमार सुशील (2009) सामान्य हिंदी, प्रायोगिक पुस्तक भवन, इलाहाबाद
3. सिंह बहादुर (2008) हिंदी साहित्य का इतिहास, माध्य प्रकाशन, यमुनानगर।
4. PUNJABI (ELECTIVE)
BABED-PBIO42

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 Hours

Objectives
- धिम धेष पर डियेड दिलिकायकीवाहे तू हृदयालय बैणाथ बहुदिकी मुंहोल साध्वीभन्दी टेक्टै है।
- बहुत ही लड़ी दिलिकायकीवाहे तू अनुकूल हूँ देख ईंधन बड़नु बुझै है।
- पृष्ठभुक्त देख एकिफाम कांधी वस्थी तू खेत माध्यम बुझै है।
- बहुत ही मात्रिय वृद्ध व्यष्ट दिलिकायकी मुंहोल व्रजु है।
- माटिय अनेकर बने बाँधकी टेक्टै।

पाठ्यांग
1. हृदयालय की बदोहिरी बहुदिक
2. बहुत ही शब्दांक
3. पृष्ठभुक्त देख एकिफाम (1701 से 1900 उंच)
4. अध्यादेशुम
5. धिमधुषु दिलिकायकी

लेख्म
1. हृदयालय बैणाथ सूत्रीवाहरे (मेंट) ड़। प्रमिय मिथष, पवलीवेश दिविजवेश, भन्नाथ पुलिडविदमी, चंडीगढ़।
   (धिमधुषु वरी : प्रमिय छम, छदी मिथष, पवलीवेश अधे बड़नु मिथष)
2. बड़नु (मेंट) सुलिक़ सुवाज, पवलीवेश दिविजवेश, भन्नाथ पुलिडविदमी, चंडीगढ़।

UNIT – 1
(४) हृदयालय बैणाथ सूत्रीवाहरे (मेंट: ड़। प्रमिय मिथष) प्रमिय विदेश वैणोन माटिय दिलिकायकी (दे दिच्चे दिच्चे)
   १६ माइंग
(अ) धिमधुषु वरी, प्रमिय विदेश दिच्चे दिच्चे दिच्चे दिच्चे दिलिक वा दिच्चे टेक्टै दे माय बुझै (दे दिच्चे दिच्चे)
   ७ माइंग

UNIT – 2
(४) बड़नु (सुलिक़ सुवाज, पवलीवेश दिविजवेश) प्रमिय विदेश वैणोन, छिम, भन्नाथ दिलिक दे वा बुझै सूत्रीवाहरे मेंटी पुलिड़ (दे दिच्चे दिच्चे)
   ८ माइंग
(अ) क्षणी मंजूरिंग रहें विभे राजस्थानी संस्कृत पुस्तक (हे पुस्तक तिथि शिक्षा बचत)

UNIT – 3
वर्णि मंजूरिंग वर्णि मंजूरिंग विभा रेडियूल संकलन पुस्तक (पुस्तक रेडियूल विघ्न मार्ग रे द्ये त्यिे)

UNIT – 4
(१) पंजाबी मानिखं रं रुविंद्र (1701 दी 1900 दी) संस्कृतभा अठे विधान मानिखं (हे विठ संकलन)

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project on:

- पंजाबी संस्कृतानि दी गलेकलकोटिश्चन दिशा मंजळी
- भान्नन्क बाह्य दी सीलट, उसका अठे विधान बाहे रखें

Evaluation Scheme

The evaluation will be based on:

iii) Theory paper will consist of 60 marks (3 Credits).
iv) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
v) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

1. पंजाबी संस्कृतानि रं रुविंद्र (1701|1900) पंजाब गृहीतविमेटी, चंडीगढ़।
2. पंजाबी संस्कृतानि रं रुविंद्र (1701|1900) पंजाब गृहीतविमेटी, पटिमाला।
3. पंजाबी संस्कृतानि रं रुविंद्र- दि. पंजाबतर सिंघ रंग सिंघ (1972), पटिमाला।
4. संस्कृतानि सिंघ के बाबुबीश्वर-संपा. सिंघराम सिंघ वर्देल (2001) रंग सिंघ, पटिमाला।
5. संस्कृतानि दिक्का मुनीपी(संघर्) दि. पंजाब सिंघ, कवित्रवेदसं, सिंघ गृहीतविमेटी, चंडीगढ़।
(विघ्नशालिन दवे : उच्छ, दी भगवान, अप्रजानच, सय युव्ताच, द्वाच्चाँ मिंघ)।
6. अध्याय पुस्तक (संघर्) मुरलिचर कृष्ण कर्मेश्वर, कवित्रवेदसं, सिंघ गृहीतविमेटी, चंडीगढ़।
Objectives
After the completion of the semester, the students will be able to:

- analyze various socio-religious reform movements.
- explain Ranjit Singh’s empire and its relationship with the British and significant development that occurred during medieval period.
- analyze phases of freedom struggle and developments that occurred after independence.

Course content

Unit-I
Guru Nanak Dev: life and teachings of Guru Nanak; concept of langar; sangat; guru gaddi; his views on position of women
Expansion and consolidation of Sikhism: contribution of Guru Angad; Guru Amar Das and Guru Ram Das
Guru Arjun Dev: his contribution to the Panth; compilation of the Adi Granth; causes and significance of the martyrdom of Guru Arjun Dev

Unit-II
Development of Sikhism: Guru Hargobind’s new policy and its justification; martyrdom of Guru Tegh Bahadur and its significance
Creation of the Khalsa: circumstances leading to the creation of Khalsa and its significance; the new injunctions and symbols of the Khalsa; post Khalsa activities of Guru Gobind Singh
Banda Singh Bahadur: establishment of independent rule; his achievements;
Socio-economic transformation

Unit-III
Punjab under Ranjit Singh: civil & military administration; land revenue system;
Anglo-Sikh relations upto 1839
British Rule: circumstances leading to the annexation of the Punjab; British administrative structure
Socio-religious reform movements: Namdharis; Singh Sabha; Arya Samaj

Unit-IV
The phases of freedom struggle: agitation of 1907; the Ghadar movement; the Jallianwala Bagh; the Gurudwara reform movement; circumstances leading to the partition of the Punjab
Developments after independence: rehabilitation and resettlement after partition; Punjabi suba movement; the reorganisation act of 1966; agrarian changes with special reference to the Green revolution

Map:

- Important historical places - Amritsar, Goidwal, Anandpur Sahib, Chamkaur Sahib, Kiratpur, Kartarpur, Ponta Sahib, Sirhind, Muktsar, Taran Taran, Lahore, Machhiwara, Ropar and Kapurthala
- Battles of Banda Bahadur
- Ranjit Singh's Kingdom

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising:

- visit to an important historical place of Punjab and study historical development of that place through primary and secondary sources.
- prepare a note of important contribution of one of the historical place in the freedom struggle of India.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

4) Singh, K. (1990), History and Culture of the Punjab, Part -II (Medieval Period). Publication Bureau, Punjabi University, Patiala, (3rd edn.).
Objectives
After the completion of the semester, the students will be able to:

- explain the party system in India, understanding national political parties, their ideologies, organizations and electoral performances explain the process of e-governance, advantages and disadvantages
- analyze the working of the Election Commission.
- discuss the meaning of caste, its difference with polity, role of caste in election.
- explain the meaning of religion and its relationship with politics, impact of religion, region and language on politics.
- describe the meaning and definitions of foreign policy, India’s policy of Non-Alignment.

Course content
Unit-I
Nature of party system in India: a critical evaluation
National political parties (Indian National Congress, BJP, CPI, CPI (M), BSP): Their organization, ideologies and electoral performance
Regional political parties: organization, ideologies and electoral. Performance of Shiromini Akali Dal, DMK, Telgu Desam,
E-Governance in India: Advantages and Disadvantages of e-governance.

Unit-II
The Election Commission : A critical evaluation and electoral reforms in India.
Pressure Groups in Indian Politics- Types & Role
Voting Behaviour in India – its Determinants.

Unit-III
Emerging trends in Indian politics
Role of:
- Caste
- Religion
- Language
- Regionalism
Unit-IV
Basic principles and determinants of Indian foreign policy
Policy of Non-Alignment: Meaning and Relevance. Role of India in Non-alignment Movement

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:
- seminar/ discussion on organization and functioning (role of the political parties).
- trace the role of local prominent political party and its contribution towards social upliftment.
- students in teams of 4-5 students may be assigned projects to study trends in politics of local areas and study role of caste (one group), religion (another group), language (another group) regionalism (another group)

Evaluation Scheme
The evaluation will be based on:
iv) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

v) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

vi) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings
29) Chatterjee, P. (1999), State and Politics in India. New Delhi Oxford University Press.,

6. ECONOMICS
BABED-ECOO42
PUBLIC FINANCE AND INTERNATIONAL ECONOMICS

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 Hours

Objectives
After the completion of the semester, the students will be able to:
- explain the concept of public finance, sources of revenue and expenditure of the government.
- discuss the concept of public debt, deficit financing, need of deficit financing.
- describe concept of international trade and impact of WTO.
- explain the balance of payment and rate of exchange.

Course content

Unit-I
*Taxation*: Classification and Canons, Characteristics of a Good Tax System.

Unit-II
*Deficit Financing*: Objectives and Limitations.
*Incidence and Impact of Taxation*: Demand and Supply Theory.
**Taxable Capacity:** Absolute and Relative Capacity, Determinants of Taxable Capacity.

**Unit-III**
*Pure Theory of International Trade:* Classical, Heckscher and Ohlin Theories; Principles of Reciprocal Demand and Terms of Trade.

**Unit-IV**

**Teaching Learning Experiences**
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:

- study of free trade policy and exploring commodities which come under free trade and protection and kind of protectionist policy in less developed area.

**Evaluation Scheme**
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

**Suggested Readings**


7. SOCIOLOGY
BABED-SOCO42
SOCIALINSTITUTIONS

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment=20(1)
Examination Hours=3 Hours

Objectives
At the end of the semester, the students shall be able to:
- describe the concept of social Institutions.
- describe various Institutions at society in objective and intrinsic way.
- highlight characteristic features of social institutions like marriage, family and kinship.
- Describe political and cultural and economic Institutions, their meaning, features and functions.

Course Content

Unit-I
Institutions- meaning, features; Normative and relational aspect of Institutions.
Types - social, political, economic and cultural.
Difference of institutions with associations, society and community.

Unit-II
Social Institutions:
Marriage - types; monogamy and polygamy, rules of mate selection, changing trends.
Family- meaning, types (joint, nuclear), structure, function, development cycle & changing trends
Kinship - meaning, significance and a brief understanding of incest, consanguinity, affinity, clan, lineage.

Unit-III
Political institutions– State, Government and political parties – Features and functions
Economic institutions– meaning, features and functions, property, division of Labour (Emile Durkheim)

Unit-IV
Cultural institutions – Religion: meaning, types, functions (Emile Durkheim & Max Weber)

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work which will include:
i) Research and create a poster of your family tree
ii) Make a short presentation on cultural institutions. Include a musical collage that analysis religion as a powerful agent of social control.

Evaluation Scheme
The evaluation will be based on:
v) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
vi) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
vii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

8. GEOGRAPHY
BABED-GEOO42
GEOGRAPHY OF PUNJAB

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3Hours

Objectives
After the completion of the semester, the students will be able to:
• explain the regional setting of Punjab state in detail through physical and political maps.
• analyze patterns of population and characteristics.
• state the distribution of major crops, industries and transport links in the state.
• analyze the intra regional variations in select aspects.

Course Content
Unit-I

Introduction: Location, Evolution, Cultural Regions (Majha, Doaba & Malwa) and Administrative Divisions of the State.

Unit-II

Physical Base: Relief, Drainage, Climate, Soils and Vegetation

Resources: Mineral and Power; Water with special reference to river water sharing.

Unit-III
Agriculture: Main Characteristics and Problems; Agro-climatic Regions; Green Revolution & its Ecological Implications; Irrigation; Main crops (wheat, rice, cotton, sugarcane) and their distribution, Livestock and dairying.

Unit –IV
Population: Distribution, Density, Growth, Migration, Sex Ratio, Urbanization.
Industries: Main characteristics, Distribution Patterns of Major Industries (Cotton Textile, Sugar, Hosiery Engineering) Industrial Concentration, Problems of Industrialization.
Trade &Transport: Road, Rail and Air Transport; Inter-State Trade.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising of a project:

- preparing a report on numbers, distribution, density, growth (birth rate, death rate & migration, religious composition, urbanization of local rural and urban localities (group-wise).
- mapping rail and road links of important places in Malwa, Majha and Doaba regions of Punjab.
- mapping the regional geography of different regions of Punjab and Chandigarh and identify distribution pattern of major industries in each region using primary and secondary sources (team projects).

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

9. MATHEMATICS
BABED-MATO42

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 Hours

Objectives
After the completion of the semester, the students will be able to:
- state definitions of various mathematical terms required in the course.
- derive theorems related to differentiation and integration of transforms.
- solve partial differential equations.
- explain velocities and accelerations in its varieties as prescribed in the courses.
- derive motions on different places and different media.

UNIT-I: ADVANCED CALCULUS II
i. Definition of a sequence, Bounds of a sequence, Convergent, divergent and oscillatory sequences, Algebra of limits, Monotonic Sequences, Cauchy’s theorems on limits, Subsequences, Bolzano-Weirstrass Theorem, Cauchy’s convergence criterion, Sequential continuity and Uniform continuity of functions of single variable.

ii. Series of non-negative terms, P-Test, Comparison tests, Cauchy’s integral test, Cauchy’s Root test, Ratio tests, Kummer’s Test, D’Alembert’s test, Raabe’s test, De Morgan and Bertrand’s test, Gauss Test, Logarithmic test, Alternating series, Leibnitz’s theorem, Absolute and conditional convergence, Rearrangement of absolutely convergent series, Riemann’s rearrangement theorem.

UNIT-II: DIFFERENTIAL EQUATIONS II
Equations, Linear Equation of first order, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces.


UNIT-III: DYNAMICS-I
i. Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upwards: Newton’s Laws of Motion.

ii. Motion of two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane, Variable acceleration: Simple harmonic motion, elastic string.

UNIT-IV: DYNAMICS-II
i. Curvilinear motion of a particle in a plane: Definition of velocity and acceleration, projectiles, motion in a circle, Work, power, conservative fields and the potential energy, work done against gravity, potential energy of a gravitational field, Relative motion, relative displacement, velocity and acceleration, motion relative to a rotating frame of reference.

ii. Linear momentum, angular momentum, conservation of angular momentum, impulsive forces, principle of impulse and momentum, motion with respect to centre of mass of a system of particles, collisions of elastic bodies, loss of energy during impact.

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work like:
• teacher may familiarize the students with examples of course content.
• teacher will give extensive practice in the mathematical skills.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.

ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2 x 6 =12 marks).

iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from each of four units (one from each subpart of the unit) of the syllabus will be set, out of which the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).

iii) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20 marks: 1 credit).
iv) Internal Assessment based on terminal examinations, attendance & classroom interaction (20 marks: 1 credit).

References
GENERAL PRACTICUM

BABED-SRPC42
SCHOOL RELATED PRACTICUM (100 MARKS)
CREDITS 5

- Study of a school for:
  - curriculum in action
  - kind of teaching and learning experiences (classroom observation)
- Conducting two career counseling sessions for secondary or senior secondary school students.

PRE-INTERNSHIP PROGRAMME (PHASE- I (02 WEEKS)) 50 Marks CREDITS 2.5

The students of the class will be divided into groups consisting of 9 to 10 students. Each group will visit one Govt. School of Chandigarh for two weeks and perform the following tasks of 50 marks:

<table>
<thead>
<tr>
<th>Task I- Preparation of case study of the Internship School focusing on the</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Philosophy, aim &amp; vision of the school</td>
</tr>
<tr>
<td>• Organization &amp; Management</td>
</tr>
<tr>
<td>• The School/Classroom environments w.r.t. infrastructure, equipments,</td>
</tr>
<tr>
<td>utilization of human &amp; physical resources</td>
</tr>
<tr>
<td>(20 marks)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task II- Observing the classroom teaching of regular and pupil teachers. At least 15 lessons must be observed by pupil teacher.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(20 marks)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task III- After the completion of the pre-internship programme, pupil teacher shall be required to maintain a reflective diary or journal to record day to day happenings and reflections thereon.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(10 Marks)</td>
</tr>
</tbody>
</table>

BABED-LSTC42
LIFE SKILLS TRAINING (100 MARKS)
CREDITS 5

Two life skills will be taken up in this semester which must have a base of skill of decision making and skill of problem solving (already done in previous semester)

- Skill of critical thinking
- Skill of self management

Training in these two skills will be imparted through suitable techniques and students will be made aware of need of such training.

TUTORIALS
The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.
## COURSE STRUCTURE FOR SEMESTER V

<table>
<thead>
<tr>
<th>S.No</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC09</td>
<td>TECHNOLOGICAL BASES OF EDUCATION AND PEDAGOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-EDUC10</td>
<td>HEALTH AND YOGA EDUCATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-ENGC53</td>
<td>ENGLISH</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>ONE OF TWO</td>
<td>BABED-PBIC53</td>
<td>PUNJABI HISTORICAL CULTURE OF PUNJAB</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HCPC53</td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>THREE OF NINE</td>
<td>BABED-ECOO53</td>
<td>ECONOMICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ENGO53</td>
<td>ENGLISH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-GEOO53</td>
<td>GEOGRAPHY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HINO53</td>
<td>HINDI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO53</td>
<td>HISTORY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-POLO53</td>
<td>POLITICAL SCIENCE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-PBIO53</td>
<td>PUNJABI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-SOCO53</td>
<td>SOCIOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-MATO53</td>
<td>MATHEMATICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-SRPC53</td>
<td>SCHOOL RELATED PRACTICUM</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IN FIELD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>COMPULSORY</td>
<td>BABED-LSTC53</td>
<td>LIFE SKILLS TRAINING</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(IN LIBRARY &amp; FIELD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Objectives
At the end of the semester, the students will be able to:
• define educational technology and discuss its historical development.
• explain the concept, nature, phases, operations and levels of teaching.
• discuss concept of teacher behaviour and use techniques of modifying teaching behavior.
• Explain the concept of evaluation and its characteristics.
• describe the concept of teaching models and basic structure of teaching models.
• identify the components of Glassers, Ausubel, Taba and Bruner models of teaching.

Course Content:
Unit I Educational Technology: historical development, concept and types, Nature and Scope.
Unit II Teaching: concept, nature, phases, operations and levels. Modifying teaching behavior: micro teaching
Unit III Evaluation: concept, characteristics, principles, difference in measurement and evaluation, examination, and assessment. Evaluation in each domain of Bloom’s taxonomy of behavioural outcomes
Unit IV Models of teaching: concept: basic structure, concept attainment models(Glaser, Ausubel, Taba, and Bruner)

Teaching Learning Experiences:
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:
• demonstration of use of any model of teaching in their own class in simulated situation.
• preparing test items for any one class VI to X in any subject at various levels of Bloom’s Taxonomy.

Evaluation Scheme:
The evaluation will be based on:
(i) Theory papers will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
(ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12). In addition, 8 long answer questions will be set,taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12x4=48 marks)
(iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 Credit)
(iv) Internal assessment based on terminal examinations, attendance, classroom interaction etc. (20 marks: 1 Credit).

Suggested Readings

PAPER II: BABED-EDUC10: HEALTH AND YOGA EDUCATION

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives:
• To enable the student teachers to develop an understanding of the importance, meaning, concept, aims and objectives of Health Education.
• To enlighten the student teachers about infectious diseases and their control.
• To aware the students teachers about balanced diet.
• To impart knowledge to use good postures for various purposes and first Aid.
• To enable the pupil – teachers to know the historical and philosophical background of Yoga.
• To enable them to learn about the deferent types of Yoga and understand their educational implications.
• To enable them to know about major classical Yogic texts.
• To give them an insight into the practical aspect of Yoga in contemporary times.
• To enable them to understand to concept of holistic health and contribution of Yoga in promoting holistic health.
• To enable them to apply Yogic knowledge in educational and stress related situations. To acquaint them with major Yogic practices.

COURSE CONTENT
UNIT-I
(a) Concept of Health. Health Education: Aims and Objectives.
(b) School Health Programme: Health Services, Health Supervisions and Health Instructions.
(c) Common Health Problems and Preventions: Accidents, Environmental Pollution, Overpopulation, Alcoholism, Smoking, Drug Abuses.
d) Diet: Functions of Food, Elements of Balanced diet, Food Habits and Malnutrition.

UNIT-II
(a) Communicable Diseases: Mode of Transmission, Methods of Prevention and Control.
(b) Posture: Importance of Good Posture, Common Postural Defects and Remedial Exercises.
(c) Recreation: Meaning, Significance and Recreational Programmes in Schools.
(d) Layout of the Grounds, Rules and Regulations of the following games: Badminton, Volleyball and Kho-Kho.

UNIT – III
(a) Yoga : Historical and philosophical background, Meaning, Definitions,
(b) Types of Yoga : Raj Yoga (Ashtang Yoga), Hath Yoga, Jnana Yoga, Bhakti Yoga, Karam Yoga – their main features, nature and educational implications.
(c). Hatha Yoga Pradipika : Asanas, Shatkriyas and Pranayamas – Types and benefits.

UNIT – IV
(a) Health and Yoga: Yogic Concept of Holistic Health, Yogic vs. Non-Yogic Diet (Elements and effects on health ); Meditation – Meaning, Types and Effects; An Ideal Yogic module for Children, Adolescents , Youth, Adults and Old-aged people .
b). Education and Yoga - Promotion of intelligence, awareness and creativity through Yoga, Yoga in Class–rooms (Primary , Secondary and Higher education levels).

Teaching Learning Experiences
Practice of Following

<table>
<thead>
<tr>
<th>YogicActivities</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>YogicExercises</td>
<td>Surya Namasakar and Pawan mukat series.</td>
</tr>
<tr>
<td>Shatkriyas</td>
<td>Jal Neti – Vaman Dhauti, Kapalbhati and Trataka.</td>
</tr>
<tr>
<td>Asanas</td>
<td>A. STANDING POSE</td>
</tr>
<tr>
<td></td>
<td>(a) Tadasana, (b) Hastpadasana, (c) Konasana, (d) Natraj asana.</td>
</tr>
<tr>
<td></td>
<td>B. SITTING POSE</td>
</tr>
<tr>
<td></td>
<td>(a)Vajrasana (b)Vakrasana (c) Paschimottan asana (d) Gomukhasana</td>
</tr>
<tr>
<td></td>
<td>C. LYING POSE (SPINE FACING GROUND)</td>
</tr>
<tr>
<td></td>
<td>(a) Sarvangasana (b) Ardhmatsyasana (c) Halasana (d) Uttanpadasana.</td>
</tr>
</tbody>
</table>
D. LYING POSE (STOMACH FACING GROUND)
(a) Bhujangasana, (b) Shalabhasana (c) Dhanurasana (d) Makarasana

Pranayama
Pranayama: Correct Breathing Exercise, Anulome-vilom, Surya-bhedhan and Bhramari.

Meditation
Meditation: Yoga Nidra, Vipasana T.M.

Evaluation Scheme:
The evaluation will be based on:
(i) Theory papers will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
(ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12x4=48 marks)
(iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 Credit)
(iv) Internal assessment based on terminal examinations, attendance, classroom interaction etc. (20 marks: 1 Credit).

Suggested Readings
3) Educational Commission (1964-66), Govt. of India. New Delhi.
4) Govt. of India (1953), Report on Secondary Education.

PAPER III: BABED-ENGC53: ENGLISH (COMPULSORY)

Objectives
After instructions, the students shall be able to:
• Make use of competence in all the four skills i.e. Listening, Speaking, Reading and Writing.
• Describe the structure of poem, play and prose.
• Describe and use new pedagogic practices in the teaching of both language and literature.

Prescribed text
INSIGHTS: A Course in English Literature and Language (by K. Elango, Hyderabad: Orient Blackswan), Panjab University Edition.
Unit I to III (Unit II- Chapter ‘Emotional Intelligence’ deleted)

COURSE CONTENT

Unit I (15 marks)
Section A (Textbook) (Poetry & Prose)
1A. Freedom at midnight (Prose)
1B. Night of Scorpion (Poem)
2A. Ulysses (Poem)
2B. Our Urgent Need for Self-esteem (Prose)
3A. Kalahandi (Poem)
3B. Climatic Change And Human Strategy
3C. Corruption : Causes, Consequence and Agenda for Further Research
3.1 The First Atom Bomb from the text A Course in English Literature and Language

Unit II
1C. Driving Miss Daisy by Alfred Ubry (Play)

Unit III
1. Antonyms
2. Correction of sentences
3. Essay writing (Social and Current topics)

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 20% will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

Evaluation Scheme
Q.1. Reference to the context only from Poetry. One out of two given stanzas (5 marks)
Q.2. The examiner will set eight short questions from Poetry & Prose Sections of the prescribed text, out of which a student shall be expected to attempt only five selecting, at least, two from each section (to be answered in not more than 60-80 words). These questions may be drawn from each of the units given in the text (10 Marks)
Q.3. The examiner will set two questions from the play, out of which a student shall be expected to attempt only one question. (10 marks)
Q.4. Write an essay (in not more than 500 words), choosing one topic out of the given four. A wide range of topics should be given and in this respect ideas may be drawn from the prescribed text. (10 Marks)
Q.5. (a) Antonyms –ten out of fifteen . 5 Marks
   (b) Correct the sentences- ten out of fifteen. 5 Marks
Note: Internal assessment will be based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit).

Suggested readings

PAPER IV: BABED-PBIC53: PUNJABI (COMPULSORY)

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 50 (2.5)</td>
</tr>
<tr>
<td>Theory = 40 (2)</td>
</tr>
<tr>
<td>Internal Assessment = 10 (0.5)</td>
</tr>
<tr>
<td>Examination Hours = 3 hours</td>
</tr>
</tbody>
</table>

Objectives
- इन धारणात व विचार दिविजालबीव तूं भौतिकीत पंजाबी वाक्यालेख देने मात्र विद्यार्थी बनाऊँछ।
- दिविजालबी द्वारा वाक्यवर्तमान विषयक धार्मिक सहित विभिन्न वस्तुको बच्चा बनाऊँछ।
- पंजाबी द्वैत वाक्यवर्तमान दिविजालबी धार्मिक सहित विभिन्न वस्तुको बच्चा बनाऊँछ।
- विभिन्न लेखकहरूको बाल्ली द्वारा बच्चाको बच्चाको विभिन्न वस्तुको बच्चा बनाऊँछ।

पाठ्यक्रम
1. भाषा वैज्ञानिक पंजाबी वाक्यालेख ए भौतिकीत
2. पैठ उपाध्याय
3. लिपि
4. विभिन्न लेखक : मियांजुल

वेळारम्भ
- भौतिकीत पंजाबी वाक्यालेख वा गाथा (मंच) भाषा सिंह वालीविश्व बिहिउँछ, पंजाब प्रतिष्ठानस्थली, चंडीगढ़।

Unit-I
- भाषा वैज्ञानिक पंजाबी वाक्यालेख दिच्छ धार्मिक सहित विभिन्न वस्तुको बच्चा बनाइँछ
  5 marks
- भौतिकीत पंजाबी वाक्यालेख दिच्छ धार्मिक सहित विभिन्न वस्तुको बच्चा बनाइँछ
  5 marks

Unit-II
- विभिन्न लेखकहरूको बाल्ली द्वारा बच्चाको बच्चाको विभिन्न वस्तुको बच्चा बनाइँछ
10 marks

Unit-III

136
Unit-IV

Evaluation Scheme
i) Theory paper will consist of eight questions i.e. two questions from each unit with internal choice. The students will be required to attempt one question from each of the four units (40 marks: 2 Credits).

Suggested Books:
1. उदवीत्व मिश्र (डा.), ‘बाल व्यस्नी विबुधावल’, पंजाब मैट्रेक पृष्ठभूमिती टेक्स्ट बुंद वेड, चैंडीगढ़ विश्वविद्यालय मिश्र, 1999.
2. मुख्यमत मिश्र मिश्र (डा.), पंजाबी काम्पात विविधात्व, पंजाबी काम्पात अल्पमाध्यम, तरार, 1997
3. सैमल बलसानी, ‘पंजाबी विविधात्व देव बुंद’, उदवीत्व बुंद बुंद, चैंडीगढ़, 2012.
4. पंजाबी मैट्रेक जेलागु अल्पमाध्यम, पंजाब मैट्रेक पृष्ठभूमिती टेक्स्ट बुंद बुंद, चैंडीगढ़।
5. बलसानी बुंद बुंद मिश्र (डा.), ‘पंजाबी विविधात्व, मिश्र मिश्र बुंद बुंद’, चैंडीगढ़ पृष्ठभूमि, 2008.
6. हरिराम रूप बुंद मिश्र (डा.) ‘मिश्र मिश्र बुंद बुंद विविधात्व’, पंजाब अल्पमाध्यम, पंजाब, 2002.
7. अमृतावती, रेड, पत्रिकापीत्र बुंद बुंद विविधात्व, दीपेश पत्रिकापीत्र, चैंडीगढ़, 1981.

PAPER IV: BABED-HCPC53: HISTORY AND CULTURE OF PUNJAB (COMPULSORY)

Marks (Credits)

Total = 50 (2.5)
Theory = 40(2)
Internal Assessment = 10 (0.5)
Examination Hours= 3 hours.

Objectives
After the completion of the semester students will be able to
- explain the concepts like colonialism and nationalism in the context of history and culture of Punjab in the nineteenth and twentieth centuries.
- describe the various movements of national importance.

Unit-I
Causes and consequences of the first anglo-sikh war
Annexation of the Punjab with special reference to the causes and consequences of the second anglo-sikh war

Unit II
Main features of the early British administration
British policy towards the army, agriculture, industry, trade and commerce

Unit III
Spread of modern education at primary, secondary and higher levels
The foundation, program and impact of the social religious reform movements
Arya samaj , Singh sabhas , Anjumans

Unit-IV
Contribution to the growth of political consciousness by the Namdhari movement,
uprising of 1907 and Gaddar movement
Contribution to the freedom struggle with special reference to the Gurdwara reform movement, Jallianwala Bagh, Bhagat Singh, Non-cooperation and Civil disobedience

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 %)

Evaluation Scheme
In all, nine questions will be set. Each question will carry 8 marks.
ix. First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 16 marks and shall be compulsory. Rest of the paper shall contain four units. Each unit shall have two essay type questions and the candidate shall attempt one question from each unit. Each essay type question will be set on half of the topics and not on a single sub-topic (40 marks: 2 Credits).
ii)Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks : 0.5 Credit).

Suggested Readings
7. Yadav, K.C. (1991), Haryana Aitihasik Simhavalokan (Hindi). Haryana Sahitya Akademy, Chandigarh,

(C) OPTIONAL SUBJECTS (PAPER V and VI)
The student is required to take up three elective/optional subjects from the following nine subjects. Each paper will be of 100 marks.
1) English
2) Hindi
3) Punjabi
4) History
5) Political Science
6) Economics
7) Sociology
8) Geography
9) Mathematics

1. ENGLISH (Elective)
BABED-ENGO53

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objective:
• To enable them to approach a wide variety of literary texts and genres with critically sensitive and analytical understanding.
• To introduce the students to the basic concepts of literature and also empower them to read, analyze and write about a poem, prose essay or drama in an independent manner.
• To teach finer nuances of literature and language through an integrated approach
• To help and motivate for students to develop basic tools of analyzing a variety of literary texts/genres.
**Text Prescribed:**

Modern Indian Literature: Poems and Short Stories, Edited by the Dept. of , University of Delhi, OUP , 2007 New Delhi.

**Section I**

a) Literary terms/Concepts: Literatures Indian Languages, Colonialism, Post-colonial, Multicultural Society: Orientalism, Hybridity, Ideology, Gender, Race, Class, Caste, Nation, Importance of Translation in India, Methods of Translation.

b) Modern Indian Literature: Poems and Short Stories, Edited by the Dept. of , University of Delhi, OUP , 2007 New Delhi.

**Section II**

1. Note-making
2. An unseen passage for Comprehension (about 500 words) with five multiple choice questions is to be given.
3. Applied Grammar:
   (a) Pairs of words to be used in sentences.
   (b) First find one word for many and then use it in a sentence.
   (c) First change the form of nouns/verbs/adjectives and then make sentences.

**Teaching Learning Experiences**

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized work comprising: prepare a project report on literary work of any poet mentioned in the course content.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

**Section I**

Q.1. It shall be on literary terms/concepts. Eight terms shall be given in all and the students will be required to do five. (15 marks)

Q.2 The examiner will set seven short questions (each to be answered in 60-80 words) based on Modern Indian Literature: Poems and Short stories out of which the students shall be required to attempt only five. (10 marks)

Q.3. There will be two long questions, out of which one long questions are to be answered each in about 200-250 words. These questions shall be based on Modern Indian Literature: Poems and Short Stories. (10 marks)

**Section II**

Q.4 Note-making (A passage of about 1000 words is to be given for this Purpose), 5 marks
Q.5. An unseen passage for Comprehension (about 500 words) With five multiple choice questions is to be given. (5 marks)

Q.6 Applied Grammar:
(a) 5 Pairs of words to be used in sentences.
(altar/alter/compliment/complement etc.) (5 marks)
(b) First find one word for many and then use it in a sentence. 5 marks
(c) First change the form of nouns/verbs/adjectives and then make sentences. (5 marks)

Suggested Readings
3. Modern Indian Literature: Poems and Short Stories, Edited by the Dept. of, University of Delhi, OUP, 2007 New Delhi.

2. HINDI (ELECTIVE)
BABED-HINO53

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

समेत्र--5

Objectives

अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थी दिए गए चार काव्यांशों के संदर्भ में व्याख्या लिखेंगें।

- उपन्यास, कहानी, नाटक, निबंध, आत्मकथा, जीवनी, व संस्मरण रेखा चित्र विंधाओं पर आधारित तुलनात्मक प्रश्नों के उत्तर देंगें।

Course Content

Unit I
कुरूक्षेत्र :
रामचरी सिंह दिनकर
प्रकाशक—सार्जन प्रेस, नई दिल्ली
दो संदर्भ चलित व्याख्याएं होगी व आलोचनात्मक प्रश्न पूछे जायेंगे।
Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:

1. Kisii ek samajikik vibhik par aadhikat kahani vibhikshak kare.
2. Kisii mahan hindii kahani ki jeevanii yatah aadhikat hale.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits)
   Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (15x4 = 60 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

3. PUNJABI (ELECTIVE)
BABED-PBIO53

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives

- हिंदी भाषा का मैं अच्छे विद्यार्थी ने खुद उत्तर पंजाबी विभिन्न बांटे हिराशिय वातावरण में है।
- पंजाबी साहित्य और तुलिंग विभिन्न हैं इन साहित्य के बहुत बड़े है जबिल चरण दे।
- पंजाबी माध्यम के विद्यार्थी यह साहित्य का बड़ा है।
- बांटी लाली धामाल अन्त मध्यम तृप्त बांटे है।

पठनमृत्यु

1. पंजाबी पंजाबी लाली, क्षेत्र में तिथि (वेल) विभिन्नता मिश्र
2. पंजाबी पृष्ठ कास्टरमीटी, बैंडीबाँडी
3. (सहयोगपुरुष विश्वास, बंजार भाषाओं, जंगली झाड़ी)
4. भूमिका माध्यम रा बांटी, संघ मध्यम में, लोग बुजुर गांव, भूमिका।
5. लाली पृष्ठ
6. पंजाबी माध्यम के विद्यार्थी
7. बांटी लाली धामाल
8. मध्यम दे लुप्त

Unit-I
भाषा में भाषा

1. पृष्ठ मध्यम विभिन्नता (देखे दिखे दिखे) 6 ठगार
2. लाली पृष्ठ दिखे विभिन्न का दिखा मंदिर के मध्य मध्यम दे मध्य मध्यम दे मध्य मध्यम दे मध्य मध्यम (देखे दिखे दिखे) 9 marks

Unit-II
भूमिका माध्यम रा बांटी

1. भूमिका माध्यम मध्यम बांटी वाटर दे पाठ्यक्रम एंध की पृष्ठ मध्यम विभिन्नता (देखे दिखे दिखे) 6 marks
2. बांटी है मध्यम धार्मिक (मध्यम धार्मिक दिखे दिखे दिखे दिखे धार्मिक दे पाठ्य कई कटें विभिन्न धृष्ट धृष्ट मध्यम) (देखे दिखे दिखे) 9 marks

Unit-III

- भाषा में भाषा अन्त मध्यम रा बांटी दिखे अन्त पृष्ठ (अंत मध्यम अंत) 15 marks
Unit-IV

1) वेटर तथा द्रव विद्युतमग्नियता (आधि रात्रि के 1700 घंटे तक)
   5 marks

2) झल्की वाणी क्षमता: तीन अनुपात, मेट्रिक मूलभूत, (रेखांतिक छन्द)
   5 marks

3) वाणिज्य भांग कुछ, निर्माणधी, क्षेत्र, वन्न, विभेद, रूप, सीमाः (रेखांतिक छन्द)
   5 marks

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:

- दूरस्थ कक्षा: विद्यार्थी क्रान्ति की महत्ता बोले दर्शन।
- वी मूडम मिश्र क्लास अवसर तैयार हैं क्या वही चला है?

Evaluation Scheme

The evaluation will be based on:
Theory paper will consist of 60 marks (3 Credits).

vi) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

vii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Books

1. कठी भाषा का जिल्ला, भाषा पंजीकरण, भंडारी गांधी।
2. कठी भाषा का जिल्ला, भाषा पंजीकरण, भंडारी गांधी।
3. भारतीय सिंध एवं विश्वास एवं विश्वास, विश्व विज्ञान संस्थान, लखनऊ शहर, 1997.
4. श्रीमद् सिंध ज्ञान, वंदनी विभाग द्वारा मिश्राण, सीढ़ी पुस्तक, आधुनिक मिश्राण।
5. मिश्रा, भारतीय सिंध (आ.), ‘मानद क्रान्ति समाज बांधु विभाग’, भारतीय समाज संस्थान, लखनऊ शहर, 1998.
6. भारतीय सिंध, अभिनव बोल अवधारणा, झट लघुवक्ता द्वारा पंजीकरण, आधुनिक मिश्राण।
7. भारतीय सिंध, भारतीय सिंध (आ.), तथा विभाग अंड भाषाधीन संघ उच्च, भारत पंजीकरण संस्थान, भंडारी गांधी, पंजीकरण, 2002.
8. भारतीय सिंध, भारतीय सिंध (आ.), ‘मानद क्रान्ति समाज बांधु विभाग’, भारत पंजीकरण संस्थान, पंजीकरण, 2002.
9. झट, झट सिंध (आ.), ‘भाषाधीन संघ भाषा उच्च’, वंदनामाला लघुवक्ता, आधुनिक मिश्राण 2012.
Objectives
After the completion of the semester, students will be able to
- explain the emergence of modern Europe by studying world history.
- describe the rise of new culture as seen in decline of feudalism and rise of Renaissance and reformation
- discuss growth of national political territories.

Course content:
Unit-I
The Renaissance and reformation: decline of Feudalism; factors for the growth of Renaissance and its effects in Europe; Martin Luther’s protestant reformation; Counter reformation
Rise of Absolute state: France and Russia
Rise of Parliamentary government: the glorious revolution and its effects

Unit-II
The American revolution: its social, political and economic causes; its consequences
The French revolution: causes and impact of the French revolution
Napoleon Bonapart: reforms of Napoleon Bonapart; his continental system

Unit-III
Congress of Vienna (1815): motives, working, principles, provisions and significance of Congress of Vienna
The Industrial era: Industrial revolution (1750-1850); causes for its origins in England; New inventions; spread to Europe; impact on society
Eastern Question: Greek war of Independence; Mehmat Ali and Egypt; Crimean war

Unit-IV
Unification of Italy: different stages in unification of Italy; role of Mazzini, Cavour and Garibaldi
Unification of Germany: rise of nationalism and role of Bismarck in the unification of Germany

Map
b) Unification of Germany
c) Unification of Italy
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:

- preparation of a note on important contribution of Napoleon in French revolution.
- preparation of a report on American revolution.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings
After this semester, the students will be able to:

- explain the meaning of comparative government and politics.
- describe the main features of judicial organization in Britain.
- explain the concept of rule of law in UK.
- describe the salient features of the American political system.
- describe the features, organization and working of American party system.

Course content

Unit-I: Theoretical framework
1. Meaning and scope of comparative government and politics
2. Comparative method

Unit –II: U.K.
The British Political System - Salient Features and Conventions.

Executive
(a) Monarchy:- Difference b/w King and Crown, Powers of Crown, Nominal and Real Position Justification of Monarchy
(b) Features of Parliamentary/ Cabinet Government
(c) Prime Minster:- Composition, Powers, Position and Role

Legislature
(a) House of Lords:- Composition, Powers, Criticism & Utility
(b) House of Commons:- Composition, Powers, Mutual relations between House of Lords and House of Commons

Judiciary
(a) Organisation of Courts in U.K.
(b) Rule of Law.

Unit –III: U.S.A.
(i) The Constitutional framework of U.S.
   (i) Salient features
   (ii) Separation of Powers & Checks & Balances
(ii) Executive
   (i) Elections of U.S. President
   (ii) Composition, Powers & Position of U.S. President.
Legislature/Congress
(i) House of Representative- Composition, Power, House of Representative is the weakest chamber
(ii) Senate – Composition, Powers, Most Powerful Second Chamber, Mutual relations b/w House of Representative & Senate

Judiciary
(i) Supreme Court - Organisation, Composition, Powers & its Role.
(ii) Power of Judicial review

Unit IV:
(i) Political Parties and Interest/Pressure Groups of U.K- Nature & Role.
(ii) Political Parties and Interest/ Pressure Groups of U.S.A. - Nature & Role.

Teaching Learning Experiences;
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include
- comparing political institutions (US and UK).
- web usability.

The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
  ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
  iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Books Recommended
  S. Chand and Company.
6. ECONOMICS
BABED-ECOO53
ECONOMICS OF DEVELOPMENT

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives
After the completion of the semester the students will be able to
- differentiate between economic growth and economic development.
- analyze the various model and strategies of economic growth.
- describe the concept of economic development.
- state the meaning of sustain development and how it is achieved.

Course content

Unit-I
Economic Growth and Development: Concept of Economic Growth & Development, Main Features of an Underdeveloped Economy, Determinants of Economic Development.
Capital Formation: Meaning, Importance & Sources of Capital Formation, Disguised Unemployment in under developed countries, Nurkse’s Law, Lewis Theory of Unlimited Supply of Labour.

Unit-II
Models of Economic Growth: Classical Model of Growth; Harrod Domar Model of Economic Growth; One Sector Neo-classical Model of Growth; Rostow’s Theory of Stages of Growth

Unit-III

Unit-IV
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:
- preparation of a report on any one model of economic growth and development.

Evaluation Scheme
The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
  ii) Supervised sessional work: project Work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
  iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Books Recommended
Objectives
At the end of this semester, the students will be able to

- analyze the diversified Indian society by focusing on social, political and economic structure (institution) of various parts of the society i.e. tribal, rural and urban.
- explain the problems and challenges of disadvantaged sections of the Indian society.

Unit –I
Tribal: meaning, characteristics and classification of tribes.
Institutional features- family, marriage, economy and the changing trends.

Unit-II
Rural: meaning and characteristics.
Institutional features: family, marriage, economy and polity (village panchyat), changing trends.

Unit –III
Urban: meaning and characteristics, concepts of urbanization and urbanism.
Institutional features; urban family: features and changes, economy.voulantry associations, slums.

Unit –IV
Under privileged sections- women, scheduled caste; scheduled tribes and disabled; their disabilities and measures to improve their status.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include:

- create a poster collage that demonstrate the wide variety of diversity within the India. Use an outline map of the India as a background.
- preparation of power point presentation on renowned woman either at educational level or economic level or political level or social welfare.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to
be attempted (2x6 =12 marks). In addition eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

Further Readings:
Objectives
After the completion of semester the students will be able to
- analyze the geographic dimensions of the world regions in terms of their political and administrative characteristics.
- explain the physical and human resource base and their interface with economic development.
- describe development problems and prospects.

Course Content
Study of the following regions of the world in terms of constituent countries, strategic location, salient physical, demographic and economic features, cultural patterns, resource base, economic development, problem and prospects

Unit –I
(i) Anglo America
(ii) Latin America

Unit –II
(i) Europe
(ii) Australia and Oceania
(iii) Russia and Commonwealth of independent states (CIS)

Unit –III
East Asia
South East Asia
South Asia

UNIT – IV
(i) Middle East and North Africa
(ii) Africa South of Sahara

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations conducted by the teacher. The remaining portion will be covered in the form of individualized sessional work which will include the following projects

- identify and categorize major resources of East Asia, South East Asia and South Asia.
- write a report on demographic features of North and South Africa.
Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 = 12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project Work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Books Recommended

9. MATHEMATICS
BABED-MATO53

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>60 (3)</td>
</tr>
<tr>
<td>Sessional Work</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Examination hours</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Objectives
At the end of the semester, the students will be able to:

- know about the countable & uncountable sets.
- solve the fundamental theorem and mean value theorems of integral calculus.
- explain the convergence of improper integrals.
- explain groups and related concepts & theorems.
- discuss rings, subrings in details like Gaussian and polynomial rings.
- describe the notion of probability and random variables.

UNIT-I: ANALYSIS-I

i. Countable and uncountable sets, Riemann integral, Integrability of continuous and monotonic functions, Properties of integrable functions, The fundamental theorem of integral calculus, Mean value theorems of integral calculus, Beta and Gamma functions.
ii. Improper integrals and their convergence, Comparison tests, Absolute and conditional convergence, Abel’s and Dirichlet’s tests, Frullani’s integral, Integral as a function of a parameter, Continuity, derivability and integrability of an integral of a function of a parameter.

UNIT-II: MODERN ALGEBRA
i. Groups, Subgroups, Lagrange’s Theorem, Normal subgroups and Quotient Groups, Homomorphisms, Isomorphism Theorems, Conjugate elements, Class equation, Permutation Groups, Alternating groups, Simplicity of $A_n$, $n \geq 5$ (without proof).
ii. Rings, Integral domains, Subrings and Ideals, Characteristic of a ring, Quotient Rings, Prime and Maximal Ideals, Homomorphisms, Isomorphism Theorems, Polynomial rings.

UNIT – III: PROBABILITY THEORY-I
i. Review of notion of Probability, conditional Probability and independence, Bayes’ Theorem, Random Variables: Concept, probability density function, cumulative distribution function, discrete and continuous random variables, expectations, mean, variance, moment generating function, skewness and kurtosis.
ii. Discrete Random Variables: Bernoulli random variable, binomial random variable, negative binomial random variable, geometric random variable, Poisson random variable.

UNIT – IV: PROBABILITY THEORY-II
i. Continuous Random Variables: Uniform random variable, exponential random variable, Beta random variable, Gamma random variable, Chi-square random variable, normal random variable.
ii. Bivariate Random Variables: Joint distribution, joint and conditional distributions, Conditional Expectations, Independent random variables, the correlation coefficient, Bivariate normal distribution.

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work like:
• teacher may familiarize the students with examples of course content
• teacher will give extensive practice in the mathematical skills.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2 x 6 =12 marks).
iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from each of four units (one from each subpart of the unit) of the syllabus will be set, out of which the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).
iii) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20 marks: 1 credit).
iv) Internal Assessment based on terminal examinations, attendance & classroom interaction (20 marks: 1 credit).

References:

GENERAL PRACTICUM

BABED-SRPC53
SCHOOL RELATED PRACTICUM (100 Marks)
CREDITS 5
- Micro Teaching under simulated situations
  Orientation and Demonstrations  2 weeks
  Execution and observations 2 weeks
- Conducting various yogic activities in morning assembly and prepare a file (preferably showing your own pictures in action) steps, benefits and contraindications.

BABED-LSTC53
LIFE SKILLS TRAINING (100 MARKS)
CREDITS 5
- Professional Developments skills (Orientation for teacher eligibility tests)
- Skill of management of stress
TUTORIALS
The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.
### COURSE STRUCTURE FOR SEMESTER VI

<table>
<thead>
<tr>
<th>S.N.</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC11</td>
<td>EDUCATIONAL RESEARCH &amp; STATISTICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-EDUC12</td>
<td>VALUE EDUCATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-ENGC63</td>
<td>ENGLISH</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>ONE OF TWO</td>
<td>BABED-PBIC63</td>
<td>PUNJABI HISTORIC &amp; CULTURE OF PUNJAB</td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HCPC63</td>
<td></td>
<td>3</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>5 &amp; 6</td>
<td>THREE OF NINE</td>
<td>BABED-ECOO63</td>
<td>ECONOMICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-ENGO63</td>
<td>ENGLISH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-GEOO63</td>
<td>GEOGRAPHY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HINO63</td>
<td>HINDI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-HISO63</td>
<td>HISTORY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-POLO63</td>
<td>POLITICAL SCIENCE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-PBIO63</td>
<td>PUNJABI</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-SOCO63</td>
<td>SOCIOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BABED-MATO63</td>
<td>MATHEMATICS</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-SRPC63</td>
<td>SCHOOL RELATED PRACTICUM</td>
<td>1</td>
<td>4 (IN FIELD)</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>COMPULSORY</td>
<td>BABED-PIP63</td>
<td>PRE-INTEERNISH PROGRAMME</td>
<td></td>
<td>IN FIELD</td>
<td>2.5</td>
</tr>
<tr>
<td>9</td>
<td>COMPULSORY</td>
<td>BABED-LSTC63</td>
<td>LIFE SKILLS TRAINING</td>
<td>1</td>
<td>4 (IN FIELD)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td></td>
<td></td>
<td>42.5</td>
</tr>
</tbody>
</table>
Objectives
At the end of the semester, the students will be able to
• explain the concept of educational research
• differentiate between methods of educational research.
• formulate hypotheses of research.
• explain the applications of statistical techniques in education.
• develop the skills to carry out research.

Course Content

Unit-1

Unit II
Methods of Education research: Historical research, Descriptive research, Experimental research, Action research.

Unit III
• Tools of Research: psychological tests, questionnaire and achievement tests.
• Sampling and its techniques

Unit IV
• Statistical techniques of analysis: measures of central tendency and variability, tabulation and graphical representation of data.
• Correlation: meaning, Rank difference and Pearson- Product moment method and their interpretation.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include:
• Training in use of research tools like observation, interviews be given under supervised conditions. 20 marks

Evaluation Scheme:
The evaluation will be based on:
Theory papers will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12x4=48 marks).

Supervised sessional work: project work, individual term papers and seminars (20 marks: 1 Credit)

Internal assessment based on terminal examinations, attendance, classroom interaction etc. (20 marks: 1 Credit).

Suggested Readings


PAPER II: BABED-EDUC12: VALUE EDUCATION

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

Examination Hours= 3 hours.

Objectives

At the end of semester, the students will be able to

- describe the concept of values and value system
- explain various intervention strategies for value inculcation in education.
- describe tools of value inculcation
- explain various bases of value education
Course Content
Unit I
Values: Concept and nature, classification, need and importance of value education, Tools of value inculcation

Unit II
- Philosophical basis of values as viewed by various philosophies with special reference to Indian philosophy
- Sociological and psychological bases of value education, course curriculum and content analysis

Unit III
- Value preferences: concepts and Factors affecting value preferences, culturally induced values, and value systems and types
- Assessment of Values: concepts and process

Unit IV
Intervention strategies for value inculcation: Rationale building model, Self-confrontation model, Value clarifying model, Role playing, Case method

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work. Following projects will be taken up:
- students will be required to identify values that have been designed to be inculcated through course content (in any subject) and prepare a list.
- a project may be taken up to identify value preference pattern of people (age wise, educational level wise, vocation wise, qualification wise). Different teams may take either of these levels and comparisons may be made through open house discussions. The preferences may be rationalized and conclusions be drawn.

Evaluation Scheme:
The evaluation will be based on:
(i) Theory papers will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
(ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12x4=48 marks)
(iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 Credit)
(iv) Internal assessment based on terminal examinations, attendance, classroom interaction etc. (20 marks: 1 Credit).

Suggested Readings

PAPER-III: BABED-ENGC63 : ENGLISH (COMPULSORY)

Marks (Credits)

Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)
Examination Hours= 3 hours.

Objectives

At the end of semester, the students will be able to:

• Make use of competence in all the four skills i.e Listening, Speaking, Reading and Writing
• Describe and use new pedagogic practices in the teaching of both language and literature.
• Devise and promote student centric pedagogic techniques for the teaching of English.

Prescribed text

INSIGHTS: A Course in English Literature and Language (by K. Elango, Hyderabad: Orient Blackswan), **Panjab University Edition**.

Unit IV-VI

COURSE CONTENT

Unit I
Section A (Textbook) (Poetry & Prose)
4.A The Diary Of A Young Girl (Life stories)
4.B Because I Could Not Stop For Death (Poem)
4.C Mother Teresa (Life stories)
5.A Swami And Friends (Life stories)
Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 20% will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

EVALUATION SCHEME

Section-A (Poetry & Prose)
Q.1. Reference to the context only from Poetry. One out of two given stanzas. (5 marks)
Q.2. The examiner will set eight short questions from Poetry & Prose Sections of the prescribed text, out of which a student shall be expected to attempt only five, selecting, at least, two from each section (to be answered in not more than 60-80 words). These questions may be drawn from each of the units given in the text (10 Marks)
Q.3. The examiner shall set four questions (on the pattern of questions for Critical Analysis suggested in the prescribed text) again from Poetry & Prose Sections of the text, out of which a student is expected to attempt only two selecting at least, one from each section (to be answered in not more than 150-180 words), The questions should be chosen in such a manner that all the units given in the text are covered. 10 Marks

Section-B (Composition & Grammar)
Q.4. A question on Précis writing shall be set, without any internal choice. For this purpose, the passage chosen should be simple, lucid and coherent and must not exceed 240-250 words. 10 Marks
Q.5 (a) Idioms and Phrases to be used in sentences. five out of ten (5 marks)
(b) One word substitution – 5 out of ten (5 Marks)
PAPER IV: BABED-PBIC63: PUNJABI (COMPULSORY)

Marks (Credits)

Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)
Examination Hours = 3 hours.

Objectives

- टिम वेल या द्विचर विभिन्नवेत्ताओं के द्वारा पंजाबी तथ्य सामग्री दिए गए हिन्दी उपभोक्ताओं देखा गया है।
- परिचय किसी भी क्रम में इस्तेमाल वलते देखा गया है।
- ग्रामीण लिपि के द्वारा पीड़ितों में तात्पर्य बनाया गया है।
- हिंदी लघु लघु विषय सामग्री दिए गए है।

पाठ व्याख्या

1. अंतः पढ़े राहु, कुछ हिंदी सिख लेख गीत परछाज, शंकरेचू
2. समूह पुवरत
3. गृहण उपहर
4. ग्रामीण लिपि
5. हिंदी लघु

Unit-I

- लघुलघु अंतः पढ़े राहु द लिख, लघुलघु लघु लघु लघु लघु (देखे हिंदी लिख)
  5 marks
- अंतः पढ़े राहु द लघु लघु लघु दिग्दह परछाज मारुख लघु लघु (देखे हिंदी लिख)
  5 marks

Unit-II

- अंतः पढ़े राहु द लघु लघु लघु लघु लघु (अंतः लिख पंजीकरण)
  10 marks

Unit-III

- गृहण उपहर (अंतः लघु 250 अंतः)
  5 marks
- महत्त्वपूर्ण शब्द देखे देखे देखे देखे (वर्तमान लघुलघु महत्त्वपूर्ण, लघु लघु लघु लघु लघु लघु लघु लघु) लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु लघु (देखे हिंदी लिख)
  5 marks

Unit-IV

164
Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20%).

Evaluation Scheme
The evaluation will be based on:
(i) Theory paper will consist of eight questions two from each unit. The students will be required to attempt one question from each of the four units (40 marks: 2 Credits).
(ii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit).

Suggested Readings
1. उद्योगी क्रियौं (उ.), ‘व्यय भाषा हिंदीवाला’, यंमक मटेर सुतीलजनिती टैक्समट वंच बेचड़,चंडीगढ़ शिक्षालील लिख, 1999.
2. सुधारित क्रियौं मंडल (उ.), भाषाध्यक्ष हिंदीवाला, भाषाध्यक्ष अध्यक्ष, सर्किट, नवंबर 1997
4. यंमक हेल्थ मेडिकल अस्यम, यंमक मटेर सुतीलजनिती टैक्समट वंच बेचड़, चंडीगढ़।
5. ब्यय धूल लिख (उ.), ‘यंमक हिंदीवाला, नियंत्रण मटेर गिंदेय’, रेंड्रा पाषण, लुधियाना, 2008.
6. परीक्षा प्रेम पुस्तक लिख (उ.) ‘नियंत्रण व्यय हिंदीवाला’, ब्यय व्ययक्रमक, पटिकाल, 2002.
7. व्यय लेंड्गी, रेंड्रा, धूलचित्र व्यय हिंदीवाला, लाखव धूलहिंदी, लुधियाना, 1981.
Objectives
At the end of the semester, the students will be able to:

- explain the development in social and economic life of Punjab after achieving independence.
- explain the development in education and literature in Punjab after independence.
- describe the new trends in social and economic life of Punjab.

Unit-I
Significant developments leading to independence
Impact of partition on Punjab

Unit II
Rebuilding of social and economic life after partition
The main stages in the movement for the Punjabi speaking state; reorganization act of 1966

Unit-III
New trends in social life: gender discrimination; emigration from Punjab
New trends in economic life: modernization of agriculture, land reforms

Unit IV
Development of education in Punjab after independence
Development of Punjabi literature with special reference to prose, poetry and drama

Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 20% will be covered in the form of internal assessment based on terminal examinations, attendance, classroom interactions, etc.

Evaluation Scheme
In all, nine questions will be set. Each question will carry 8 marks.

X First question shall be short answer type containing 6 short questions spread over the whole syllabus. Candidates will attempt 4 out of the 6 questions in about 25 to 30 words each. It shall carry 8 marks and shall be compulsory. Rest of the paper shall contain four units. Each unit shall have two essay type questions and the candidate shall attempt one question from each unit. Each essay type question will be set on half of the topics and not on a single sub-topic (40 marks: 2 Credits).
ii) Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks : 0.5 Credit).

Suggested Readings


(C) OPTIONAL SUBJECTS (PAPER V and VI)

The student is required to take up three elective/optional subjects from the following nine subjects. Each paper will be of 100 marks.

i) English
ii) Hindi
iii) Punjabi
iv) History
v) Political Science
vi) Economics
vii) Sociology
viii) Geography
ix) Mathematics
1. ENGLISH (Elective)
BABED-ENGO63

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours = 3 hours.

Objective:
- To enable them to approach a wide variety of literary texts and genres with critically sensitive and analytical understanding.
- To introduce the students to the basic concepts of literature and also empower them to read, analyze and write about a poem, prose essay or drama in an independent manner.
- To teach finer nuances of literature and language through an integrated approach.
- To help and motivate for students to develop basic tools of analyzing a variety of literary texts/genres.

Text Prescribed:

SECTION I

SECTION II
1. Essay on any one (out of the given four) topic of international importance.
2. Report-writing
3. Translation from Hindi/Punjabi into English
   OR
   Paragraph on any one out of the two given topics (for foreign students only)

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits).
ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 credit).
iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 credit).

Section 1
Q.1 Literary terms/concepts (five out of eight) 15 marks
Q.2. Short question based on the prescribed novel, Five out of Seven 10 marks (each in 60-80 words).
Q.3 Long questions based on the novel three out of five dealing with the incidents, theme(s) Character(s), symbols etc. (each in 180-200 words) 15 marks
SECTION II
Q.4 Essay on any one (out of the given four) topic of international importance (in about 400 words) 7 marks
Q.5. Report-writing (in about 250 words) on an incident/situation, conference/seminar, problem/state of education/poverty/unemployment or similar issues. 6 marks
Q.6. Translation from Hindi/Punjabi into English (Passage of about 300 words)
OR
Paragraph on any one out of the two given topics (for foreign students only) 7 marks

Suggested Readings

2. HINDI (ELECTIVE)
BABED-HINO63

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Course Content
Unit I
निबंध लेखन :केवल साहित्यिक और सामाजिक विषयों पर।
बहुल आठ निबन्धों में से किसी एक पर निबन्ध लिखने के लिये कहा जायेगा।

**Unit II**

समीक्षा सिद्धांत

(क) काव्य की परिभाषा तथा भेद, महाकाव्य, खण्डकाव्य, चौतर्की का भी काव्य की परिभाषा तथा विशेषताएं。

(ख) गद्य विधाएं—निबन्ध, संस्करण, गीतिक भाषा तथा आलंकार का स्वरूप और तत्त्वों का सामयिक परिचय।

**Unit III**

प्रयोजनमूलक हिंदी : हिंदी कम्प्यूटिंग व अनुवाद

(क) कम्प्यूटर : स्वरूप व महत्व

(ख) ई---मेल : प्रेशन ग्रहण

(ग) इंटरनेट : स्वरूप व उपयोगिता

(घ) अनुवाद : परिभाषा व स्वरूप

(15)

**Unit IV**

(15)

छन्द-अलंकार परिचय

(क) केवल निम्नलिखित अलंकार निर्धारित हैं :—

अनुप्रास, यमक, श्लेष, वक्तसंकल्प, उपमा, रूपक, अतिरिक्त, विरोधभास, उद्भेद्याक।

(ख) केवल निम्नलिखित छन्द निर्धारित हैं :—

दोहा, संगीत, चीपई, लोला, कुण्डलियां, सवैया, दुर्ग विलमित, हरिगीतिका, उपेन्द्रवज्र, इन्द्रवज्र।

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include projects:

1. हिंदी चार सामाजिक विषयों पर आधारित अंशों अनुवाद का हिंदी अनुवाद करें।
2. हिंदी में जन संवार के महत्व पर करतन रजिस्टर तैयार करें।

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits)

Eight long answer questions of 15 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (15x4 = 60 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

1. चतुर्वेदी राजेश्वरप्रसाद, (2008) हिंदी व्यक्ति उपकार प्रकाशन, आगरा।
3. PUNJABI (ELECTIVE)
BABED-PBIO63

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives

- उस्म पेंट द भेंड़ धुनकर भणसी ब्रह्म बन्धे नाटवरी देखा देखा है।
- निषेध डिपा द अंतिमित्र दुर्गा बनर है।
- भणसी मादिउ दे डिडिम भी बांधे साहित्य धुनकर दरह है।
- पांढरी लाल धमतब ललत सागर पहँच वाकरूटी है।
- ज्ञान विद्वान दो सातवरी द थेरा विद्वान दरह है।

उत्तराभ

1) धक्तर मदें (मं: शिवकुल मिथ) धालीबेहिल विस्तृत्ते धंतथ धुलकलस्मी चंद्रिगादु (तिब्बतनाथ बड़ी: धर धुमल, अमेरिक, अमेरिक धुलकल, मित्र माथिदी) 6 marks
2) निषेध धुराव (मं:प्र) नवतील सिम्भ विंद्रधालीबेहिल विस्तृत्ते धंतथ धुलिगादु। 9 marks
3) भणसी मादिउ दे डिडिम (भाटी ब्रह्म दे 1700 दी उद) 15 marks
4) पांढरी लाल धमतब
5) ज्ञान विद्वान

Unit-I

1) धक्तर मदें, लाल धमतब दे धुलिगादु मदिउ मादिउ डिडिम (दे दिचे दिख) 6 marks
2) लाल धमतब दे धुलिगादु दे निषेध धंतथ देम दे मात मण्ट बनर (दे दिचे दिख) 9 marks

Unit-II

1) निषेध धुराव धक्तर मदें दे निषेध धुराव मादिउ मादिउ डिडिम (दे दिचे दिख) 6 marks
2) निषेध धुराव धात मादिउ (दे दिचे दिख) 9 marks

Unit-III

- धक्तर मदें दे निषेध धुराव दुर्ग आधारित घण्ड धुलिगादु दे झुंझुं (भाटी दिचे भंड) 15 marks

Unit-IV

1) भणसी मादिउ दे डिडिम (भाटी ब्रह्म दे 1700 दी उद)
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include:

- आपुनितिं ध्यानध्यान वैदिक संध्या वेद संध्या (दो दिन) 5 marks

- आपुनितिं ध्यानध्यान दूसरे दिन वेदांत संध्या (दो दिन) 5 marks

Evaluation Scheme
The evaluation will be based on:

viii) Theory paper will consist of 60 marks (3 Credits).
ix) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
x) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Books
1. पृथ्वी माधव चा दिविक्रम, पृथ्वी पुरुषंकरथिर, चंद्रीगढ़।
2. पृथ्वी माधव चा दिविक्रम, पृथ्वी पुरुषंकरथिर, पटिकाल।
3. धर्मिन्द्र मिश्र देव विद्वान मिश्र समाले, ‘पृथ्वी माधव दी दुधंध्री दे दिविक्रम’, लावन मंदः संध्या, तुषिकाल।
4. तीमत सिंह दलविं, पृथ्वी मनोरितिन्त्र दे मिरांद, तीम पुराण, अंगजल मनिर।
5. मिश्र, पालामीक दिविक्रम (ड्र.), ‘माधव पुरुषंकरथिर ब्रह्मा दिविक्रम’, पवलीकिस्मत चित्रकेत, पृथ्वी पुरुषंकरथिर, पटिकाल, 1998.
6. विद्वान मिश्र, अंब्रां दे अंब्रां, गुभ भवर्त दे गुमुहंकारिति, अंब्रांमध।
7. पालामीक, पृथ्वी मिश्र (ड्र.), दुधंध्री दिविक्रम में पृथ्वी दुधंध्री दे दिविक्रम, पवलीकिस्मत, पृथ्वी पुरुषंकरथिर, पटिकाल, 2002.
8. पालामीक, पृथ्वी दिविक्रम मिश्र (ड्र.), ‘मिरांद ब्रह्मा दिविक्रम’, भरत पवलीकिस्मत, पटिकाल, 2002
9. धर्मिन्द्र, वृङ्ग मिश्र (ड्र.), ‘पृथ्वी दिविक्रम मूंग दे संध्या’, वरिष्ठ मंदः मुद्रांकेताल, अंब्रांमध 2012.
4. HISTORY
BABED-HISO63
WORLD HISTORY 1871-1956 AD

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives
At the end of the semester, the students will be able to:
- explain the concepts like Imperialism, Nationalism, Communism, Fascism and Modernization.
- describe the history of modern Europe, U.S.A., China and Japan.
- analyze the major developments that have changed the face of the modern world.

Unit-I
New Imperialism 1871-1914: main features; partition of Africa-causes, colonization and impact
Congress of Berlin: circumstances, provisions and significance of the Congress of Berlin 1878
Diplomatic developments in Europe: circumstances leading to the formation of Triple Alliance of 1882 and Triple Entente

Unit-II
World war I: division of Europe into two blocks; causes of the first world war
Paris peace conference: Treaty of Versailles 1919; provisions, major defects and their impact
Russian revolution: causes and impact of the Russian revolution of 1917

Unit-III
Nationalism and Communism in China: causes for the Nationalist revolution of 1911 and its results, circumstances leading to the revolution of 1949 and its results
Modernization in Japan: Meji restoration and modernization in Japan
The Great depression of 1929: causes of the Great depression in the USA; its spread to Germany, France and Britain, its impact; Rossevelt’s new deal

Unit –IV
Fascism and Nazism: circumstances responsible for rise of Fascism under Mussolini in Italy; Nazism in Germany under Adolf Hitler
World war: causes responsible for the second world war- II; modernization of Turkey under Mustafa Kamal Pasha
Map:
(a) Important historical places: Geneva, Washington, Tokyo, Versailles, Constantinople, Peking, Beijing, Manchuria, Nanking, Frankfrut, Johannesburg, Cairo, Jerusalem
(b) Europe on the eve of world war- I
(c) Europe on the eve of world war-II
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include:

- preparation of a note on the contribution of Adolf Hitler (Nazism) or modernization of Turkey under Mustafa Kamal Pasha

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted \((2 \times 6 = 12\) marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. \((12 \times 4 = 48\) marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Suggested Readings

5. POLITICAL SCIENCE
BABED-POLO63
INTERNATIONAL POLITICS: THEORY AND PRACTICE

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
</tr>
<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
</tr>
<tr>
<td>Examination Hours= 3 hours.</td>
</tr>
</tbody>
</table>

Objectives
At the end of the semester, the students will be able to

- explain the meaning and approaches to international politics.
• analyze relevance of idealist and realist theories in contemporary international politics.
• discuss meaning and genesis of collective security, and dilemma and relevance of collective security.
• describe the working of the United Nations.
• define the concept of uni-polarity, bi-polarity and multi-polarity.
• discuss need and emergence of various regional organizations.
• Explain the importance of SAARC and European Union

Course content

Unit–1
Meaning, nature and scope of international politics
Realist and idealist approaches to international politics

Unit–II
Balance of power- Meaning, Characteristics, relevance of balance of power in contemporary times.
National power: its elements
Collective Security- meaning, characteristics, basic assumptions of collective security

Unit–III
Cold war and post cold war era of international politics
Bipolar, unipolar and nature of emerging world order

Unit–IV
Regional Organisations : SAARC and EU.
New International Economic Order (NIEO).

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include projects:
• movie review(on any Political Related Issue).
• group discussion on NIEO.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).
Recommended Books


6. ECONOMICS
BABED-ECO63
QUANTITATIVE METHODS

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Note: Use of basic four operations calculator is allowed. Scientific calculator is not allowed.

Objectives
At the end of the semester, the students will be able to
- explain the mathematical forms of economics.
- describe the average value, middle value and highest value under an equation.
- explain how two equations are correlated with each other.
- explain and solve the problem by taking some periods as base periods.

Unit-I

Unit-II
Matrices: Definition and Types, Operations (Sum, Difference, Product and Transpose), Adjoint and Inverse of a matrix (upto 3× 3), Solution of Equations (upto 3) by Matrix Methods and Crammer’s rule.
Measures of Central Tendency: Mean, Median, Partition Values, Mode, Measures of Dispersion, Skewness.

Unit-III
Correlation Analysis—Karl Pearson’s (except grouped data) and Spearman’s formula, Simple Regression Analysis.
Interpolation – Binomial, Expansion, Newton’s (Advancing Difference Method) and Lagrange’s Method.

Unit-IV
Index Numbers: Concepts, Problems and Importance; Simple Index Number, Lespeyre’s and Fisher’s Index Numbers only (among weighted index numbers), Reversibility Tests.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining 40% will be covered in the form of sessional work which will include:

• report writing on demographic structure of a neighbourhood (the characteristics of size, growth, density, distribution of human population will be studied with the help of appropriate statistical tools and techniques).

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

Books Recommended
7. SOCIOLOGY
BABED-SOCO63
SOCIAL DISORGANISATION AND EMERGING PROBLEMS

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours=3 Hours

Objectives
At the end of the semester, the students will be able to:
  • explain the concept and levels of social disorganization.
  • analyze the extent of various personal, familial and societal problems.

Unit–I
   Social disorganization: concepts & levels (personal, familial and societal).

Unit–II
   Personal problems: alcoholism, drug addiction, suicide, problems of adolescence.

Unit –III
   Familial problems – Domestic violence, issues concerning the girl child, female headed households, problems of working women.

Unit –IV
   Societal problems: Poverty, corruption, problem of aged, ethnic conflicts, declining sex ratio.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work which will include:
  • Review of movie based on social themes.
  • Create a poster project that uses both text and pictures to illustrate problems of adolescence.

Evaluation Scheme
The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).
  ii) Supervised sessional work: project work, team presentations, Individual term papers and assignment (20 marks: 1 Credit).
iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

List of Suggested Readings

Further Readings :

8. GEOGRAPHY
BABED-GEO063
GEOGRAPHY OF INDIA

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours.

Objectives;
At the end of semester the students will be able to:
- describe India in the context of South Asia and world.
- enumerate various resources in India.
- explain the term population in relation to the distribution and density, growth, migration, urbanization.
- discuss the various characteristics of Indian agriculture.
• describe the distribution and localization factors of major industries.

Course Content
Unit–I
Introduction: India in the context of South Asia, Asia and the world
Physiography: Relief, drainage, climate, vegetation and soils

Unit-II
Mineral and Power Resources: Iron ore, manganese, mica, copper and gold; Coal, Petroleum, Hydroelectricity and Non- conventional Power resources.
Population: Distribution and density, Growth, Migration, Urbanization

Unit-III
Agriculture- characteristics of Indian agriculture, land use pattern, irrigation, major crops (rice, wheat, jowar, maize, sugarcane, cotton, jute, tea, and ), areas of surplus and deficit food production and problems of Indian agriculture. Food security with special reference to India.

Unit-IV
Industries- distribution and localization, factors of major industries (iron and steel, cotton, textiles, sugar, fertilizers, cement, automobiles), role of the public sector in Indian economy. Transport: Rail, Road, Airways and Waterways and International Trade

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of sessional work. The project work will include:
• identifying and categorizing major crops of Punjab area-wise, district-wise.
• preparation of a report on climate of their local area for a period of whole semester and submit their observations at the end of the semester.
• assignment related to map work.

Evaluation Scheme
The evaluation will be based on:
 i) Theory paper will consist of 60 marks (3 Credits) and 9 questions in all. The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2x6 =12 marks). In addition, eight long answer questions of 12 marks each will be set, taking two from each of four units of the syllabus, out of which the candidates will be required to attempt one from each unit. (12x4 = 48 marks).

 ii) Supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).

 iii) Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit)

Books Recommended:

9. MATHEMATICS
BABED-MATO63

Objectives
At the end of the semester, the students will be able to:
- define and exemplifies vector spaces, subspaces of various types along with the related theorms.
- discuss linear transformation, linear maps, matrices.
- discuss characteristics, roots and vectors and variety of matrices.
- understand the sequences and series of functions.
- explain power series and fourier series of functions.

UNIT-I: ANALYSIS - II
i. Double Integrals: Double Integral over A Rectangle, Repeated Integrals in R^2, Double Integrals over Bounded Non-rectangular Regions, Area of Bounded Regions in Plane, Double Integrals as Volumes, Change of Variables in Double Integrals, Change to Polar Coordinates, Area in Polar Coordinates.
ii. Triple Integrals: Triple Integral in Rectangular Coordinates, Triple Integrals over General Regions in R^3, Repeated Integrals in R^3, Volume of a Region in R^3, Change of Variables in a Triple Integral to Cylindrical and Spherical Coordinates Vector Integration: Line, Surface and Volume integration, Gauss divergence theorem, Stokes’ theorem, Green’s theorem.
UNIT-II: ANALYSIS - III
i. Sequences and series of functions: Pointwise and uniform convergence, Cauchy criterion for uniform convergence, Weierstrass M-test, Abel’s and Dirichlet’s tests for uniform convergence, uniform convergence and continuity, uniform convergence and Riemann integration, uniform convergence and differentiation, Weierstrass approximation theorem (Statement only).

ii. Abel’s and Taylor’s theorems for power series, Fourier series: Fourier expansion of piecewise monotonic functions, Fourier Series for Odd and Even Function, Half Range Series, Fourier Series in the Intervals \([0, 2\pi], [-1, 1] \text{ and } [a, b]\).

UNIT-III: LINEAR ALGEBRA
i. Vector Space: Definition and Examples of Vector Spaces, Subspaces, Algebra of subspaces, Linear span, Linear dependence and independence of vectors, Basis and dimension of a vector space, Basis and dimension of subspace, Direct sums and complements, Linear transformations, Rank and Nullity of a linear transformation, Vector space of linear transformations

ii. Linear transformations and matrices, Change of basis, Characteristic roots and characteristic vectors, Algebraic and Geometric multiplicity of a characteristic value, Cayley-Hamilton theorem, Diagonalizable operators and matrices, Minimal polynomial of a linear operator (matrix).

UNIT – IV: NUMERICAL ANALYSIS


Teaching Learning Experiences
In this paper, 80% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work like:
- teacher may familiarize the students with examples of course content
- teacher will give extensive practice in the mathematical skills.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all.
ii) The first question shall be of 12 marks, covering the entire syllabus and would be compulsory. It will consist of ten short answer type questions of which six are to be attempted (2 x 6 = 12 marks).

iii) In addition, eight long answer questions of 12 marks each will be set. Two questions from each of four units (one from each subpart of the unit) of the syllabus will be set, out of which the candidates will be required to attempt one from each unit (12 x 4 = 48 marks).

iii) Supervised Sessional work: Assignments, Individual term papers and two Class Tests (20 marks: 1 credit).

iv) Internal Assessment based on terminal examinations, attendance & classroom interaction (20 marks: 1 credit).

References:
12. I.N. Herstein, Topics in Algebra (Delhi Vikas).
13. V.Bist and V. Sahai, Linear Algebra (Narosa, Delhi).
GENERAL PRACTICUM

BABED-SRPC63
SCHOOL RELATED PRACTICUM (100 Marks)
CREDITS 5

- Development and Implementation of Value Inculcation Programme. A class/group of students/group of people in a locality may be identified and adopted for inculcating values (e.g. for inculcating value of cleanliness, a slum area may be identified and cleanliness of the campus) and a strategy may be applied to inculcate such values. A follow up may be maintained and consequences be used on weekly basis.
- Administration, Analysis & Interpretation of a Research tool. Visit a neighboring locality to identify some issues which need to be studied. The students will be required to take up small research project and make use of appropriate research tool over a small group and apply suitable statistics to interpret its results.

PRE-INTERNSHIP PROGRAMME (PHASE- II (02 WEEKS)) 50 Marks CREDITS 2.5

The students of the class will be divided into groups consisting of 9 to 10 students. Each group will visit one Govt. School of Chandigarh for two weeks and perform the following tasks of 50 marks:

<table>
<thead>
<tr>
<th>Task I</th>
<th>Preparation of five Micro lesson Plans in each teaching subjects in the following skills:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Skill of Introducing the lesson</td>
</tr>
<tr>
<td></td>
<td>• Skill of Probing questioning</td>
</tr>
<tr>
<td></td>
<td>• Skill of Stimulus Variation</td>
</tr>
<tr>
<td></td>
<td>• Skill of Explaining</td>
</tr>
<tr>
<td></td>
<td>• Skill of Reinforcement</td>
</tr>
<tr>
<td></td>
<td>(20 marks)</td>
</tr>
</tbody>
</table>

Task II- Observing the classroom teaching of regular and pupil teachers. At least 15 lessons must be observed by pupil teacher.

(20 marks)

Task III- After the completion of the pre-internship programme, pupil teacher shall be required to maintain a reflective diary or journal to record day to day happenings and reflections thereon.

(10 Marks)

BABED-LSTC63
LIFE SKILL TRAINING (100 Marks)
CREDITS 5

PART-A

(1) Drawing and Sketching - 20 sheets
   a) Pencil sketches - 2 sheets
   b) Landscapes - 2 sheets
   c) Collages (teaching subject) - 4 sheets (2 from each)
   d) Alphabets writing in blocks (A to Z) capital - 5 sheets
PART – A

(1) Writing on small:
- 2 sheets
  e) Number drawing (0 to 9) - 1 sheet  
  f) Cutting and Pasting - 4 sheets (2 from each teaching subject)
  (2) Motto writing - 4 sheets  
    (3 English and 1 Mother tongue)
  (3) Action Drawing - 5 sheets
  (4) Black Board plans - 6 sheets (3 from each teaching subject)
  (5) Charts (Display and write-up) - 2 (One from each teaching subject)

PART – B

B.B. Writing & Sketching on any topics from two teaching subjects.

Activities: (Session Work File should include)
  (a) Only Poster and Water colours in flat or graded tone.
  (b) Cutting, Pasting and Display of 2 pictures on display board.
  (c) Block lettering in ink or color on paper in English, Gurmukhi/Devnagari.
  (d) Writing in Gurmukhi, Devnagari or Roman script and sketching on chalkboard.
  (e) Simple freehand sketching of diagrams, figures, outline maps, fields, block diagrams of respective teaching subjects.
  (f) Keeping record of these activities duly signed by the teacher educators.

TUTORIALS

The students will be associated with one teacher, who will supervise individual progress on school related practicum, improvement in life skills, sessional work of various subjects, general problems related to academics and interaction among themselves etc. Also, the talent of individual students will be explored and nurtured.
<table>
<thead>
<tr>
<th>S. N.</th>
<th>NATURE</th>
<th>SUBJEC T CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COMPULSORY</td>
<td>BABED-EDUC13</td>
<td>PHILOSOPHICAL, SOCIOLOGICAL AND POLITICAL PERSPECTIVE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC14</td>
<td>THE LEARNER NATURE AND DEVELOPMENT</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-EDUC15</td>
<td>THEORY OF INSTRUCTIONAL TECHNOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>COMPULSORY</td>
<td>BABED-EDUC16</td>
<td>SCHOOL MANAGEMENT</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>COMPULSORY</td>
<td>BABED-EDU17</td>
<td>INFORMATION &amp; COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>COMPULSORY</td>
<td>BABED-TMENSC</td>
<td>PEDAGOGY OF NATURAL SCIENCES</td>
<td>3</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-TMESSC</td>
<td>PEDAGOGY OF SOCIAL SCIENCES</td>
<td>3</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>8</td>
<td>COMPULSORY</td>
<td>BABED-PEDAGOGY</td>
<td>PEDAGOGY OF</td>
<td>3</td>
<td>1</td>
<td>2.5</td>
</tr>
</tbody>
</table>
## COURSE STRUCTURE FOR SEMESTER VII
### OPTION II: B.ED. SECONDARY

<table>
<thead>
<tr>
<th>S. No.</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COMPULSORY</td>
<td>BABED-EDUC13</td>
<td>PHILOSOPHICAL, SOCIOLOGICAL AND POLITICAL PERSPECTIVE</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC14</td>
<td>THE LEARNER NATURE AND DEVELOPMENT</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-EDUC15</td>
<td>THEORY OF INSTRUCTIONAL TECHNOLOGY</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>COMPULSORY</td>
<td>BABED-EDUC16</td>
<td>SCHOOL MANAGEMENT</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>COMPULSORY</td>
<td>BABED-EDU17</td>
<td>INFORMATION &amp; COMMUNICATION TECHNOLOGY (ICT)</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TEACHING SUBJECT- I (ANY ONE )</td>
<td>(Options)</td>
<td>i)</td>
<td>ii)</td>
<td>iii)</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------</td>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BABED-TMS ENG</td>
<td>BABED-TMS HIN</td>
<td>TEACHING OF ENGLISH</td>
<td>TEACHING OF HINDI</td>
<td>TEACHING OF PUNJABI</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>BABED-TMS PBI</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>TEACHING SUBJECT- II (ANY ONE )</th>
<th>(Options)</th>
<th>i)</th>
<th>ii)</th>
<th>iii)</th>
<th>iv)</th>
<th>v)</th>
<th>vi)</th>
<th>vii)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BABED-TMS HIST</td>
<td>BABED-TMS GEO</td>
<td>TEACHING OF HISTORY</td>
<td>TEACHING OF GEOGRAPHY</td>
<td>TEACHING OF ECONOMICS</td>
<td>TEACHING OF POLITICAL SCIENCE</td>
<td>TEACHING OF SOCIOLOGY</td>
<td>TEACHING OF SOCIAL STUDIES</td>
<td>TEACHING OF MATHEMATICS</td>
</tr>
<tr>
<td>7</td>
<td>BABED-TMS SOC</td>
<td>BABED-TMS SS</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>BABED-TMS MAT</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 35
OPTION I: B. Ed. (Elementary) COURSE

PAPER I: BABED-EDUC13: THEORY OF EDUCATION: PHILOSOPHICAL, SOCIOLOGICAL AND POLITICAL PERSPECTIVE

Marks (Credits)

Total = 100 (5)

Theory = 60 (3)

Sessional Work = 20 (1)

Internal Assessment = 20 (1)

Examination Hours= 3 hours

Objectives
At the end of the semester the student teacher will be able to:

• explain the discipline of education in philosophical, sociological and political perspective
• discuss the contribution of eminent thinkers to education
• be aware of current acts in education
• Discuss the role and functions of UNESCO & UNICEF

Unit I
Philosophy: major schools of philosophy and their educational implications: Idealism, Naturalism, Pragmatism and Realism

Unit II
Contribution of western educational thinkers
   Plato, Rousseau, Dewey, Froebel

Unit III
Goals and values of emerging Indian society
   a) Democracy
   b) National integration
   c) International understanding
   d) Secularism

Unit IV
   b) Education in 21st century: planning, globalization and quality education, role and functions of UNESCO & UNICEF

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include
• power point presentations on the national issues.

**Evaluation Scheme**
The evaluation will be based on:

xx) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.

xxi) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3 = 12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4 = 48 marks).

xxii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

xxiii) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

**Suggested Readings:**

**PAPER II: BABED-EDUC14: THE LEARNER - NATURE AND DEVELOPMENT**

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong> = 100</td>
<td>5</td>
</tr>
<tr>
<td>Theory = 60</td>
<td>3</td>
</tr>
<tr>
<td>Sessional Work = 20</td>
<td>1</td>
</tr>
<tr>
<td>Internal Assessment = 20</td>
<td>1</td>
</tr>
<tr>
<td>Examination = 20</td>
<td>1</td>
</tr>
</tbody>
</table>

**Hours= 3 hours**
Objectives
At the end of the semester the pupil teachers will be able to:
- explain the various dimensions of personality of an individual
- describe the role of education in nurturing the creativity
- describe the concept of motivation
- explain the importance of mental health and ways and means to improve the mental health
- explain the concept & factors of learning

Course content
Unit I
Personality: concept, dimensions, theories of personality (Type, Trait, Type - cum- Trait theories), assessment of personality

Unit II
Learning:  meaning, factors, theories (Trial and Error, Classical conditioning, Skinner Operant Conditioning, Insight theory of learning), transfer of learning: concept and theories (Theory of identical elements & theory of generalization)

UNIT III
Creativity: meaning, process, assessment of creativity, role of education in nurturing of creativity
Motivation: concept & factors affecting motivation

UNIT IV
Mental health: concept and factors affecting mental health, importance of mental health, maintaining mental health of students, mental hygiene & mental health, Adjustment mechanisms

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include
- administration and interpretation of psychological tests: Personality.
- to study a pupil from an elementary school with reference to any one of the following
  i) study habits
  ii) behavioral problems
  iii) interest
  iv) attitude

Evaluation Scheme
The evaluation will be based on:
- Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
- The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to
attempt one question from each unit (12 x 4= 48 marks).

iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings:


PAPER III: BABED-EDUC15: THEORY OF INSTRUCTIONAL TECHNOLOGY

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

Hours= 3 hours

Objectives

After the instructional programme is over, the student teacher will be able to:

• explain the principles of instructional design and apply them to develop design of instruction
• describe different media and their applications
• explain the concept, process and application of team teaching, group interaction,
• discuss the need, concept and principles of self instruction programme.

Course content

Unit I
Instructional design: objectives & their formulation, principles, content selection and organization, design of instruction (basic model), content acquisition

Unit II
Communication: concept, process, types, barriers, optimizing communication, skills for Oral Performance.
Media: concept, types (mechanical and electronic), characteristics, uses of media.

Unit III
Interaction process: Flander’s Interaction categories Systems, concept, process & Importance.
Group discussion: concept, nature. Team teaching: concept, process & Importance. Simulation: concept & process

Unit IV
• Programmed Instruction: concept, rationale, types of programmed instruction-linear, branching and Mathetics Development of a Program.
• Computer assisted instruction: concept, applications, advantages, Limitations.
• ICT: meaning & concept, applications.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
• development of a design for different instructional goals with the content of their choice using computer.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).
iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
iv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).
Suggested readings

PAPER IV: BABED-EDUC16: SCHOOL MANAGEMENT

Marks (Credits)

Total = 100 (5)

Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3

Objectives
At the end of the semester the students will be able to:
• explain the various elements of school management
• explain the organization of various co-curricular activities
• enumerate the factors affecting classroom management
• explain the role and importance of various government agencies
• explain the significance & applications of TQM in education

Course Content
Unit I
Concept, Nature, Principles and elements of school management
Management of physical resources, Human Resource Management (human relations in educational organizations, group dynamics, Communication), Management of Financial Resources; Sources of Income; Planning and preparation of school budget, Grant in Aid systems.
Classroom management: concept, principles, dimensions, problems and remedies, approaches to classroom management, factors affecting classroom management. Teacher as effective manager.

Unit II
Leadership – Meaning, nature and principles of Leadership, Theories of Leadership (Contingency and situational), styles of Leadership, development of leadership qualities among teachers and students.
Decision Making- Nature, process of decision making, Centralization action and Decentralization of decision making, their merits and limitations.
Supervision-Problems and remedies of supervision , Role and qualities of supervisor, Planning, Organizing and implementing the supervisory programme.

Unit III
Total Quality management in Education: Concept, significance, principles, Applications of TQM in education
Use of ICT in Educational Management: ICT-A Tool for Resource Management; Barriers to effective use of Technology; Software for Record Keeping

Unit IV
Features of School Management System, Composition & Formation of School Management Committee (SMC), Engaging Community & Parents for SMC Formation, Training & Orientation of SMC, Functions of SMC, School Mapping and Micro Planning
Government support at various levels- central state, Local – NUEPA, RCI,CABE,CIET

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include-
• A survey on working of School Management Committee of a neighbourhood school.

Evaluation Scheme
The evaluation will be based on:
  i) Theory paper will consist of 60 marks (3 credits). There shall be 9 questions in all. Each question will carry 12 marks.
  ii) The first question, covering the entire syllabus, would be compulsory. It will consist of 4 short answer type questions of 3 marks each (4x3=12 marks). In addition, 8 long answer questions will be set, taking two from each unit of the syllabus, out of which the candidates will be required to attempt one question from each unit (12 x 4= 48 marks).
  iii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
  iv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings
After the instructional programme is over, the pupil teacher will be able to:

- explain different parts of computer and their functions.
- explain various computer applications.
- run different software on computer.
- describe Internet and its uses.
- able to use computer for enhancing teacher learning process.

COURSE CONTENTS

UNIT I
Computer revolution – its application in various fields
Generations of computer

UNIT II
Classification of the computers
Computer hardware: Input-Output Devices, Memory: Primary& Secondary

UNIT III
Characteristics of various computer languages: MLL / Assembly / HLL/4GL
Introduction to:
   i) Operating Systems
   ii) Compiler and Interpreter

UNIT IV
Features of applications software
Word Processor
Spreadsheets
Presentations
Data Base Management Systems
Internet Surfing, working with E-mail and chat

PRACTICAL

Total Marks (credits)= 40 (2)
Working Knowledge Marks (Credits) =10(0.5)
File and floppy/CD of one teaching lesson plan Marks (Credits) = 10 (0.5)
Viva-voice Marks (Credits) = 10 (0.5)
Internal Evaluation Marks (Credits) = 10(0.5)

Switching ON and OFF the PC and Basic of DOS
(MD, CD, RD, DEL, COPY CON, TYPE, EDIT, DIR, COPY, REN, CD.)

Use of following packages in creating web pages (Front page) MS-WORD, MS-EXCEL, MS-POWERPOINT, MS-ACCESS, MS-PUBLISHER.

Internet Surfing, working with E-mail and chat.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper at the end of the session consisting of eight questions two from each unit. The students will be required to attempt one question from each of the four units (60 marks: 3 Credits).
ii) Practical work will carry 40 marks: 2 Credits

BOOKS RECOMMENDED

PEDAGOGY OF SCHOOL SUBJECTS (B.Ed. ELEMENTARY)

PAPER V: BABED-TMENSC: PEDAGOGY OF NATURAL SCIENCE

Marks (Credits)
Total = 50 (2.5)
Theory = 30 (1.5)
Sessional Work = 10 (0.5)
Internal Assessment = 10 (0.5)
Examination

Hours= 3 hours
Objectives:
At the end of semester, student teachers will be able to:

- explain the place and importance of natural science in the school curriculum.
- identify the aims and objectives of teaching science.
- discuss and use different methods, devices and techniques of teaching science.
- use variety of learning experiences and instructional material and media while teaching science.
- describe planning and organization of teaching science.
- explain and use various procedures of evaluation.

Course content
Unit I
Impact of science and technology on modern living, instructional objectives of teaching science
Curriculum – meaning, principles of science curriculum construction

Unit II
Approaches and methods of teaching natural science – lecture demonstration method, project method, problem solving and inductive deductive approach

Unit III
Instructional media – need and importance, classification, selection and integration of media in teaching learning process (use of chalk board, flannel board, charts, models, overhead projectors, T.V. and computers)

Unit IV
Need and importance of practical work in science, improvisation of science apparatus, laboratory equipment and material, selection purchase, maintenance and safety measures

Unit V
Evaluation in science: concept, characteristics of good evaluation tool, evaluation in theory and practical test construction, analysis and interpretation. Construction of lesson plan in science: need, importance, steps, essentials of a good lesson plan

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:

- development of lesson plan in Science.
• student teachers will be required to submit a teaching aid useful in the teaching of science.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Suggested readings

PAPER VI: BABED-TMESSC: PEDAGOGY OF SOCIAL SCIENCE

Marks (Credits)

Total = 50 (2.5)
Theory = 30 (1.5)
Sessional Work = 10 (0.5)
Internal Assessment = 10 (0.5)

Objectives
Hours= 3 hours

At the end of semester, pupil teachers will be able to

• explain the nature and concept of social science.
• identify various methods, device and techniques of teaching social sciences at various levels.
• identify and use variety of learning experiences and instructional materials in teaching of social science
• describe the various innovative techniques of evaluation used in teaching social science.

Course content

Unit I
Social science: concept, nature and scope, rationale for a social studies programme at the elementary school
Aims and objectives of teaching social science

Unit II
Principles of organizing social science curriculum
Approaches of organizing social science curriculum – concentric, topical and unit approach

Unit III
Need importance, and use of audio visual aids – chalk board, flannel board, bulletin board, maps, globe, pictures, models, charts, graphs, time lines, overhead projector, flash cards, scrap book, exhibition
Social science room – need and importance and equipment

Unit IV
Devices and techniques of teaching social studies – exposition, explanation, narration, description, illustration, questioning, assignment, seminar and field trip

Unit V
Evaluation
Evaluation procedures used in teaching of social science, types of questions, diagnostic approach and remedial teaching used in teaching social science
Construction of lesson plan in social science-need, importance, steps and essentials of a good lesson plan

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include
- development of lesson plan in social studies
- student teachers will be required to submit a teaching aid useful in the teaching of social studies.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).
ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books Suggested

PAPER VII: BABED-TMEMAT: PEDAGOGY OF MATHEMATICS

Marks (Credits)

Total = 50 (2.5)
Theory = 30 (1.5)
Sessional Work = 10 (0.5)
Internal Assessment = 10 (0.5)
Examination

Hours= 3 hours

Objectives
At the end of semester, the student teachers will be able to
- identify and use various methods and models of teaching mathematics.
- describe the use of various teaching aids in teaching mathematics.
- explain the concept of evaluation and prepare various tools of evaluation.

Course content
Unit 1
What is mathematics; patterns, reasoning, generalizations, nature of mathematical statements – axioms and postulates, explanations and proofs, necessity and efficiency

Unit II
Pedagogical considerations in geometry, practical arithmetic, number, algebra, data handling and statistics, ratio and proportional reasoning

Unit III
Methods and approaches of teaching mathematics
Inductive – deductive
Experimental – laboratory
Analytical – synthetic
Mastery learning strategy: concept, importance, process, types, learning outcomes, use of remediation and enrichment

Unit IV
Communicating mathematics: activity, graphical methods—construction, measurement, modeling, computation. Use of teaching aids in mathematics: charts, chalkboard, slides, filmstrips, video film, comp

Unit V
Evaluation
Achievement tests (norm referenced and criterion referenced test)
Speed test and power test
Diagnostic test and remedial work

Construction of lesson plan in mathematics – need, importance, principle, steps, essentials of a good lesson plan

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include
- development of lesson plan in mathematics.
- student teachers will be required to submit a teaching aid useful in the teaching of mathematics.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Suggested Readings:

PAPER VIII: BABED-TMELAN: PEDAGOGY OF LANGUAGE

Marks (Credits)
Total = 50 (2.5)
Theory = 30 (1.5)
Sessional Work = 10 (0.5)
Internal Assessment = 10 (0.5)
Examination
Hours= 3 hours

Objectives:
The pupil teachers will be able to
- Describe the various approaches for planning of successful language teaching.
- prepare instructional materials, projects, teaching aids, tasks and tests for effective teaching.
- explain various methods of teaching English.
- explain the concept of evaluation in English.

Course content
Unit I
Language – nature and importance, objectives, maxims, principles of teaching language

Unit II
Developing language skills – listening and speaking
Teaching listening skills
  Identification of sounds
  Understanding syntactic patterns
Teaching/speaking skills
Teaching of presentation skills
  Poetry
  Dramatization
  Paper reading
  Extempore
  Making short speeches

Unit III
Developing language skills: reading and writing
  a) Intensive and extensive reading
  b) Teaching writing to beginners – choice of script, materials, techniques of copying from blackboard, flash cards, substation table, dictation and spelling

Unit IV
Material and teaching aids
Audio visual aids to language teaching- advantages of audio- visual aids, black board, charts, pictures, flash cards, tape recorder, radio films, gramophone, television , OHP, LCD projector, computers

Unit V
Evaluation of learning outcomes in languages: Taxonomy of tests, discrete point and integrative tests, communicative testing, participatory evaluation
Lesson planning: importance of planning work, how to make a lesson plan

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:

- student teachers will be required to submit a teaching aid useful in the teaching of Language.
- for interactive teaching and learning, student teachers will be given experience in language lab.
- development of lesson plan in teaching of language.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books Recommended:
5. Cyclostyled notes for teachers of English produced by the Regional Institute of English, Chandigarh.

PEDAGOGY OF SCHOOL SUBJECTS (B.Ed. SECONDARY)

PAPER VI: TEACHING SUBJECT - I (ANY ONE OF THE FOLLOWING)
i) BABED-TMS ENG: TEACHING OF ENGLISH
ii) BABED-TMS HIN: TEACHING OF HINDI
iii) BABED-TMS PBI: TEACHING OF PUNJABI

PAPER VI (OPTION i): BABED-TMS ENG: TEACHING OF ENGLISH

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

Hours = 3 hours

Objectives
At the end of the semester, the pupil teacher will be able to:

- describe the nature and characteristics of language.
- explain and evaluate basic language skills such as listening, speaking, reading and writing and integrate them for communicative purposes.
- explain the important methodologies and techniques of teaching English.
- prepare and use appropriate audio visual teaching aids for effective teaching of English.

COURSE CONTENT
Unit I
1. Teaching of English in India today
   a) Importance of English in India
   b) Conditions under which English is taught and learnt, declining standards and suggested remedies

2. Nature of language
   a) Linguistic principles
   b) General principles of teaching and learning a language.

Unit II
Methods and approaches of teaching of English
1. Grammar -translation method
2. Direct method
3. Bilingual method
4. Structural –situational approach
Unit III
1. Teaching of listening skills
   a) Identification of sounds
   b) Understanding syntactic pattern
   c) Identifying information
   d) Identifying emotional/attitudinal tone
2. Teaching of speaking skills
   i. Teaching of presentation skills (communication language Teaching approach)
      a) Poetry Recitation
      b) Dramatization
      c) Declamation
      d) Paper reading
      e) Extempore
      f) Role playing

Unit IV
Developing language skills: Reading and Writing
1. Teaching reading skills
   a) Teaching mechanics of reading
   b) Teaching reading to beginners (methods)
   c) Teaching reading comprehension
2. Teaching writing skill
   a) Mechanics of writing
   b) Teaching writing to beginners
   c) Teaching of composition from controlled to free practices
   d) Creative writing

Unit V
Lesson planning and evaluation
1. Lesson planning
   Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement.
   Macro lesson – prose, poetry, story, grammar and composition
2. Audio-visual aids
   a) Essential qualities of teaching aids – with special reference to OHP, LCD projector, computers
3. Evaluation
   a) Types of test and characteristics of a good test
   b) Development of test items for testing language activities in English

Teaching Learning Experiences
   In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
• development of lesson plan.
• student teachers will be required to submit a teaching aid useful in the teaching of English.

Evaluation Scheme
The evaluation will be based on:
   i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).
   ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
   iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Suggested Readings:
PAPER VI (OPTION ii): BABED-TMS HIN: TEACHING OF HINDI

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours

हिंदी भाषा शिक्षण

लक्ष्य :
1. भाषी शिक्षकों में हिंदी शिक्षण के लिए भाषा समस्त आधारभूत योग्यताओं का विकास कराना।
2. भाषी शिक्षकों में हिंदी भाषा शिक्षण समस्त योग्यताओं का विकास कराना।
3. भाषी शिक्षकों में हिंदी शिक्षा प्रक्रमण अपेक्षित कुशलताओं का विकास कराना।
4. भाषी शिक्षकों में हिंदी समस्त विभिन्न कक्षाओं में भाष्कर एवं साधारण विषयों के आयोजन की क्षमता का विकास कराना।
5. सहायक सामग्री के निर्माण एवं प्रयोग की कुशलता का विकास कराना।

प्रथम इकाई :

1. हिंदी भाषा-प्रथम, आधार एवं प्रकृति
2. विद्यार्थी तिथि की विषयांत एवं सीमाएँ
3. हिंदी भाषा का महत्व-मातृभाषा एवं राष्ट्रीय भाषा के रूप में
4. हिंदी शिक्षण के सामान्य एवं स्तरानुकूल किस्मतिक क्रियाओं के आयोजन की क्षमता का विकास कराना।

द्वितीय इकाई :

1. हिंदी वोल्यूम की शिक्षा-महत्व उद्देश्य एवं विद्याओं
2. उच्च उच्चारण की शिक्षा-महत्व, उच्चारण दोष के कारण, उपाय
3. व्याकरण शिक्षण-महत्व, उद्देश्य एवं विद्याओं
4. हिंदी लेखन शिक्षण-महत्व, उद्देश्य एवं विद्याओं

तृतीय इकाई :

1. हबड़े शिक्षण-उद्देश्य, सोपान एवं विद्याओं
2. पढ़ाया शिक्षण-उद्देश्य, सोपान एवं विद्याओं
3. हबड़े वाचन शिक्षण-उद्देश्य, वाचन संदर्भ के कारण एवं उपाय

चतुर्थ इकाई :

1. हबड़े दृश्य-अव्याक्त-प्रयोग एवं महत्व
2. पढ़ाया पुस्तक की विषयांत एवं हिंदी शिक्षण में पाठमूल-पुस्तक का महत्व
3. हिंदी भाषा शिक्षण में पुस्तकालय की उपयोगिता
4. हबड़े हिंदी अत्यावश्यक पुस्तक

पंचम इकाई :

1. हिंदी में मूल्यांकन एवं परीक्षाएँ-अभिव्यक्ति, महत्व व विधि प्रकार
2. उपहार नवाचार-स्थापन, संशोधन क्रियाएँ एवं विद्याओं
3. हबड़े प्रश्न पत्रा निर्माण-आवश्यक प्रश्न पत्रा के विधिनत
4. खुशी-शिक्षण-अभिव्यक्ति एवं कोशिल-अनुशीलन प्रश्न कोशिल, व्याख्या कोशिल, उद्देश्य परिवर्तन कोशिल, वृद्धार्थ-व्याख्या कोशिल, पुनः श्लोक कोशिल

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:

• development of lesson plan in hindi.
• student teachers will be asked to submit a teaching aid useful in the teaching of Hindi.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

**Pustak Sauri :**

1. खन्ना, व्यूति ।2009ड़, हिंदी शिक्षण, भारतराय एण्ड कम्पनी, नई दिल्ली।
2. सामा, डी. के. ।1999ड़, हिंदी शिक्षण विषय, टप्पड़ पाल्लोकेशन, लुद्दीयाना।
3. रमण बिहारी लाल ,1996–97ड़, हिंदी शिक्षण, स्लोणी एण्ड कम्पनी, मैदेंड।
4. सामा, डी. एल. ।1992ड़ए हिंदी शिक्षण, देव नागर प्रकाशन, जयपूर।
5. माहिया के.के. और नायर, सी. एल. ।1989ड़, आधुनिक हिंदी विषय, प्रकाश ब्रजर पब्लिशर, लुद्दीयाना।
6. सिल्हा प्रसाद शहाण ।1964ड़, हिंदी भाषा की शिक्षण विषय, दिल्ली पुस्तक सदन, पटना।
7. प्रसाद कंशव ।1976ड़, हिंदी शिक्षण, भारतराय एण्ड कम्पनी, नई दिल्ली।
8. सरफ़ार रसुलाद ।1986–97ड़, हिंदी शिक्षण विषय, पंजाब विद्यापीठ, जालंधर।
9. सुदूष विजय, ।1997ड़, हिंदी शिक्षण विषय, टप्पड़ पाल्लोकेशन, लुद्दीयाना।
10. सिंह सावित्री ।1997ड़, हिंदी शिक्षण, लायल बुक डिपोर्ट, मैदेंड।
11. सूबा योगेंद्र ।1968ड़, मालामाला शिक्षण, विनोद पुस्तक मन्दिर, आगरा।
12. जीत योगेंद्र माई ,1972ड़, हिंदी शिक्षण, विनोद पुस्तक मन्दिर, आगरा।
13. वर्मा, मैनैथ प्रसाद ।1973ड़, हिंदी शिक्षण, पहरी, बिहार हिंदी प्रथा अकादमी, पटना।
14. जय जसवन्त सिंह, ।1975ड़, आधुनिक हिंदी शिक्षण, पहरी, न्यू बुक कम्पनी, जालंधर।

**PAPER VI (OPTION iii): BABED-TMS PBI: TEACHING OF PUNJABI**

पंजाबी बाल्क दी निम्नेरक हियी

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong> = 100 (5)</td>
</tr>
</tbody>
</table>

- **Theory** = 60 (3)
- **Sessional Work** = 20 (1)
- **Internal Assessment** = 20 (1)

**Examination Hours** = 3 hours

1. हिंदीभाषी अभिव्यक्तिपुर्भ हैँ बाल्क, पंजाबी बाल्क अवु गुज़वाबी हियी बाल्क मुन्नल हिष्ण क्षेत्र।
2. भाषा बाल्क दी निम्नेरक दे हिजरन अवु निपणग दी मन्नल वर्ष।
3. बाल्क कुलक अवु बिहिभागी दी सुज़वाबी बुि अवु अभिव्यक्ति बाल्क क्षेत्र जाँग।
4. मैरियाबी पूजीितह लहर निगराइल भूजाबी भाल सरतोधी हियी भरुच्चुरुच्चुरु लहर दी भेल बाल्क क्षेत्र मान्तिउ बाल्क।
Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
• development of lesson plan in Punjabi.
• student teachers will be asked to submit a teaching aid useful in the teaching of Punjabi.

**Evaluation Scheme**

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

**मानकिक युक्तियाँ**:

1. पंजाबी भाषा, विश्लेषण के लिए ग्रंथ, पंजाबी पुरुषोत्तममूल, विद्वत्ता.
2. पंजाबी नसीब तथा नसीब-सेवें टेक्स्ट वेचे: हृ उल्लभ रिवाज।
3. भारतवर्ष की तिथिका हिंदी: हृ नामदेव मिश्र नाम।
4. पंजाबी भाषा के अध्यापन असलियत: हृ दीर्घकृत् मिश्र राजवंश।
5. पंजाबी माध्यम की विद्वानों ने हिंदी, नियुक्ति दिशा के, नवमित्र मिश्र, श्रीमति मिश्र राजस्
   के, तिथिका सुख धर, सुखीमत।
6. मंचवाला दी रचना: पंजाबी वालिन, ऊ. धीरेंद्र रिवाज (संपादक.) पवित्रविभिन्त्व विचित्रें, विचित्रें।
7. पंजाबी नवजीवन के मूलंक संपादन, नीति भाषा रेखा, राजम धर राजस्वीर, अधिकृत, 1999
8. पंजाबी भाषा सिद्धी ने हिंदीउत्तम, दक्षिन मिश्र विद्वान धर वाजव, 2006

**PAPER VII: TEACHING SUBJECT - II (ANY ONE OF THE FOLLOWING)**

i) HISTORY
   BABED-TMS HIS: TEACHING OF

ii) GEOGRAPHY
   BABED-TMS GEO: TEACHING OF

iii) ECONOMICS
   BABED-TMS ECO: TEACHING OF

iv) POLITICAL SCIENCE
   BABED-TMS POL: TEACHING OF

v) SOCIOLOGY
   BABED-TMS SOC: TEACHING OF

vi) SOCIAL STUDIES
   BABED-TMS SST: TEACHING OF

vii) MATHEMATICS
    BABED-TMS MAT: TEACHING OF
PAPER VII (OPTION i) : BABED-TMS HIS: TEACHING OF HISTORY

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3 hours

OBJECTIVES
At the end of the semester, the student teacher will be able to:

• describe the scope and importance of history.
• construct and analyze critically the curriculum of teaching history at secondary stage.
• explain different methods of teaching history.
• prepare and use teaching aids such as maps, models, charts, graphics, timelines and computer.

COURSE CONTENTS
UNIT I
a) Meaning, nature, scope and importance of history as a subject
b) Aims, objectives and values of teaching history at secondary level
c) Relation of history with other school subjects (social sciences and physical sciences)

UNIT II
a) Principles of curriculum construction and different approaches to construct curriculum in history
   i. Chronological or periodical
   ii. Concentric
   iii. Topical
b) Need and importance of good text book, criteria for selection of good text book and critical analysis of history text book at secondary stage

UNIT III
Methods of teaching history
a) Story telling method
b) Lecture method
c) Discussion method
d) Source method
e) Project method

UNIT IV
a) Need, importance, preparation and use of teaching aids
b) Types of teaching aids
   i. Audio-tape recorder, radio
   ii. Visual-black board, charts, graphs, maps, globe, models, specimens, time-line, excursions and field trips, still movies, museum, diagram, bulletin board, flannel board, film strips. Some specific A.V. aids: Epidiascope, overhead projector, films, computer
   iii. History room, history teacher

UNIT V
Evaluation and planning instruction in history
   a) Need, importance and concept of evaluation including continuous comprehensive evaluation
   b) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement.
   c) Elements of a lesson plan and contents analysis of a topic in term of knowledge, skills and attitudes in teaching of history

Teaching Learning Experiences
   In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
   • development of lesson plan in History.
   • student teachers will be asked to submit a teaching aid useful in the teaching of History.

Evaluation Scheme
   The evaluation will be based on:
   i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).
   ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
   iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books Suggested
PAPER VII (OPTION ii) : BABED-TMS GEO: TEACHING OF GEOGRAPHY

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

Hours= 3 hours

Objectives
At the end of the semester, pupil teacher will be able to:

• explain and use various methods of teaching geography.
• explain the principles governing construction of geography.
• explain the use different audio-visual aids involved in teaching of geography.
• explain the concept of evaluation in geography.

COURSE CONTENTS

UNIT I
a) Meaning, nature and scope of geography: importance of geography as school subject
b) Aims and objectives of teaching of geography: correlation with other school subjects-history, mathematics, science, civics, arts, economics and languages

UNIT II
Methods of teaching geography
a) Lecture method
b) Discussion method
c) Project method
d) Direct method
e) Excursion method
f) Laboratory method

UNIT III
a) Geography textbooks: need and importance, qualities of good text books
b) Need and importance of audio-visual aids, preparation and use of teaching aids, chalk boards, flannel board, radio, T.V., maps, globe, graphs, film strips, V.C.R., overhead projectors, slide projectors, LCD projectors
c) Need and importance of geography and its equipments

UNIT IV
a) Geography teacher: qualities and functions
b) Role of geography in developing national and international outlook
c) Local geography: meaning and importance

UNIT V
a) Evaluation of geography, modern concept, need and importance
b) Different types of test: essay type, short answer type and objective type
c) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement.
d) Writing of lesson plans in geography-macro lesson plans.

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:

- development of lesson plan in geography.
- student teachers will be asked to submit a teaching aid useful in the teaching of geography.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Suggested Readings:

5. Rao, M.S. (1999), Teaching of Geography. Anmol Publisher Pvt Ltd, New Delhi
PAPER VII (OPTION iii): BABED-TMS ECO: TEACHING OF ECONOMICS

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours=

3 hours

Objectives
At the end of the semester, the pupil teachers will be able to:

• describe concept, principles and theories of economics.
• explain aims and objectives of teaching of economics.
• explain different methods of teaching, devices and techniques of evaluation.
• explain the use of different teaching aid involved in teaching of economics.

COURSE CONTENT
UNIT I
a) Importance of teaching of economics
b) Aims and objectives of teaching of economics
c) Correlation of economics with mathematics, statistics, history, geography, science, political science, commerce and sociology

UNIT II
a) Principles of constructing curriculum of economics
b) Approaches of organization of material of economic curriculum
   i) Unit
   ii) Concentric
   iii) Tropical
c) Critical analysis of economics syllabus at the secondary and senior secondary stage

UNIT III
Methods of Teaching
a) Lecture method
b) Source method
c) Discussion method
d) Problem method
e) Project method
f) Survey method
g) Inductive-Deductive method
UNIT IV
a) Economics text book (importance and qualities)
b) Teacher of economics- importance, qualities and competence
c) Teaching aids – meaning, importance and types
   Use of chalk board, flannel board, diagrams, charts, table graphs, pictures,
   O.H.P., T.V., films, computer with multimedia, flash cards, L.C.D. projector

UNIT V
a) Evaluation – meaning and importance of evaluation
b) Tools of evaluation-oral tests, written tests, essay type tests, short answer type
   tests and objective type tests
c) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation,
   Explaining & Reinforcement.
d) Lesson planning-meaning, characteristics, importance and steps

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way
of lectures, discussions and presentations. The remaining portion will be covered
in the form of individualized sessional work which will include:
   • development of lesson plan in Economics.
   • student teachers will be asked to submit a teaching aid useful in the teaching of
     Economics.

Evaluation Scheme
The evaluation will be based on:
i) Theory paper will consist of ten questions two from each unit. The
   students will be required to attempt one question from each of the five
   units (60 marks: 3 credits).
ii) Supervised sessional work: project work, team presentations, individual
    term papers and seminars (20 marks: 1 credit).
iii) Internal assessment based on terminal examinations, attendance,
    classroom interactions, etc. (20 marks: 1 credit).

Books recommended:
   Ludhiana.
   Pustak Mandir, Agra.
   New Delhi.
   Meerut.
PAPER VII (OPTION iv): BABED-TMS POL: TEACHING OF POLITICAL SCIENCE

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours =

3 hours

Objectives
At the end of the semester, pupil teacher will be able to:

• describe the importance of teaching of political science as a subject.
• analyze critically the curriculum of the political science at secondary stage.
• analyze different methods of teaching political science.
• explain the use of different audio-visual aids and latest information technologies.
• explain and analyze different techniques of evaluation in political science.

Course content
Unit I
a) Meaning, nature, scope and importance of teaching of political science as a subject
b) Aims and objectives of teaching of political science at secondary level
c) Relation of teaching of political science with other school subjects

Unit II
a) Curriculum organization: principles of curriculum construction and critical study of existing curriculum of teaching of political science in any school class and methods of organizing material –concentric, topical, unit and chronological approach
b) Methods of teaching political science: story telling, lecture, discussion, source, problem solving and project method

Unit III
a) Devices of teaching political science: assignments, questioning, illustrations, exposition, narration and description
b) Need, importance and use of audio-visual aids, chalk boards, display boards, maps, globes, models, charts, graphs, time line, over head projectors, specimen, field trips, flashcards, exhibition, computers, TV and radio

Unit IV
a) Political science teacher: qualities and role in changing times
b) Political science text book: need, importance and qualities

c) Utilizing current events and community resource in teaching of political science

Unit V

a) Evaluation in political science: modern concept, importance and types; preparing blue prints, writing objectives based test items

b) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement.

c) Lesson plan: need, importance and steps of writing it in teaching of political science

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:

- development of lesson plan in political science.
- student teachers will be asked to submit a teaching aid useful in the teaching of political science.

Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books recommended:


PAPER VII (OPTION v): BABED-TMS SOC: TEACHING OF SOCIOLOGY

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination

Hours= 3 hours

Objectives

At the end of the semester, the pupil teacher will be able to:
- explain the aims and objectives of teaching sociology.
- explain different methods and techniques of teaching sociology.
- describe the use of different audio-visual aids in teaching of sociology.
- explain different techniques of evaluation.

Course content

Unit I
a) Meaning, nature, scope and importance of sociology in modern context
b) Relation of sociology with other subjects, political science, history, literature (languages), psychology and geography
c) Aims, objectives and values of teaching sociology

Unit II
a) Principles of construction curriculum of sociology
b) Approaches of organization of sociology curriculum
   i) Unit
   ii) Concentric
   iii) Topical
c) Critical analysis of sociology syllabus at the senior secondary stage

Unit III
Methods of teaching
1. Lecture method
2. Discussion method
3. Project method
4. Source method
5. Problem method
6. Survey method

Unit IV
a) Sociology text-books: importance and qualities, supplementary material
b) Teacher of sociology – importance, qualities and competence
c) Teaching aids: meaning, importance and types
d) Use of chalkboard, charts, picture, O.H.P., T.V. films, computer, radio, maps, globes, graphs

Unit V
a) Evaluation- meaning, modern concept, importance and types; preparing blueprint and writing objective based test items
b) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement.
c) Lesson plan: need, importance and steps of writing it in teaching of sociology

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
- development of lesson plan in sociology.
- student teachers will be asked to submit a teaching aid useful in the teaching of sociology.

Evaluation Scheme
The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

PAPER VII (OPTION vi): BABED-TMS SST: TEACHING OF SOCIAL STUDIES

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total = 100 (5)</strong></td>
</tr>
<tr>
<td><strong>Theory = 60 (3)</strong></td>
</tr>
<tr>
<td><strong>Sessional Work = 20 (1)</strong></td>
</tr>
<tr>
<td><strong>Internal Assessment = 20 (1)</strong></td>
</tr>
<tr>
<td><strong>Examination</strong></td>
</tr>
<tr>
<td><strong>Hours= 3 hours</strong></td>
</tr>
</tbody>
</table>

Objectives
At the end of the semester, the pupil teachers will be able to:
- explain the aims and objectives of teaching social studies.
- explain different methods, devices and techniques of teaching social studies.
- analyze modern concepts and tools of evaluation.
- prepare and make effective use of teaching aids.
- develop various skills in questioning, explaining, map reading, set induction, stimulus variation.
- explain challenging situations in the society.
COURSE CONTENTS

UNIT I
a) Meaning, nature, scope and importance of social studies
b) Aims and objectives of teaching of social studies
c) Relationship of social studies with other subjects - mathematics, commerce, science, arts and languages

UNIT II
a) Principles of organizing social studies curriculum
b) Approaches of organizing social studies curriculum - concentric, topical and unit approach
c) Critical evaluation of existing curriculum of social studies at secondary stage

UNIT III
a) Methods of teaching social studies - story telling, lecture, discussion, source problem solving and project method
b) Devices and techniques of teaching of teaching social studies - exposition, explanation, narration, description, illustration, questioning, assignment, seminar, supervised study and field trip

UNIT IV
a) Audio visual aids: Meaning, importance, types and uses of chalk board, flannel board, bulletin board, maps, globe, pictures, models, charts, graphs, time lines, over head projector, flash cards, scrap book, exhibition, radio, TV and computers
b) Social studies teacher - qualities and role in changing times

UNIT V
a) Evaluation – meaning and importance of evaluation, Tools of evaluation - oral tests, written tests, essay type tests, and objective type tests
b) Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Map reading.
c) Lesson planning - meaning, need & importance and steps of writing it in teaching of social studies

Teaching Learning Experiences

In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of Individualized sessional work which will include:
• development of lesson plan in social studies through power point presentation.
• student teachers will be asked to submit a teaching aid useful in the teaching of social studies.
Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books Recommended:


PAPER VII (OPTION vii): BABED-TMS MAT: TEACHING OF MATHEMATICS

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>60 (3)</td>
</tr>
<tr>
<td>Sessional Work</td>
<td>20 (1)</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 (1)</td>
</tr>
</tbody>
</table>

Objectives:

3 hours

- To develop an understanding of the nature and values of mathematics.
- To appreciate the contribution of various mathematicians.
- To acquire knowledge of pedagogical analysis of various concepts in mathematics.
• To practice the various methods and techniques of teaching mathematics.
• To develop an understanding of various approaches of organizing the curriculum.
• To develop an understanding of preparation and use of diagnostic test and organize remedial teaching catering to the individual differences.
• To develop the skill of conducting recreational activities of mathematics.
• To know the importance of teaching mathematics in relation to other subjects
• To formulate the general instructional objectives and specific learning outcomes
• To acquire competence in teaching mathematics and structuring lesson plans

Unit I
Meaning, Nature & Characteristics of Mathematics; Concept of Vedic Mathematics; Values of Teaching Mathematics; Mathematics and its relationship with other disciplines; Contribution of Mathematicians - Aryabhatta, Ramanujam, Euclid, Pythagoras. Aims of Teaching Mathematics; Formation of Instructional Objectives in Behavioural Domain.

Unit II
Principles of Selection & Organization of Curriculum; Approaches to Curriculum Construction- Topical and Concentric; Qualities of a good Mathematics Text Book. Teaching Aids in Mathematics: 2 Dimensional- Charts, Cutouts, Pictures, Graphs; 3 Dimensional-Models, Objects, and Abacus; Electronic mode- Calculators & Internet.

Unit III

Unit IV

Unit V
Micro Teaching Skills: Set Induction, Probing Questioning, Stimulus Variation, Explaining & Reinforcement. Lesson Planning: Meaning, Need & Importance and Steps of Lesson Planning; Formation of Macro Lesson Plan.

Teaching Learning Experiences
In this paper, 60% academic transactions will be teacher directed by way of lectures, discussions and presentations. The remaining portion will be covered in the form of individualized sessional work which will include:
• development of lesson plan in mathematics.
• student teachers will be asked to submit a teaching aid useful in the teaching of mathematics.
Evaluation Scheme

The evaluation will be based on:

i) Theory paper will consist of ten questions two from each unit. The students will be required to attempt one question from each of the five units (60 marks: 3 credits).

ii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

iii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books recommended:


**B.A. B.Ed. (2017-18)**

**Semester VIII**

**COURSE STRUCTURE FOR SEMESTER VIII**

**OPTION I: B.ED ELEMENTARY**

<table>
<thead>
<tr>
<th>S.No</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>LECTURE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COMPULSORY</td>
<td>BABED-PPI T01</td>
<td>REPORT OF VISIT TO CENTER OF INNOVATION IN ELEMENTARY SCHOOL EDUCATION</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>2</td>
<td>COMPULSORY</td>
<td>BABED-PPI T02</td>
<td>DOCUMENT AND TEXT ANALYSIS</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-PPI T03</td>
<td>DEMONSTRATION LESSONS</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>COMPULSORY</td>
<td>BABED-PPI T04</td>
<td>OBSERVATION OF DEMONSTRATION LESSONS</td>
<td>2</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>COMPULSORY</td>
<td>BABED-PPI T05</td>
<td>DEVELOPING UNIT</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>
OPTION I: B. Ed. (Elementary) COURSE

Marks: 500
Credits: 30

PEDAGOGY PRACTICE & INTERNSHIP PROGRAMME
The school Internship programme is envisioned to offer an intense and focused school experience. Structured to be a process in partnership between the school and the intern, the programme seeks to provide psychological space for evolving innovations in teaching. While functioning as a regular teacher, the intern gets the opportunity to translate the knowledge base, pedagogic theory, and understanding of children and the repertoire of skills into reflective classroom practice. The school benefits from this alliance in terms of witnessing possibilities of unconventional pedagogies.

Objectives
After the course is over, the students will be able to

- develop a comprehensive understanding of existing classroom practices.
- develop a critical understanding of textbook lessons of individual subjects and their suitability for learning.
- draw linkages between various pedagogy courses and classroom practices.
- critically review policy and state documents on education and seek to effect ideas into classroom practices.
- develop and design alternative teaching – learning materials.
• assess factors that contribute to a classroom culture, its creation and maintenance.
• explore possibilities of innovation and create space for alternative practices.
• design, choose, organize, and conduct individual and group activities.
• reflect on personal experiences of classroom management.
• to learn to set realistic goals in terms of children’s learning, classroom management, curricular form and content and pedagogic practices.
• to develop the ability to innovate within existing frameworks by alternative practices.
• to purposefully use the skills of systematic observations, record keeping and for reflection on teaching-learning process.

TASKS (TOTAL MARKS = 500, CREDITS = 25)
Internal Evaluation

Students will take up the following tasks in VIII Semester.

BABED-PP1 T01
Task I: Report of visit to center/s of Innovation in Elementary School Education
(Marks = 10, Credit = 0.5)

Students in groups of 4-6 will visit one centre of innovation practice in elementary School education. The aim is to expose students to the practice of innovation in diverse settings: rural, urban, formal, non-formal etc. This could include detailed observations of alternative practices as well as trying innovative approaches with children.

BABED-PP1 T02
Task II: Document and text analysis
(Marks = 10, Credits = 0.5)

a) To study significant issues in National Curriculum Framework documents, Policy documents and other relevant official documents of education.
b) To critically review elementary school textbooks in order to understand the progression of concepts; the requirement of diverse learning opportunities for individual learning capacities and pace; conceptual demands, scope for spiral learning.
c) To undertake a comparative study of state curriculum and an alternative developed within the country or outside.
BABED-PP1 T03
Task III: Demonstration Lessons  (Marks = 20, Credits = 1.0)

BABED-PP1 T04
Task IV: Observation of Demonstration Lessons  (Marks = 30, Credits = 1.5)

BABED-PP1 T05
Task V Developing Unit Plans  (Marks = 10, Credits = 0.5)

BABED-PPI T06  (Internal and External Evaluation)
Task VI: Supervised Teaching Practice  (Marks = 400, Credits = 20, 40 working days)

40 lessons, each to be supervised.
Teaching in elementary classes will involve teaching of four subjects (pedagogy papers)

BABED-PP1 T07
Task VII: Record Keeping  (Marks = 10, Credit = 0.5)
Spread over teaching practice and internship schedule
• Regular written records of the lesson plans
• Observation of lessons (minimum ten distributed lessons)

BABED-PP1 T08
Task VIII: SWOT Analysis and Identification of problem children  (Marks = 10, Credit = 0.5)
• Identification of needs of individual children including mentally and physically challenged children “labeled” as failures and children with specific learning disabilities.
• Identification of infrastructural problems within the school such as broken blackboard, broken furniture, inadequacy of space, drinking water, etc and providing appropriate individual and school level solutions.

Supervisory support
Interns will work under the professional guidance and facilitation of faculty supervisors. Supervision will be provided at two levels.

a) General in terms of teaching learning process, classroom organization, management and planning.
b) Subject supervision in terms of Language, Mathematics and Environmental Science at the primary level.
Supervision visits need to be worked out amongst the faculty. The supervisors would follow agreed upon appropriate formats for recording observations of interns and evaluation parameters and criteria. More specifically, the supervisors will:

- act as a mediator between the intern and the course vision and curriculum.
- help to establish liaison between the intern and the cooperating (regular) teacher of the school.
- facilitate the intern to reflect on the classroom practices, the struggle with unconventional practices, matter of classroom discipline, translating ideas/plans into effective practice and clarifying concept to be taught.

**Evaluation**

- classroom observations : knowledge base
- regular supervision : oral and written communication
- rotators supervision : culture of learning,
  choice of activities and materials,
  sensitivity towards need of children,
  classroom management,
  description of classroom practices,
  analysis and reflection of experiences,
  quality of development in the intern’s reflection,
  conceptual clarity and an understanding of the linkage between classroom practice and theory,
  summative report
- unit plans used, : appropriateness of the activities and materials used,
  organization and time allotment,
  method of introduction and summing up,
  use of various skills
### COURSE STRUCTURE FOR SEMESTER VIII

#### OPTION II: B.ED SECONDARY

<table>
<thead>
<tr>
<th>S.No</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
<th>PRACTICAL</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COMPULSORY</td>
<td>BABED-PPI T09</td>
<td>DOCUMENT ANALYSIS</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>2</td>
<td>COMPULSORY</td>
<td>BABED-PPI T10</td>
<td>SWOT ANALYSIS</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-PPI T11</td>
<td>IDENTIFICATION OF PROBLEM CHILDREN</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>COMPULSORY</td>
<td>BABED-PPI T12</td>
<td>ORGANIZATION OF SCHOOL FUNCTION</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>5</td>
<td>COMPULSORY</td>
<td>BABED-PPI T13</td>
<td>RECORD KEEPING</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>6</td>
<td>COMPULSORY</td>
<td>BABED-PPI T14</td>
<td>ORGANIZATION OF CURRICULAR/CULTURAL ACTIVITIES IN SCHOOL</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>7</td>
<td>COMPULSORY</td>
<td>BABED-PPI T15</td>
<td>ORGANIZATION OF MORNING ASSEMBLY</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Project Code</td>
<td>Project Description</td>
<td>Hours</td>
<td>Marks</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------</td>
<td>----------------------------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>BABED-PPI T16</td>
<td>ORGANIZATION OF AWARENESS PROGRAMS IN SCHOOL</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>BABED-PPI T17</td>
<td>CLEANLINESS AND BEAUTIFICATION OF SCHOOL CAMPUS</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>BABED-PPI T18</td>
<td>CONDUCTING CAREER COUNSELLING SESSIONS IN SCHOOLS</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>BABED-PPI T19</td>
<td>TRAINING OF TWO LIFE SKILLS TO SCHOOL CHILDREN</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>BABED-PPI T20</td>
<td>PREPARATION OF VARIOUS SCHOOL RECORDS</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>SUPERVISED TEACHING PRACTICE</td>
<td>3</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>
OPTION II: B. Ed. (Secondary) COURSE  
Marks: 2000  
Credits: 100

PEDAGOGY PRACTICE AND INTERNSHIP PROGRAMME

The school Internship programme is envisioned to offer an intense and focused school experience. Structured to be a process in partnership between the school and the intern, the programme seeks to provide psychological space for evolving innovations in teaching. While functioning as a regular teacher, the intern gets the opportunity to translate the knowledge base, pedagogic theory, and understanding of children and the repertoire of skills into reflective classroom practice. The school benefits from this alliance in terms of witnessing possibilities of unconventional pedagogies.

Objectives
After the course is over, the students will be able to

- develop a comprehensive understanding of existing classroom practices.
- develop a critical understanding of textbook lessons of individual subjects and their suitability for learning.
- draw linkages between various pedagogy courses and classroom practices.
- critically review policy and state documents on education and seek to effect ideas into classroom practices.
- develop and design alternative teaching – learning materials.
- assess factors that contribute to a classroom culture, its creation and maintenance.
- explore possibilities of innovation and create space for alternative practices.
- design, choose, organize, and conduct individual and group activities.
- reflect on personal experiences of classroom management
- to learn to set realistic goals in terms of children’s learning, classroom culture and management, curricular form and content and pedagogic practices.
- to develop the ability to innovate within existing frameworks by alternative practices.
- to purposefully use the skills of systematic observations, record keeping and for reflection on teaching-learning process.

1. TASKS (Total Marks = 600, Credits = 30)  
   Internal Evaluation

Students are required to perform the following tasks spread over teaching practice and internship schedule

BABED-PPI T09
Task I: Document analysis (Marks = 50, Credits = 2.5)

a) To study significant issues in National Curriculum Framework documents, Policy documents and other relevant official documents of education.

b) To undertake a comparative study of state curriculum and an alternative developed within the country or outside.

BABED-PPI T10

Task II: SWOT ANALYSIS (Marks = 50, Credits = 2.5)

Identification of infrastructural problems within the school such as broken blackboard, furniture, inadequacy of space, drinking water, etc and providing appropriate individual and school level solutions.

BABED-PPI T11

Task III: IDENTIFICATION OF PROBLEM CHILDREN (Marks = 50, Credits = 2.5)

Identification of needs of individual children including mentally and physically challenged children “labeled” as failures and children with specific learning disabilities.

BABED-PPI T12

Task IV: ORGANIZATION OF SCHOOL FUNCTION (Marks = 50, Credits = 2.5)

Students are required to organize any school function/sports day.

BABED-PPI T13

Task V: RECORD KEEPING (Marks = 50, Credits = 2.5)

• Regular written records of the lesson plans.
• Observation of lessons (minimum ten distributed lessons)

BABED-PPI T14

Task VI: ORGANIZATION OF CO-CURRICULAR /CULTURAL ACTIVITIES IN SCHOOL (Marks = 50, Credits = 2.5)

Students are required to organize co-curricular activities in each category viz. literary activities/fine arts activities/cultural activities.

BABED-PPI T15

Task VII: ORGANIZATION OF MORNING ASSEMBLY IN SCHOOL (Marks = 50, Credits = 2.5)

Students are required to organize ten morning assembly sessions.
BABED-PPI T16
Task VIII: ORGANIZATION OF AWARENESS PROGRAMS IN SCHOOL
(Marks = 50, Credits = 2.5)
Students are required to organize awareness in school related to social issues.

BABED-PPI T17
Task IX: CLEANLINESS AND BEAUTIFICATION OF SCHOOL CAMPUS
(Marks = 50, Credits = 2.5)
Students are required to organize tree plantation activities/wall magazines and decoration of classrooms.

BABED-PPI T18
Task X: CONDUCTING CAREER COUNSELLING SESSIONS IN SCHOOLS
(Marks = 50, Credits = 2.5)
Students are required to provide vocational guidance to students about various streams.

BABED-PPI T19
Task XI: TRAINING OF TWO LIFE SKILLS TO SCHOOL CHILDREN
(Marks = 50, Credits = 2.5)
Students are required to impart training in any two life skills.

BABED-PPI T20
Task XII: PREPARATION OF VARIOUS SCHOOL RECORDS
(Marks = 50, Credits = 2.5)
Students are required to prepare report cards/maintenance of attendance register/time table/transfer certificates.

2. Supervised Teaching Practice (Marks = 1400, Credits = 70)
Teaching in secondary classes will involve teaching of two subjects (pedagogy papers) for 16 weeks. Total teaching practice will be of 1400 marks. 25% lessons (15 lessons in each teaching subject) will be evaluated and marked by internal examiners. Each lesson will be of 20 marks. 4 discussions lessons (2 in each subject) will be evaluated by internal examiners. Each lesson will be of 100 marks. 2 lessons (1 in each subject) will be evaluated by external examiner. Each lesson will be of 100 marks. Training will be provided in preparing lessons based on teaching models, integrating ICT, performance based and unit planning (Diary based).

4 Discussion Lessons = 400 marks
2 lessons (by external examiner) = 200 marks
Teaching Practice = 800 marks

The marks of teaching practice are bifurcated as follow:

  i. Supervision of lesson plans = 600 (20 x 30 lessons)
  ii. Lesson Plans File = 100 (50 in each subject)
  iii. Attendance = 50
  iv. Teaching aids = 50

Total = 1400 marks

The following criteria will be adopted for the evaluation of internship programme

• **Observations**: knowledge base

• **Regular supervision**: culture of learning, choice of activities and materials, sensitivity towards need of children, classroom management, description of classroom practices, analysis and reflection of experiences, quality of development in the intern’s reflection, conceptual clarity and an understanding of the linkage between classroom practice and theory, summative report.

• **Lesson plans**: appropriateness of the activities and materials used, organization and time allotment, method of introduction and summing up, use of various skills.

• **Feedback from the Internship Schools**: Constructive feedback will be obtain from the concerned internship schools to evaluate the students.

*****
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)

OUTLINES OF TESTS SYLLABI AND COURSES OF READING

FOR

Bachelor of Vocation (Food Processing and Quality Management)

Session 2017-18

(1st to 4th Semester)
# SCHEME OF B.Voc. (Food Processing and Quality Management)

(SEMESTER SYSTEM)

## Semester I

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/ Skill Component</th>
<th>Theory/ Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN - 101</td>
<td>Communication Skills</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>*GEN - 102</td>
<td>Fundamentals of Information Technology</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-103</td>
<td>Introduction to bakery and confectionary</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-104</td>
<td>Dairy technology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-105</td>
<td>Food Quality control</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
</tbody>
</table>

**SEMESTER II**

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/ Skill Component</th>
<th>Theory/ Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN 201</td>
<td>Soft Skills and Personality Development</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>GC 202</td>
<td>Business Ethics</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-203</td>
<td>Food Packaging</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-204</td>
<td>Industrial Safety Hazards &amp; Prevention</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>FPQM-205</td>
<td>Food Plant Layout &amp; waste disposal</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>**SIT-201</td>
<td>Summer Industrial Training</td>
<td>Skill</td>
<td>Practical</td>
<td>--</td>
<td>--</td>
<td>20</td>
<td>80</td>
<td>6</td>
</tr>
</tbody>
</table>

*Refer to Generic Components Common to all B.Voc. Courses*

** Summer Industrial Training of 4-6 weeks in a relevant Industry after 2nd Semester Examinations during summer break. Training report by the student to be submitted within in one week of start of 3rd Semester. Viva-Voce examination to be held within 3-weeks of the start of 3rd semester.
**Summer Industrial Training of 4-6 weeks in a relevant Industry after 4th Semester Examinations during summer break. Training report by the student to be submitted within in one week of start of 5th Semester. Viva-Voce examination to be held within 3-weeks of the start of 5th semester.**
Paper Title: INTRODUCTION TO BAKERY AND CONFECTIONERY

Paper Code: FPQM-103  Credits: 6

Job Role:  Baking Technologist: Responsible for manufacture of bakery and confectionary products and their quality control.

Objectives: 1. To understand the role of different ingredients used in Baking Industry.  
2. To know the general methods of processing and preservation of foods.  
3. To identify the microorganisms that can otherwise spoil bakery products.

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.  
4. All questions carry equal marks.

UNIT I


UNIT II


UNIT III


UNIT IV
Bread Spoilage: Rope and Mould, Factors responsible for it and preventive measures. Defects and Remedies: Basic reasons and suggested remedies: Bread, Cake and Biscuits.

Suggested Resources for Reading:

4. Ornamental Confectionary and the Art of Baking in all its Branches by Herman Hueg
5. Bakery-I, Student handbook and practical manual, published by CBSE.
6. A professional Text to bakery and confectionary by John Kingslee

Practical based on FPQM-103

1. Preparation of White Bread.
2. To determine moisture in bread and biscuits.
3. Studying the effect of temperature on process of biscuit making.
4. Determination of ash content in bread and biscuits.
5. Principle and preparation of Fruit cake
6. To do icing on the cake
7. Determination of gluten
Paper Title: Dairy Technology

Paper Code: FPQM-104 Credits: 6

Job Role: Dairy Technologist: To supervise manufacture of dairy products like milk, butter, yogurt, cheese and their preservation.

Objectives:
1. To develop knowledge among students about various aspects of dairy industry.
2. To study quality standards and production of various types of milk and milk products.
3. To study the role of dairy farming in Indian economy

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT I

Milk: Definition, composition, physicochemical properties of milk and its constituents, nutritional value, overview of processes used in milk and milk products- pasteurization, homogenization and standardization, dye detection test, platform tests, milk borne diseases. Microbiology of milk, types of spoilage and its preventions.


UNIT II

Technology underlying manufacture of Milk products: Butter, cream, butteroil, cheese, yoghurt, paneer, chhana, ice-cream

UNIT III

Composition, standards, manufacturing: Process, equipments and defects during manufacturing and storage of dairy products and by products (paneer, dahi, milk powder-skimmed milk and whole milk powder, casein, whey concentrate, lactose, ghee residue ).
UNIT IV

**Dairy development in India:** - Present status, future prospective and its role in Indian economy. Important government initiative. Role of dairy development organizations (NDRI, Amul) in dairy development

**Suggested Resources for Reading:**

1. Fluid milk industry, J.S Handerson, A.V.I Publishing Company, USA1
2. Indian Dairy products, K.T. Acharya Publication

**PRACTICAL BASED ON FPQM 104**

**Time: 3 hours**

1. Sampling of milk and milk products for microbiological analysis
2. Platform test for milk analysis.
3. To determine fat in milk by gerber method.
4. To determine specific gravity of given sample of milk by lactometer.
5. Visit and study a nearby milk union/ dairy and prepare a checklist of problems in procurement and milk distribution.
6. Detection of various adulterants in milk.
7. Preparation of sterilized flavored milk.
8. To prepare pasteurized milk.
Paper Title: FOOD QUALITY CONTROL

Job Role:

Food quality control manager: To determine and establish quality standards for food products and is responsible for ensuring that food products produced meet standards set by both the organisation and regulatory authorities.

Objectives:
1. To understand the different principles and functions of food quality control department.
2. To understand various food laws and regulations

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Objectives, functions and principles of quality control. Difference between food quality control and quality assurance, assessment of raw materials and finished products (quality control) of baking industry.

UNIT-II

Total quality management (TQM) – Principles of quality management, good manufacturing practices, good hygienic practices, good lab practices, general awareness and role of management practices in quality control.

Quality Attributes: Size, shape, colour, aroma and texture. Microbial quality control: an overview

UNIT-III

Food laws and regulations, grade and standards, concepts of Codex Almentarious, HACCP, USFDA, ISO 9000 series etc, Food standards and safety Act: salient provisions and prospects, role of various food standards in India- PFA, FPO, AGMARK and BIS.
UNIT-IV

Sensory quality evaluation: Introduction, methods, panel screening, selection methods, Sensory and instrumental analysis in quality control.

Food adulteration, nature of adulteration, methods of evaluation of food adulterants and toxic constituents of bakery products.

Practical based on FPQM-105

1. Techniques of quality assessment of different natural and processed foods.
2. Documentation of details of baking ingredients, process and finished products used in baking industry.
4. Sensory methods for measuring food quality assessment of raw materials used and processed bakery products.
5. Instrumental methods for measuring food quality assessment of raw materials used and processed bakery products.
6. Study of cleaning and sanitizers used in pre and post-operative processes in bakery industry.
7. Listing of quality control agencies at national and international levels.

Suggested Resources for Reading:

Job Role:
Food Packaging technician: monitors packaging of various foods and their subsequent Compatibility and handles all categories of packaging such as primary, secondary and tertiary packaging for food products.

Objectives: To enable the students to understand about packaging and packaging materials, compatibility of various food items with packaging materials

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I
Packaging Technology: Definitions, Functions of packaging, Properties of packaging material in relation to their functions, package design, Tests on packaging materials, Gas and water vapor transmission rates, types of containers- primary & secondary, flexible & rigid, hermetic & non-hermetic.

UNIT-II
Wood: structure, types of wooden containers and their properties.
Glass: composition, properties, types and manufacture of glass containers.

UNIT-III
Metal Cans: properties of metals for packaging material, Types of Metallic Cans - Tin cans and Aluminum cans, steel plate and functions of its various constituents, Importance of Open top sanitary cans, Lacquering-types and applications, three piece cans and two piece cans.
Introduction to Canning operations – Can Reformer, Flanger, Seaming, Can closures, Sterilization of jars and bottles.
Filling And Sealing Operations For Various Types of Packages: Closing and sealing of rigid plastic containers. Filling and sealing of Flexible plastic containers,

Aseptic packaging, shrink packaging, gas packaging, vacuum and modified atmosphere packaging – principles, applications.
Estimation of shelf life, analysis of storage requirement, accelerated storage

**Suggested Resources for Reading:**


**Practical based on FPQM- 203**

1. To determine thickness of paper and paper board.

2. To identify different types of packaging materials.

3. Demonstration. of measurement of cartons’ dimensions as per organizational standards.

4. Demonstration of measurement of dimensions of bottle mouth, cans and their caps.

5. Demonstration of sealing processes used in food industry.
6. Demonstration of filling process.
Paper Title: Industrial Safety, Hazards & Prevention

Paper Code: FPQM 204

Credits: 6

Job Role:

To evaluate values of industrial safety and hygiene.

Is responsible for monitoring and assessing hazardous and unsafe situations and developing measures to assure workers safety.

Objectives:

1. To create awareness about health hazards of industrial substances.
2. To evaluate the threshold value of industrial hygiene and safety.

Instructions for Examiner:

1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Microbial Contaminants associated with food–Bacteria, viruses, fungus, molds and yeast. Factors affecting the growth of microbes in food. General Microbiological Methods of enumeration and isolation of food related microbes.

General methods of Preservation: Pasteurization, sterilization and appertization

UNIT-II

Studies of process hazards, Law Codes, Standards, Properties and functions of Chemicals, and Health hazards of industrial substances.

UNIT-III

Toxicology: Toxic materials and their properties, effect of dose and exposure time, relationship and predictive models for response, Threshold value and its definitions, industrial sanitation and hygiene evaluation.

UNIT-IV

Propagation of fire and effect of environmental factors, ventilation, dispersion, purifying and sprinkling, safety and relief valves.
Practical based on FPQM- 204

1. Methods of sterilization and preparation of media
2. Gram staining
3. Study of morphology of bacteria, yeast and fungi
4. Methods of pure culture techniques for bacteria
5. Enumeration and isolation of bacteria and fungi from water/milk and contaminated food.
6. Demonstration of different safety aspects and maintenance of material safety data sheets followed in food industry.

Suggested Resources for Reading

B.Voc. (Food processing and quality Management) Semester: II

Paper Title: FOOD PLANT LAYOUT AND WASTE DISPOSAL

Paper Code: FPQM 205 Credits: 6

Job Role:

Food Plant layout officer: Managing and updating food plant layout time to time as per business policies and safety standards.

Objectives:
1. Introduction of the basic setup of a food processing industry.
2. To make them conversant with the machinery and equipments used in different types of food industry.

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Industrial plant design concepts and general design considerations for location of food plants. Application of HACCP concept, ISO, FPO & MPO requirements in food plant layout and design.

UNIT-II

Importance of plant layout selection of site. Selection of building material. Selection and planning of manufacturing process and service facilities Basic understanding of equipment layout and ventilation in food processing plants. Process flow charts for material movement and utility consumption in food plants.

UNIT-III

Plant layout and design of milk and milk products. Plant layout and design of beverage industry

UNIT-IV

Plant layout and design of bakery and biscuit industries. Miscellaneous aspects of plant layout and design like provision for waste disposal, safety arrangements etc.
1. Industrial visit and report making.

**Text Books/ References.**


Paper Title: Technology of fruit and Vegetable processing

Paper Code: FPQM 303

Job Role:
Fruit and vegetable processing technician is responsible for processing various fruits & vegetable and developing new products from them.

Objectives:
1. To know technical details of processing of different fruits and vegetables in accordance with their composition.
2. To understand various aspects of fruit and vegetable preservation.

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I
Post-harvest losses of fruit and vegetable and factors affecting them. Post harvest changes in fruits and vegetables. Maturity indices of fruits and vegetables. Climateric and non climateric fruits. Fruit ripening and changes. Packaging of whole fruits and vegetables. Processing and packaging of cut fruits and vegetables. Post-harvest physical and chemical treatment to enhance the shelf life of fruits and vegetables. Microbiological spoilage of fruits and vegetables.

UNIT-II
Classification, chemical composition and nutritive value of fruits and vegetables. Preparing fruit and vegetable for processing: washing, sorting, grading, peeling, blanching, grating, destoning, pitting. Bottling and canning of fruit and vegetable products.

UNIT-III
FPO Specifications and preparation of Jam, Jellies, marmalade, preserves, pickles. Tomato processing- FPO standards and preparation of tomato juice, puree, paste, chutney, sauce and ketchup. Preparation and standards of fruit juices, squashes & cordials, fruit syrups, nectar, RTS & pulp.
UNIT-IV

Machinery for peeling, slicing/dicing, pulping, grating, hydraulic pressing & Clarification.
Fruit juice aroma recovery & its equipment & importance. Different systems of filling practices- tetrapack for small quantities. Minimal processing- basic concepts.

**Suggested Resources for Reading:**

3. Food Science by Potter, N.N., CBS Publisher, New Delhi.

**Practicals based on FPQM -303**

1. Preservation and processing of certain vegetables by freezing.
2. Preparation of fruit juices.
3. Preparation of tomato ketchup & its preservation.
4. Preparation of Amla preserve & candy.
5. Minimal processing of fruits and vegetables.
6. Organoleptic evaluation of fruit & vegetable products.
7. Visit to fruit & vegetable industry.
Paper Title: Egg, Poultry, Meat & Fish Processing

Job Role:
To work in an abattoir, wholesale meat factories and meat processing plants. A meat processor is involved with the production of meat and poultry products.

Objectives:
1. To enable the students to understand the various aspects of egg, meat and fish products and their preparation.
2. To gain knowledge on processing of meat and fish.

Instructions for Examiner:
1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I
Egg-structure, composition, nutritive value, interior quality of egg and its evaluation, functional properties, grading, microbial spoilage of egg and preservation and storage of eggs.
Poultry types, nutritive value of poultry meat, antimortem examination and slaughtering of hen, poultry cut up parts.

UNIT-II
Meat- scope of meat processing industry in India, structure, composition & nutritive value of meat, classification of meat- mutton, pork & sheep. Meat quality parameters- meat colour, water holding capacity, marbling, firmness and factors affecting it. Slaughtering and dressing of meat animal, post mortem changes in meat- rigor mortis, biochemical changes associated with rigor mortis, conversion of muscle to meat.

UNIT-III
UNIT-IV

Fish – types, compositions & nutritive value, post mortem changes in fish.
On board handling, storage & transportation of fish, curing, smoking, salting & drying of fish, fish oil, fish protein concentrate, fish meal.

Text Books/References:

2. G.J. Mountney.1995. Poultry Products Technology by Taylor & Francis,
6. Fish Processing & preservations by Charles L, Cutting.

Practicals on FPQM-304: Egg, poultry, meat & fish processing

1. Determination of egg components.
2. Grading and quality evaluation of egg.
3. Preparation of egg products-boiled, scrambled and omelette.
4. Visit to slaughter houses.
5. Study of post mortem changes.
6. Preparation of sausages, burger, meat balls & kebab.
7. To check freshness of fish.
B.Voc. (Food processing and quality Management)          Semester: III

Paper Title: Principles of food processing and preservation

Paper Code: FPQM 305                                                Credits: 6

Job Role:

Working on different methods of processing of different foods and their preservation techniques.

Objectives:

To understand the basic principles & objectives of food processing.

To study different means of food preservation and their subsequent utilization.

Instructions for Examiner:

1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Introduction- Historical developments of food preservation, Principles of food preservation, benefits of food preservation. Food Spoilage and to study its causes (microbial, physical or chemical)

UNIT-II

Preservation by heat: Heat resistance of microorganisms, thermal death curve, heat treatments and their effects on food- Boiling, steam under pressure, blanching, pasteurization, canning, aseptic packaging, cans and container types, spoilage of canned foods, heat penetration in cans.

UNIT-III

Preservation by low temperature- refrigeration storage, requirements of refrigerated storage, changes of foods during refrigerated storage, refrigeration load, Freezing and frozen storage- Slow and quick freezing, factors determining freezing rate, freezing methods, changes in foods during freezing, frozen food storage, Freezing curve, Intermediate moisture foods- their advantages and problems.

Drying, dehydration and concentration- Types of drying, types of dryers, food concentration and their methods, changes in foods during dehydration and concentration.

UNIT-IV

Microwave Heating- Properties, mechanism and its food applications.

Preservation by radiations- Ultraviolet and ionizing radiations, its applications in foods.

Chemical Preservation: Types, uses and effects of class I & class II preservatives in foods.
Suggested Resources for Reading:

3. The Technology of food preservation by Desrosier and Desrosier.

Practicals:

1. Study of blanching process in vegetables.
2. Dehydration of foods.
3. Preservation of food products by low temperature.
4. Use of chemicals in preservation of food.
5. Microwave cooking of food.
6. Cut out examination of canned foods.
7. Visit to food industry.
Job Role:

Oil and fat processing technician is responsible for maintaining the quality of oils and fats used in preparation of various food products.

Objectives:

1. To understand the basic properties of oils and fats.
2. To know their nutritional importance and extraction of oils

Instructions for Examiner:

1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Introduction to oils and fats, physical and chemical properties of oils and fats, Nutritional importance of oils and fats.

UNIT-II

Extraction of oils/fats, refining, degumming, bleaching and deodourization, problems during storage-rancidity and reversion.

UNIT-III

Hydrogenation of oils, fractionation & winterization of oils, functions of oils and fats in food processing: Frying, Cooking and baking, Quality assessment tests of fats and oils, packaging of oils and fats

UNIT-IV

Sources and physic-chemical properties of following oils: animal (butter oil, lard and Tallow) and plant(groundnut, sunflower, soyabean and coconut oil)

Suggested Resources for Reading:

1. Food Chemistry by Meyer LH, 2006, CBS Publisher, New Delhi

Practicals:

1. To determine moisture content of oilseeds.
2. To determine FFA (free Fatty acid) of oil.
3. Determination of Iodine value, R.M. value and Polenke value.
4. Detection of adulteration of fats or oil.
5. Visit to vegetable oil factory.
6. To determine fat and moisture of butter.
Paper Title: Technology of Spices & Flavours

Job Role:

Spices and flavor technologist is responsible for checking the quality and purity of various spices and flavor to be used in food products.

Objectives:

1. To know various types of spices and flavors.
2. To understand the techniques of processing spices.

Instructions for Examiner:

1. The syllabus of this paper has been divided into FOUR units.
2. Examiner will set a total of NINE questions comprising Two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks.

UNIT-I

Classification and uses of spices, Chemical constituents of spices, microbial contamination and insect infestation in spices and its control.

UNIT-II

Chemistry & Technology of major spices-pepper, cardamom, ginger & turmeric.

UNIT-III

Chemistry & Technology of minor spices- cumin, coriander, cinnamon, fenugreek, garlic, cloves and vanilla.

UNIT-IV

Cryomilling of spices, spice oleoresins and spice emulsion, essential oils, packaging of spices and spice products. Classification of flavouring compounds, processing of cocoa and coffee, stability of flavourings, present trends in synthesis of volatiles.

Suggested Resources for Reading:

Practicals:

1. Identification of different spices.
2. Determination of moisture in ground spices.
3. Determination of total ash in spices.
4. Determination of extraneous matter in spices.
5. Determination of pungency rating (scoville method) in red pepper.
6. Adulteration tests of different spices.
7. Organoleptic evaluation of flavours.
Job Role:

To improve the communicating and presentation skills of the individuals.

Objectives:

To make the student conversant with latest happening in the field of food processing and preservation and to improve their communication skills.
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)

OUTLINES OF TESTS SYLLABI AND COURSES OF READING

FOR

Bachelor of Vocation (Medical Lab Technology)

Session 2017-18

(1st to 6th Semester)
SCHEME of B.Voc.(MLT)
(SEMESTER SYSTEM)

*Refer to Generic Components Common to all B.Voc. Courses

** Summer Industrial Training of 4-6 weeks in a relevant Industry after 2nd Semester Examinations during summer break. Training report by the student to be submitted within in one week of start of 3rd Semester. Viva-Voce examination to be held within 3-weeks of the start of 3rd semester.

Job Role: Medical Lab Technician

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/ Skill Component</th>
<th>Theory/ Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN - 101</td>
<td>Communication Skills</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>*GEN - 102</td>
<td>Fundamentals of Information Technology</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>MLT103</td>
<td>Basics of Human Anatomy</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>MLT104</td>
<td>Introduction to Laboratory Equipments</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>MLT105</td>
<td>Introduction to Hematology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>GEN 201</td>
<td>Soft Skills and Personality Development</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>GEN 202</td>
<td>Introduction to Medical Technology Healthcare Systems</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>MLT203</td>
<td>Basics Of Physiology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>MLT 204</td>
<td>Basics of Biochemistry</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>MLT 205</td>
<td>Analytical Laboratory Testing Process -I</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>**SIT-201</td>
<td>Summer Industrial Training</td>
<td>Skill</td>
<td>Practical</td>
<td>--</td>
<td>--</td>
<td>20</td>
<td>80</td>
<td>6</td>
</tr>
</tbody>
</table>
### Semester III

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/ Skill Component</th>
<th>Theory/ Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN 301</td>
<td>Value Education And Human Rights</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>GEN 302</td>
<td>Safe Laboratory Practices</td>
<td>Generic</td>
<td>Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
</tr>
<tr>
<td>BMLT 303</td>
<td>Introduction to Parasitology and Medical Entomology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>BMLT 304</td>
<td>Fundamentals of Microbiology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>BMLT 305</td>
<td>Bacteriology, Mycology and Virology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
</tr>
</tbody>
</table>

### Semester IV

| *GEN 401  | Environmental Studies              | Generic                  | Theory            | 20                | 80                | --                   | --                   | 6      |
| GEN 402  | Clinical Laboratory Management     | Generic                  | Theory            | 20                | 80                | --                   | --                   | 6      |
| BMLT 403  | Introduction to Histopathology     | Skill                    | Theory & Practical | 10                | 40                | 10                   | 40                   | 6      |
| BMLT 404  | Introduction to Cytopathology      | Skill                    | Theory & Practical | 10                | 40                | 10                   | 40                   | 6      |
| BMLT 405  | Microbiology-I                     | Skill                    | Theory & Practical | 10                | 40                | 10                   | 40                   | 6      |
| **SIT- 401 | Summer Industrial Training        |                          |                   |                   |                   |                      |                      | 6      |

*Refer to Generic Components Common to all B.Voc. Courses

** Summer Industrial Training of 4-6 weeks in a relevant Industry after 4th Semester Examinations during summer break. Training report by the student to be submitted within in one week of start of 5th Semester. Viva-Voce examination to be held within 3-weeks of the start of 5th semester.

Job Role: Medical Lab Technician
### Semester V

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/Skill Component</th>
<th>Theory/Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN - 501</td>
<td>Critical Thinking and Elementary Statistics</td>
<td>Generic Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>502</td>
<td>Introduction to Biochemical Techniques</td>
<td>Generic Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>503</td>
<td>Introduction to Immunology</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>504</td>
<td>Serology : Introduction &amp; Serological Lab Procedures</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>505</td>
<td>Clinical Biochemistry-1</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Note: Winter Industrial/ In-house Training of 2-3 weeks in a relevant area after 5th Semester Examinations in winter break.

### SEMESTER VI

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/Skill Component</th>
<th>Theory/Practical</th>
<th>Internal (Theory)</th>
<th>External (Theory)</th>
<th>Internal (Practical)</th>
<th>External (Practical)</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*GEN 601</td>
<td>Entrepreneurship Development Programme</td>
<td>Generic Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>602</td>
<td>Sensitization to Blood Banking and Infection Control</td>
<td>Generic Theory</td>
<td>20</td>
<td>80</td>
<td>--</td>
<td>--</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>603</td>
<td>Microbiology -II</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>604</td>
<td>Clinical Biochemistry-II</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>605</td>
<td>Haematology</td>
<td>Skill Theory &amp; Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>SIT-601</strong></td>
<td>Summer Industrial/ In-house Training and Comprehensive Viva</td>
<td>Skill Practical</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>40</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*Refer to Generic Components Common to all B.Voc. Courses

**Winter Industrial/ In-house Training of 2-3 weeks done after 5th Semester Examinations and before start of 6th semester. Training report by the student to be submitted within in one week of start of 6th Semester. Viva-Voce examination to be held within 3-weeks of the start of 6th semester.

Job Role: Medical Lab Technician
Job Role: Medical Lab Technician

Objectives: Basic understanding of organization of body cells, tissues, organs, organ systems, and glands in human body

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I

• Basic unit of body - Cell
• The anatomical organization of body cells, tissues, organs, organ systems, membranes and glands in human body.
• Introduction to different types of tissues: Anatomy, epithelial tissue, muscular tissue, nervous tissue
• Different types of organ systems.
• Brief introduction of different types of body fluids, secretions and excretions
• Skeletal system: bones, joints and muscles.

Section II

 Digestive Organs:
• Tongue
• Teeth
• Oral cavity
• Pharynx
• Oesophagus
• Stomach
• Small intestine
• Large intestine
• Liver, Pancreas and Spleen

Section III

 Respiratory Organs:
• Nasopharynx
• Oropharynx
• Larynx
• Trachea
• Bronchi
• Lungs
• Thoracic cavity
• Pleura and Pleural cavity
Circulation System: Structure of Heart and Brief introduction of main blood vessels.

Section IV

Reproductive Organs Male and Female Gonads
Nervous system and Sense organs: Brief Introduction of Central Nervous System and Peripheral Nervous System
Anatomy of Brain, Spinal Cord, Nerves, Eye, Ear, Olfactory Receptors, Gustatory Receptors
Excretory Organs:
• Cortex and medulla of Kidney
• Ureter
• Urinary Bladder
Urethra (male and female)
PRACTICAL: Study of various organs through Charts and models

Reference Books:

1. Anatomy & Physiology: Ross and Wilson
2. Anatomy and Physiology: N Murgesh
3. Anatomy and Physiology for nurses: Evelyn Pearce
4. Anatomy and Physiology for nurses: Sears
5. Anatomy and Physiology for nurses: Pearson
6. Human Anatomy: Harie R. Berasari
Job Role: Medical Lab Technician

Objectives:
1. To gain broad understanding of care of laboratory glassware, equipment and instrument
2. To gain broad understanding of setting up, calibrating, operating, cleaning, maintaining, troubleshooting of laboratory equipment used in quantitative or qualitative analysis
3. To Calibrate and Validate the Clinical Laboratory instruments and glass wares
4. To understand Microscopy, working principle, maintenance and applications of various types of microscopes

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
Brief understanding of laboratory planning and laboratory key learning outcome operations.
Introduction to operation and safety precautions of common Laboratory Equipments
Principles and working of laboratory instruments Incubator, Hot Air Oven, Water Bath, Anaerobic Jar, Centrifuge, Autoclave, burettes & pipettes, colorimeter, neubauer’s Chamber Setting up, calibrating and validating, operating, cleaning, maintaining, troubleshooting of laboratory equipment used in quantitative or qualitative analysis
Autoclave – its structure, functioning, control and indicator Micrometry

Section II
• Techniques of Disinfection
• Sterilization: Definition, Classification and General Principle of Sterilization, Sterilization Techniques, Sterilization of rubber goods, laboratory equipment & other instruments
• The cleaning and maintenance procedures of the machine
• Identify the cause of errors or other problems or defects in equipments
• Glassware – Description of Glassware, its use, handling and care
• Importance and methods of cleaning of glass apparatus
• Calibration of apparatus and glasswares

Section III
• To study the compound microscope and its parts
• Microscopy, working principle, maintenance and applications of various types of microscopes:
  - Dark ground microscope.
  - Polarizing microscope.
  - Phase contrast microscope.
  - Interference microscope.
  - U.V. light microscope.
• Microscopic examination of micro-organism, bright field microscopy, dark field microscopy, phase contrast microscopy, electron microscopy.
• Electron microscope: working principle, components and allied techniques for electron microscopy, ultra-microtomy Care and handling of various microscopes-Binocular, DGI, Phase-contrast, fluorescence and electron microscopes
• Museum techniques
• Lab safety and Instrumentation

Reference Books

- At the Bench : A Laboratory Navigator  Kathe Barker
- At the Helm : A Laboratory Navigator  Kathe Barker
- Basic Medical Laboratory techniques  Barbara H. Estridge et al
- Instrumental Analysis  ChatwalAnand
- Laboratory Reference  Jane Roskams
- Medical Dictionary  Oxford
- Medical Informatics  Mohan Bansal
Job Role: Medical Lab Technician

Objectives:
To gain understanding of blood and components of blood
To gain knowledge of hematological Diseases and hematological Investigations.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I

• Introduction to hematology and laboratory organization
• Composition and functions of blood and lymph.
• Detailed study of Haemoglobin and its functions of hemoglobin
• Blood groups including Rh. Factor
• Detailed study of Reticulocytes
• Formation of blood. Morphology of normal blood cells and their identifications
• Heamostasis, Mechanism of blood coagulation. Fibrinolysis.

Section II

• Various anticoagulants, their uses, mode of action and their merits and demerits.
• Normal and absolute in haematology.
• Quality assurance in hematology

Section III

• Descriptive study of RBC abnormalities, Disorders related to RBC Normal white cell count & physiological variation
• Normal white cell count & physiological variation
• Hematological Diseases: Anemia and various types of anemia, Thalassemia, Polycythemia, hemolytic disease of new born, multiple myeloma, parasitic infections of blood
• Leukemia: definition and classification (General & FAB ).

Section IV

• Laboratory Investigation & Bleeding Disorders
• Laboratory preparation for coagulation tests
• Routine coagulation tests, prothrombin time, plasma recalcification time, partial thromboplastin time, activated partial thromboplastin time, thrombin time, Laboratory diagnosis of bleeding disorders.

PRACTICALS

1. Cleaning of Laboratory glassware in hematology
2. Clinical significance, specimen collection, laboratory investigation & preservation of blood for various hematological investigations.
3. Preparation of blood smear.
4. Haemocytometry, procedures for cell counts-visual as well as electronic
5. Total leukocyte count and Differential leukocyte count.
6. Determination of total erythrocyte(RBC) count and platelet counts. Errors involved and mean to minimize such errors.
8. Romanowskydyes, preparation and staining procedures of blood smears.
9. Laboratory tests for assessing bleeding disorders.

Reference Books

1. Atlas of haematology (5/e) G.A. McDonald
2. Clinical Haematology Christopher A. Ludlam
3. Practical Haematology J.B. Dacie
4. Practical Haematology (8/e) Sir John
5. Haematology (International edition) Emmanuel C.Besa
6. Haematology (Pathophysiological basis for clinical practice (3/e) Stephen M. Robinson
7. Haematology for students Practitioners RamnikSood
8. Hand book of Medical Laboratory Technology (2/e) V.H. Talib
Job Role: Medical Lab Technician

Objective:
1. To understand about Healthcare Service Providers
2. To develop broad understanding of the Role of MLT
3. To understand Patient’s Rights & Responsibilities

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit.
3. Question number one is compulsory of short answer type questions covering the whole syllabus.
4. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
5. All questions carry equal marks

Section I
Introduction to Medical Technology

- Healthcare Systems, Laboratory and Delivery System
- Health care service provider (primary, secondary & tertiary)
- Understanding of Hospital Functions
- Understanding of Diagnostic Centers and Medical Laboratory facilities
- Understanding of Laboratory at different level (National / State / District)
- Role of Medical Laboratory Technician
- Maintenance needs to be taken care by MLT
- Understanding of Laboratory Test Results

Section II

- Use of laboratory related medical terminology in daily activities with colleagues, patients and family
- Monitor and assure quality and quality assurance program
- Organisations’ policies and commitments towards quality assurance
- Ethical Behavior
- Patient’s Rights & Responsibilities, Patient Comforts and Safety
- Sensitivities involved in patient’s right
- Understanding of Patient Comforts and Safety
- Medical laboratory technician’s role in maintaining patient’s rights

Section III
Patient’s Environment

- Maintain a safe, healthy, and secure working environment
- Importance of health, safety, and security in the workplace
- Common Hazard
- Create safety records and maintaining them
- Organisational structure and the various processes related to reporting and monitoring
- Procedure for accessing training, learning and development needs
- To make the patient feel safe and comfortable while collection
- Impact of comfort on patients health

Section IV
Personal Hygiene

- Importance and methodology of cleanliness, and hygiene environment in collection space
- Concept of Healthy Living
- Understanding & procedures of healthy Hygiene
- Techniques of Grooming
- Techniques of Use of PPE
Vaccinations against common infectious diseases

Reference Books

1. A Manual of Laboratory & Diagnostic Tests (6/e) Frances Fischbach
2. Handbook of Medical Laboratory Technology (2/e) V.H. Talib
3. Clinical Diagnosis & Management by Laboratory method0 (20/e) John Bernard Henary
4. Textbook of Medical Laboratory Technology Godkar and Godkar
Objectives: Basic understanding of physiology of different organ system of body.

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit.
3. Question number one is compulsory of short answer type questions covering the whole syllabus.
4. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
5. All questions carry equal marks

SECTION I

- Nutrition- Different types of Nutrients and Vitamins
- Integumentary system: Structure of Skin and its functions.
- Digestive system: Physiology of digestion of food and its absorption.

SECTION II

- Lymphatic system: Different types of body fluids and their functions
- Spleen, lymph node and R.E. system
- Excretory System: Urine formation, osmoregulation and counter current mechanism.
- Cardiovascular system: Origin and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, blood pressure and micro-circulation.

SECTION III

- Respiratory system-Transport of O2 and CO2, Oxygen dissociation curve of haemoglobin, Bohr effect, chloride(-) shift, Haldane effect
- Muscular System: Ultrastructure and physiological basis of skeletal muscle contractions.
- Reproductive System- Brief Introduction to Female Reproductive System and Male Reproductive System
- Fertilization and Gametogenesis.

SECTION IV

- Neural Physiology- Structure of neuron, resting membrane potential, origin and propagation of impulse along the axon, synapse and myoneural junction.
- Endocrine System- Structure, and functions of hormones of thyroid, parathyroid, adrenal, pineal, hypothalamus, pituitary, pancreas, gonads, thyroid.
- Hormones of alimentary canal and kidney.

PRACTICAL

1. Study of systems mentioned in theory through Charts.
2. To separate the plasma and serum from given blood sample
3. Study of various endocrine glands through permanent slides

Reference books

1. Textbook of Medical Physiology Guyton and Hall
2. Anatomy & Physiology Ross and Wilson
3. Anatomy and Physiology N Murgesh
4. Anatomy and Physiology for nurses Evelyn Pearce
5. Anatomy and Physiology for nurses Sears
6. Anatomy and Physiology for nurses Pearson
7. Anatomy and Physiology: Understanding the Human Body Clark
8. Physiology & Health Education Gandhi & Goel
9. Endocrinology Headley
10. Human Physiology Andrew Davis
Job Role: Medical Lab Technician

Objectives: To gain elementary knowledge of Biochemistry

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
- Radio isotopes and their use in Biochemistry

Section II
- Elementary Knowledge of Organic Chemistry: Organic compounds, aliphatic, aromatic, alcohol, ethers, phenols, acids, etc.
- Elementary Knowledge of Physical Chemistry- Osmosis, osmotic pressure, dialysis, surface tension, diffusion, hypertonic, hypotonic and isotonic solutions. Definition and classification of some colloids and crystalloids.

Section III
- Elementary Knowledge of Analytical Chemistry: balances, monopan, twopan, toppan, centrifuges, pH meter, colorimeter, spectrophotometer, florimeter, flame photometer, ion selective electrodes, urinometer, chromatograph, electrophoresis, densitometer.
- Basic Steps of Analytic Techniques titrmetry photometry, Electrochemistry, Immuno - chemistry

Section IV
- Introduction, and properties of carbohydrates, proteins and fat.
- Introduction and general properties of Nucleic acids and Enzymes
- Elementary knowledge of Minerals, Electrolytes and hormones
- Therapeutic Drug Monitoring
- Metabolism of carbohydrates, proteins and fat.

Practical
1. Preparation and storage of distilled water
2. Preparation of laboratory reagents and standard solutions, storage of chemicals.
3. Units of measurements. S.I. Units, measurement of volume, volumetric apparatus.(pipettes, flasks, Cylinders)
5. Preparation and standardization of volumetric solutions
6. Preparation of buffer solution and measurement of their pH
7. Verification of Beer Lamber’s Law
8. To prepare different bulbs required in the laboratory
9. To prepare the different concentration of solutions
10. To prepare of the 1/10 N HCL
11. To determine the nature of the given solution
12. To find out the normality of given solution

REFERENCE BOOKS
1. A guidebook to Biochemistry Michael Yudkin
3. Biochemistry Voet and Voet
4. Biochemistry Stryer
6. Clinical Biochemistry Richard Luxton
7. Clinical Diagnosis & Management by Laboratory method0 (20/e) John Bernard Henary
8. Clinical Biochemistry G. Guru
9. Handbook of Biochemistry M.A. Siddique
10. Textbook of Medical Biochemistry S. Ramkrishnan
11. Biochemical Techniques K. Choudhary
12. Text book of Medical Biochemistry Chaterjee&Shinde
14. Principles of Biochemistry Lehninger
15. Textbook of Biochemistry and Human Biology G.P. Talwar
16. Textbook of Medical Laboratory Technology Godkar and Godkar
17. Outline of Biochemistry Conn Stumpf
18. Principles of Internal Medicine Isselbacher
27. Practical Clinical Biochemistry Harold Varley, CBS; 6 edition (1 December 2006)
29. Biometrics Identity by Sameer Nanawati
30. Medicinal Chemistry by Ashutosh Kar
SEMESTER II

B.Voc MLT
Skill BMLT 205 Paper - Analytical Laboratory Testing Process-I Credits 6

Job Role: Medical Lab Technician

Objectives: To gain broad understanding of chemicals/reagents useful in sample analysis. To gain broad knowledge of Routine Hematological Tests and Urine tests, Stool tests, Semen tests and sputum tests

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I

- Collection and recording of biological specimens, Collection, Handling and transportation of Blood Sample,
- Correct method of blood sample collection, Collection methods of samples other than blood samples.
- Routine Hematological Tests:
- Examinations of sample for serum Urea and Uric acid, Estimation of Essential electrolytes: Sodium, potassium, calcium, chloride and phosphorus etc.
- Determination of blood sugar level of plasma (or serum) (a) Orthotoluidine method, (b) Glucose oxidase method
- Determination of the serum urea nitrogen (a) Diacetylmonoxime method, (b) Determination of serum creatinine: Alkaline picrate method
- Determination of serum total cholesterol

SECTION II

- Determination of serum bilirubin a. Malloy and Evelyn b. DMSO method
- Determination of TSH, Laboratory investigation for megaloblastic anaemia
- Laboratory investigation for iron deficiency anaemia
- Laboratory investigation for haemolytic anaemia including classification and causes
- Laboratory investigation for disseminated intravascular coagulation (DIC)
- Mechanism of fibrinolysis test for fibrinolysis, Platelet function tests and their interpretation

SECTION III

- Erythrocyte sedimentation rate, factors influencing ESR and various procedures for its estimation with their significance.
- Haematocrit value by macro and micro methods their merits and demerits.
- Determination of pack cell volume (PCV), Physiological variations in HB, PCV, TLC and platelets
- Determination and calculation of red blood indices MCH, MCHC
- Determination of absolute Eosinophil count and Reticulocyte count
- Determination of hematocrit, Enumeration of formed elements, Automated systems in hematology

SECTION IV

Urine Examination

- Collection, Handling, transportation of Urine
- Examination of Urine.
- Urine analysis, routine examination of urine (physical examination of urine) rapid chemical tests of Urine
- Determination of specific gravity of urine by urinometer and refractometer
- Microscopic examination of urine
- Clinical significance and Detailed Examination of Urine
- Biochemical Test Profile (Quantitative determination of Urine)
- Amylase, Calcium, Chlorides, Creatinine, Sodium, Potassium, Glucose, Proteins, Urea nitrogen, uric acid bile pigments, ketone bodies, porphobilinogen, faecal occult blood.
Practicals- All Biochemical tests mentioned in Theory
Reference Books

1. Textbook of Medical Laboratory Technology Godkar and Godkar
2. Research Methodology in Medical Sciences Chandorkar
3. Practical Clinical Biochemistry Harold Varley
4. Medical Laboratory Sciences, Theory & Practical A. Kolhatkar
5. Medical Laboratory Technology – Volume I Kanai Mukherjee
6. Medical Laboratory Technology – Volume II Kanai Mukherjee
7. Medical Laboratory Technology – Volume II Kanai Mukherjee
8. Medical Laboratory Technology Methods & Interpretation (5/e) Ramnik Sood
   - Fundamentals of Biochemistry. 3rd Edition (2008), Donald Voet & Judith Voet, John Wiley and Sons, Inc. USA
   - Practical Clinical Biochemistry Harold Varley, CBS; 6 edition (1 December 2006)
Job Role: Medical Lab Technician

Objectives:
1. To develop understanding and precautions to ensure Patient’s Safety
2. Describe basics of first aid
3. To develop understanding and precautions to ensure self-safety.
4. To gain understanding of importance of proper and safe disposal of bio-medical waste & treatment
5. To gain Elementary knowledge on Good Clinical Laboratory Practices

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
Safety & First Aid
- Human health and Homeostasis, medical care in India, Medical Laboratories of developing countries
- Basic causes of accidents, common types of laboratory accidents
- Ethics, responsibility, safety measure,
- Basics of first aid precautions to ensure self-safety
- Sample preservation and precautions while transporting
- First aid in laboratory understanding and precautions to ensure Patient’s Safety
  - Common emergency conditions and what to do in medical emergencies
  - Basics of first aid

Section II
Biomedical Waste Management-I
- Biomedical waste management in a clinical laboratory:
- Disposal of used samples, reagents and other biomedical waste: Importance of Biomedical Waste.
- Categories of bio-medical waste
- Disposal of biological samples material.
- Bio-medical waste – color coding, types of containers, transportation of waste
- Disposal of Laboratory waste, Means of bio-medical waste treatment, NABL and SOP
- Categorize waste according to national, local and organizational guidelines
- Appropriate approved disposal routes for waste
- Appropriate containment or dismantling requirements for waste
- How to make the waste safe for disposal

Section III
Biomedical Waste Management-II
- Organizational and national waste management principles and procedures
- Hazards and risks associated with the disposal and the importance of risk assessments and how to provide these
- Personal protective equipment required to manage the different types of waste generated by different work activities
- Actions and reporting procedures for any accidents, spillages and contamination involving waste
- External agencies involved in the transport and receipt of your waste
- Importance of segregating different types of waste and how to do this
- Safe methods of storage and maintaining security of waste and the permitted accumulation times
- Current national legislation, guidelines, local policies and protocols which affect work practice
Section IV

Best Practices in Lab

- Sensitization on current best practices in laboratory
- Elementary knowledge on Good Clinical Laboratory Practices (GCLP) of WHO
- Elementary Knowledge of laboratory safety guidance of OSHA (Occupational Safety and Health Administration), U.S. Department of Labor
- Elementary Knowledge of other current practices in laboratory used worldwide.

Reference Books

3. F. J. Baker, R. E. Silverton: Introduction to Medical Laboratory Technology
4. Tao Le and Vikas Bhushan: First Aid for the USMLE Step 1 2017
5. Rajeev Sharma: First Aid Guide
6. American Red Cross (Author), Kathleen A. Handal - The American Red Cross First Aid and Safety handbook Paperback – Import, 27 May 1992
7. Dan Wolfe - Smashwords, 2014: First Aid and Beyond
14. BMW%20Rules,%202016_1.pdf
Job Role: Medical Lab Technician

Objectives: To understand the role of parasites and vectors in disease transmission, and the most appropriate control strategies.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire compulsory question No. 1.
4. All questions carry equal marks

SECTION I

- General characters and classification of protozoa of medical importance.
- Laboratory diagnosis of intestinal protozonal infection:- Amoebae-Giardia
- Morphology and diagnosis of oral and vaginal flagellates -Trichomonas, - E.gingivalia
- Morphology and life cycle of Haemoprotozoa - Malarial Parasite - Laboratory diagnosis of Malarial infection

SECTION II

- Morphology and life cycles of Nematodes (Intestinal) -Ascaris -Enterobions - Ancylostoma -Strongyloides- Laboratory diagnosis of intestinal Nematode infection.
- Morphology and life cycle of Haemoflagellates. -Leishmania-Trypanosomes, Laboratory diagnosis of Leishmania, Trypanosomes.
- Morphology and life cycle of tissue and blood nematodes –Filaria –TrichinellDracunculus
- Lab. Diagnosis of tissue & blood nematode infection. Morphology and life cycle of intestinal cestodes -Taenia- Echinococcus -H.nana-D. latum
- Laboratory diagnosis of cestode infection -Hydatid-Cysticercosis
- Life cycle, pathogenic, mechanisms and control of parasitic infections viz. amoebiasis, Kala-azar, toxoplasmosis, ascariasis, filarasis, hook worm infections.

SECTION III

- Culture techniques for protozon amoeba, Glardia, Leishmania
- Culture methods for Helminths Hookworm round worm.
- Egg counting techniques.
- Preparation of stains and staining procedures of malaria.
- Identification of different plasmodium species.
- Preparation of media and maintenance of cultures of E. histolytica.-Giardia -Leishmania
- Culture methods for helminthes
- Putting up Casoni’s test and its interpretation.
- Examination of cysticercosis cyst.
- Examination and processing of Cysticercosis cyst.

SECTION IV

- Introduction to Entomology Identification of Adultworms- mosquitoes, flies, ticks and fleas
- Animal care, handling and uses in parasitology.
- Preparation of parasitic antigens, antigens and antisera
- Handling and operating of sophisticated equipment
- Laboratory processing, staining and examination of samples

PRACTICALS:
1. Introduction to operation of laboratory instruments and safety precautions.
2. Macroscopic examination of adult worms, cysts, tissues and processing of stool sample for routine examination.
3. Saline preparation for protozoan cysts and trophozoites.
5. Study of malarial parasite.
6. Laboratory diagnosis of kalaazar.
7. Detection of trypanosomes (the causal agent of sleeping sickness)
8. Laboratory diagnosis of microfilaria (Wuchereria bancroftii)
9. Quantitative determination of serum (or plasma) IgG class antibodies to toxoplasma gondii by ELISA
10. Determination of IgM class antibodies to toxoplasma gondii by ELISA

Reference Books

2. Clinical Parasitology: A Practical Approach 2nd edition Elizabeth A. Zeibig Publisher Elsevier - Health Sciences Division
3. Veterinary Parasitology M. A. Taylor, By (author) R. L. Coop, By (author) R. L. Wall John Wiley and Sons Ltd, 3rd revised edition
4. Medical Entomology: A Textbook on Public Health and Veterinary Problems Caused by Arthropods 2nd Edition by B.F. Eldridge (Editor), John Edman (Editor)
5. Medical and Veterinary Entomology, Second Edition 2nd Edition by Gary R. Mullen (Editor), Lance A. Durden (Editor)
6. Medical Entomology for Students 3rd Edition by Mike Service (Author)
7. Text book of Medical Lab Technology Praful B. Godkar and Darshan P Godkar Publisher Bhalani Publisher, Third edition Vol 1-3
Job Role: Medical Lab Technician

Objective: To give an overview of various aspects of General microbiology

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit.
3. Question number one is compulsory of short answer type questions covering the whole syllabus.
4. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
5. All questions carry equal marks

SECTION I

- Introduction and brief History, development, scope and applications of Microbiology.
- Nature of Microbial World: Prokaryotes and eukaryotes, growth pattern in microbes
- Morphology and Structure of Microorganisms
- Biotransformation of (a) D-Sorbitol to L-Sorbose. (b) Antibiotics. (c) Steroids
- Growth and nutrition of microbes
- Safety measures in microbiology.

SECTION II

- Morphology, General characteristics & fine structure of bacteria, fungi, actinomycete and algae
- Classification of bacteria.
- Organization of cell wall, cell membrane, flagella and capsules in bacteria.
- Morphogenesis in bacteria, formation of spores and cysts.
- Bacteriophages: Morphology, multiplication, detection and enumeration.

SECTION III

- General characteristics actinomycete and algae
- Morphology, General characteristics and classification of pathogenic fungi.
- Classification and general properties of Viruses
- Morphology, Pathogenicity and laboratory diagnosis of human viruses.

SECTION IV

- Methods of Microbiology isolation of pure cultures, theory and practice of sterilization.
- Staining of microbes, Theory of Gram staining.
- Preparation, uses and standardization of culture media.
- Principles of staining methods and preparation of reagents.
- Principles and methods of sterilization.
- Uses and mode of action antiseptics and disinfectants.

PRACTICALS:

Use of microscope in examination of unstained bacteria, fungi, algae, parasites and stained cell preparations including simple staining,
Gram’s staining, acid fast staining, capsule staining, spore staining using prokaryotic and eukaryotic cells, hanging drop preparation.
Preparation of culture media, spread plates, pour plates, selective media, differential media
Separation of pure cultures and study the effect of selective nutrients on prokaryotes
1. Mims' Medical Microbiology   Richard Goering , Hazel Dockrell , Mark Zuckerman , Ivan M. Roitt , Professor Peter L. Chiodini Publisher Elsevier Health Sciences
2. Ananthnaryans and Paniker’s Text book of Microbiology edited by CKJ paniker 7th edition, Publisher Orient Longman
3. Roitt’s Essential Immunology Delves, Peter J., Martin, Seamus J. Burton, Dennis R. Roitt, Ivan M. Ananthanarayan and Paniker’s Textbook of Microbiology Kapil, ar tied
5. Parasitology Chatterjee K. D.
6. Microbiology Pelczar, Michal J and Others
7. Medical Microbiology Greenwood David and Other
8. Ananthanarayan and Paniker’s text book of Microbiology Artikapil
9. Immunology Male David and Other
10. Mackie and McCartney practical Medical Microbiology Collee J. G and Other
11. Bailey and Scott’s Diagnostic Microbiology, 13th edition Patricia Tille
13. Stephenson Calculations for Molecular Biology
14. Gerald Karp Cell Molecular Biology
15. Stanier General Microbiology
Job Role: Medical Lab Technician

Objectives:
1. To learn the techniques of collection of samples, their processing and the identifications of the various pathogens, like bacteria, parasites, viruses, using different techniques.
2. To provide vigorous training in the use of standard safety measures while handling highly infected material.
3. To provide basic knowledge of the different diseases caused by various microorganisms is also imparted.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

IDENTIFICATION OF BACTERIA:
- Micrococci, Staphylococci, Streptococci, pneumococci, Corynebacteria, Escherichia, Klebsiella,
- E-coli, Enterobacter, Proteus- providencia Salmonella, Shingella, Arizona, Citrobacter, Yersinia,
- Pseudomonas, Vibrio, Haemophilus, Mycoplasma, Rickettsia, Chalmydia, Tricragents.
- Introduction to important diseases caused by Streptococcus, Pneumococcus, Neisseria, Corynebacterium, Bacillus, Clostridium tetani, Clostridium perfringens, enterobacteriaceae (Proteus, Shigella, Salmonella), Vibrio cholerae, Yersinia, Hemophilus, Mycobacterium, The operative pathogenic mechanisms, laboratory diagnosis, prevention and control of these diseases.
- Systematic grouping of pathogenic bacteria.
- Laboratory identification of infectious agents, Diagnosis of anaerobic infections ,identifying characteristics of common pathogenic bacteria,Antimicrobial susceptibility test. IMViC, Urease, catalase, gelatineliquification, coagulase, oxidase, sugar fermentation, antibiotic sensitivity test.

PATHOGENIC AND NEW-PATHOGENIC FUNGI:
- Introduction to Human mycotic infections vizCryptococcosis, Dermatophytosis, Blastomycosis, Opportunistic Mycosis; Candidiasis and Aspergillosis.
- Candida, Cryptococy, Dermatophytes, Sporotrichoums, Histoplasma, Blastomycoses, Coccidioides, Para-coccidiodes, Dematiaceous fungi, Mycetoma, Actinomycyes, Nocardia and common laboratory contaminants. Biochemical tests used for identification of bacteria and fungi.
- Antimicrobial sensitivity testing and assay methods for body fluids. Antimicrobial susceptibility testing for Mycobacteria. Preparation and standardization of antigens and antiser.
- Lab diagnosis of fungal infections Superficial dermatophyte fungal infections, Candidiasis, creptococosis, Pulmonary infections, Mycetoma, other deep mycotic infections, subcutaneous fungal infections subcutaneous fungal infections spozotrichosis, chromoblastomycosis, Eye and Ear fungi infections

VIROLOGY:-
- Chemotherapy of Viral diseases, Oncogenic Viruses, RNA/DNA Viruses,AIDS, Miscellaneous viruses,
- Structure of viruses, lysogenic cycle, lytic cycle, smallpox, polio, HIV,Hepatitis B
- Morphology, pathogenesis, life cycle, laboratory diagnosis, prevention and control of viral diseases viz. Rabies, Polio, Small pox, Herpes, Measles, Influenza and AIDS
- Introduction to use of different laboratory instruments and their safety precautions.
- Collections, handling, and storage of samples for viral diagnosis.
- Washing, cleaning and sterilization of Media and glassware in Virology.
Section IV

- Principles of biosafety hoods use of pipettes, syringes and other virus contaminated
- Instruments in the laboratory. Mode of transmission of viral agents. Prevention of viral diseases. Immunity in viral infection
- Demonstration of preservation of viruses, viral antigens, infects biological materials and viruses.
- Different staining techniques used in virology.
- Use of Embronated eggs in clinical Virology.
- Principles of animal cell culture and their use in virology.

PRACTICALS:

1. Demonstration of staining procedures: Preparation of the following stains and demonstration of viral inclusion bodies:
   a) Seller’s stain for Negri body demonstration.
   b) Giemsa Stain for CMV and Herpes viral inclusions.

2. Preparation of reagents for serological tests:
   Phosphate buffered saline, Veronal buffered saline, Alsever’s solution, Dextrose gelatin, Veronal buffer and Tris buffer.


4. Demonstration of Haemadsorption test, IHA, and RPHA tests.

5. Demonstration of complement fixation test.

6. Demonstration of Immunofluorescence test and Immunoperoxidase test.

7. Demonstration of ELISA for HbsAg detection.

Reference Books

1. Mims' Medical Microbiology Richard Goering, Hazel Dockrell, Mark Zuckerman, Ivan M. Roitt, Professor Peter L. Chiodini Publisher Elsevier Health Sciences
2. Ananthnaryans and Paniker’s Text book of Microbiology edited by CKJ paniker 7th edition, Publisher Orient Longman
5. Parasitology Chatterjee K.D.
6. Microbiology Pelczar, Michal J and Others
7. Medical microbiology Greenwood David and Other
8. Anantharayan and Panikar’s text book of Microbiology Artikapil
9. Immunology Male David and Other
10. Mackie and McCartney practical Medical Microbiology Collee J.G and Other
11. Bailey and Scott’s Diagnostic Microbiology, 13th edition Patricia Tille
Job Role: Medical Lab Technician

Objectives:
1. To Understand the importance and method of Observing and reporting while dealing with patients
2. To Understand Guidelines for Collecting documentation
3. To maintain restful environment

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
- Organization of Laboratory
- Functional components of clinical laboratories, cleanliness, precautions to be taken WRT patients, reports, analysis
- Communication between physician, patients, and the medical laboratory professional
- Basic needs of clinical laboratory technician, awareness of soft skills, KB1
- How to deal with various people.
- Principles and processes for providing customer and personal services including needs assessment techniques
- Quality service standards, alternative delivery systems, and customer satisfaction evaluation techniques

Section II
- Observing and reporting
- Quality control of clinical investigations, Automation in clinical biochemistry laboratory, laboratory organization
- Management and maintenance of records.
- Understand the importance and method of Observing and reporting while dealing with patients during sample and report collection
- The relevant legislation, standards, policies, and procedures followed in the Organization
- Role and importance of assisting other healthcare providers in delivering care
- Supervise and guide other laboratory personnel
- Manage people/patient effectively as per the guidelines.
- The principles of leadership and guidance.
- Importance and method of Observing and reporting while assisting the pathologists and other members of the team
- Importance of verbally informing the person in authority
- Research procedures and protocol:
  - The process of generating or using different sets of rules to combine or group things in different ways

Section III
- Documentation
- Guidelines for documentation, Guidelines for Collecting documentation
  - Various types of records in laboratory set up
- Uses and importance of records in laboratory set up
  - Essential requirement of records
  - Understand abbreviations and symbols
  - Enter, transcribe, record, store, or maintain information in written or electronic/magnetic form
- Usage of LMIS (Laboratory information management system)

Section IV
- Professional Behavior in Healthcare Settings
- How to maintain restful environment, Business, mission, and objectives of the organization
  - General and Specific etiquettes to be observed on duty
  - Understand need for compliance of organizational hierarchy and reporting
  - legal and ethical issues
  - Importance of conservation of resources in laboratories
- Effective working relationships with the people, The importance of planning, prioritizing and organizing work, Efficient use of time, Importance of keeping the work area clean and tidy
# REFERENCE BOOKS

1. Clinical Laboratory Management  
   - Lynne Shore

2. Medical Laboratory Management  
   - Sangeeta Sharma et al

3. Biostatistics: A Foundation for Analysis in Health Sciences  
   - Wayne W. Daniel

4. Business Communication  
   - Sinha, K. K.

5. Business English  
   - Taylor, Ken.

6. English Vocabulary in Use  
   - McCarthy, Micheal.

7. Business Letters, Emails  
   - Shirley Taylor

8. The Craft of Business Letter Writing  
   - Monipally, M. Matthew.

9. Presentations Laws  
   - Anne

10. Telephoning and Teleconferencing Skills  
    - Ken Taylor

11. Write to the Point: How to Communicate in business with style and purpose  
    - Salvatore J. Iacone

12. Commercial Correspondence and Office Management  
    - R. S.N. Pillai

13. Comdex Computer Course Kit  
    - Gupta, V.

14. Computer Fundamentals  
    - P.K. Sinha

15. Excel 2010 Inside Out  
    - Dodge, Mark

16. Information Technology for Management  
    - Lucas, Henry C.

17. A Foundation Course in Value Education  
    - R R Gaur, R Sangal, G P Bagaria, 2009

18. Fundamentals of Ethics for Scientists & Engineers  
    - E G Seebauer & Robert L. Berry, 2000

19. Human Values, New Age International Publishers  
    - A.N. Tripathy, 2003

20. Environment Biology  
    - Agarwal, K. C. 2001

21. Environment Protection and Laws  
    - Jadhav, H & Bhosale, V.M. 1995

22. Waste Water Treatment  
    - Rao M. N. & Datta A.K. 1987

    - Daniel D. Chiras 2010

24. Essentials of Environment Science  
    - Joseph

25. Environment Pollution Control Engineering  
    - Rao, C.S.

26. Perspectives in Environmental Studies  
    - Kaushik, A.

27. Practical Communication Skills  
    - Chrissie Wright
Job Role: Medical Lab Technician

Objectives:
1. Elementary knowledge of specimen collection
2. Elementary knowledge of tissue fixatives
3. Elementary knowledge of tissue processing:
   a. Logging of specimen, preparation of tissues, processing of tissues, Frozen section technique, Handling and embedding of small tissue fragments.
      i. Understand about section cutting
      ii. Understand about Staining
4. Staining Procedures
5. Autoanalyzer, Tissue Processor, Microtome
6. Elementary knowledge of Decalcification

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I
• Introduction to histopathology and laboratory organization.
• Elementary knowledge of sample collection
• Reception, recording and labeling of histology specimens.

SECTION II
• Fixation and various tissue fixatives.
• Processing of histological tissues for paraffin-embedding.
• Embedding and embedding media.

SECTION III
• Microtome- various types, their working principle and maintenance.
• Microtome knives and knife sharpening.
• Practical section cutting, cutting faults and remedies.
• Routine staining procedures, mounting and mounting media.

SECTION IV
• Dye chemistry, theory and practice of staining.
• Solvents mordents, accelerators and accentuatators.
• Uses of controls in various staining procedures.
• Metachromasia and metachromatic dyes.
• Haematoxylin stain. Its importance in histology.
• Carbohydrates and amyloid – special stains and procedures.
• Connective tissues trichrome staining and other special stains for muscle fibres, elastic, reticulinfibres and collagen fibres.
• Principles of metal impregnation techniques.
• Demonstration and identification of minerals and pigments
• Elementary knowledge of Decalcification

Practicals
1. Tissue processing by using tissue processor
2. Sharpening of the microtome knife
3. Gross examination and fixation of the specimen
4. Decalcification of calcified tissue
5. Processing of the tissue by manual method
6. Section cutting of paraffin wax embedded tissue
7. To fix the section on the slide
8. Staining of the tissue section by using hematoxylin and eosin staining method

Reference Books

1. Robbins Basic Pathology-Vinay Kumar , Abul K. Abbas , Jon C. Aster
2. Histopathology Guy Orchard , Edited by Brian Nation Publisher Oxford University Press
4. Histology for Pathologists by Stacey E Mills MD
5. Sternberg's Diagnostic Surgical Pathology [2 - Volume Set] by Stacey E Mills MD
6. Anatomic Pathology Board Review, 2e by Jay H. Lefkowitch MD
7. Clinical Pathology Board Review, 1e 1 Har/Psc Edition
8. by Steven L. Spitalnik MD (Author), Suzanne Arinsburg DO (Author), Jeffrey Jhang MD (Author)
9. Medical Laboratory Science-Theory and Practice: J Ochei and A. Kolhatkar
10. A Hand Book Of Medical Laboratory Technology By V.H.Talib
12. Medical Laboratory Technology : Methods and Interpretations Vol - 1 6th Edition by RAMNIK SOOD
Job Role: Medical Lab Technician

Objectives:
1. To collect exfoliative cytology smears, contact smears and perform applications for cytological examination (under supervision) and carry out routine and special training procedure on cytology smears.
2. To organize the histopathology laboratory of the above services and provide basic equipment maintenance.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I
- Cytoplasmic constituents and their demonstration
- Brief introduction of cytology and cytopathology
- Elementary knowledge of sample collection and transportation
- Exfoliative Cytology-Specimen Preparation
- Diagnostics Exfoliative cytology: Preparation of specimen
- Preparation of specimens for cytological evaluation
- Elementary knowledge of precautions to be taken for gynaecological samples
- Elementary knowledge of specimen collection, transportation and preservation of precautions to be taken for nongynaecological samples

SECTION II
- Exfoliative Cytology- Staining Techniques
- Diagnostics Exfoliative cytology: Cytological Stains and Staining Techniques
- Understanding of Fluid Specimen
- Cytological stains, Papanicolaou stain, other and special stains
- Staining techniques
- Mounting of cell sample

SECTION III
- Characteristics of benign and malignant cells
- Cervical cytology-basis of detection of malignant and premalignant lesions Hermoral assessment with cytologic techniques and sex chromatis and pregnancy tests.

SECTION IV
- Fine needle aspiration cytology (FNAC)
- Purpose of fine needle aspiration,
- Aspiration cytology principles, indications and utility of the technique with special emphasis on role of cytotechnician in FNAC clinics
- Procedure of fine needle aspiration and section cutting.
- Preparation for the procedure
- Educate the patient about procedure
- Calm down the anxious patients

Practicals
1. Cytochemical staining procedure in various haemopoietic disorders
2. Techniques available for cyogenetic studies
3. Use of Radioisotopes in hematology
4. Safety measures for handling Radioisotopes
Reference Books:

1. Practical Principles of Cytopathology Revised 1st Edition by Richard M. DeMay (Author)
2. Diagnostic Cytopathology: Expert Consult: Online and Print, 3e 3rd Edition by Winifred Gray MB BS FRCPath (Author), Gabrijela Kocjan MD MB BS Spec Clin Cyt (Zagreb) FRCPath (London) (Author)
Job Role: Medical Lab Technician

Objectives:
1. To learn the techniques of collection of samples, their processing and the identifications of the various pathogens, like bacteria, parasites, viruses, using different techniques.
2. To provide basic knowledge of the different diseases caused by various microorganisms is also imparted, their processing and the identifications of the various pathogens, like bacteria, parasites, viruses, using different techniques.
3. To provide training in the use of standard safety measures while handling highly infected material. To provide basic knowledge of the different diseases caused by various microorganisms is also imparted.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
- Physiology of bacteria, anatomy of bacterial cell, growth requirement of bacteria-growth curve, nutrients required. Gram positive & Gram negative Bacteria.
- Elementary knowledge of Pyogenic cocci, Gram Negative Bacilli, Gram Positive bacilli, anaerobes, mycobacteria and spirochates.
- Difference between cocci & bacteria,
- Normal flora of human body.

Section II
- Lab diagnosis of common Bacterial infections viz:- pyogenic infections, Respiratory tract infections, Meningitis, Diphtheria,
- Whooping Cough, Gas gangrene, food poisoning, Enteric fever, Acute diarrhea diseases, cholera, Urinary tract infection,
- Tuberculosis, Leprosy, Plague, Anthrax, Typhus fever, syphilis, Gonorrhea and other STD’s.

Section III
- Disease oriented microbiology, culture & sensitivity test, aerobic, anaerobic techniques
- Introduction to Fungi and parasitic fungi, specimen collection, Laboratory diagnosis of mycotic infections, Diagnostic mycology
- Principles of Antigen-Antibody reactions.
- Principles and mode of action of antibiotics and chemotherapeutic agents for bacteria and fungi.

Section IV
- Diagnostic Microbiology & Micro Techniques
- Role of microbiology laboratory, specimen handling, laboratory records, safety Regulations, Basic procedures of Diagnostic Rapid and automation methods in Diagnostic Microbiology, Culture environments of microbes, Quality control in microbiology, Quick reference of media and biochemical tests
- Collection and handling of faecal specimen, Laboratory techniques in parasitological investigation of stool, Processing of specimens other than stool, Lab identification of human parasites
- Collection, transportation and processing of clinical samples for microbiology investigations.

Practicals:
1. Preparation of Smear
2. Bacteriophage and Bacteriocine typing methods
3. Lab diagnosis of common Bacterial infections viz:- pyogenic infections, Respiratory tract infections, Meningitis, Diphtheria,
4. Whooping Cough, Gas gangrene, food poisoning, Enteric fever, Acute diarrhea diseases, cholera, Urinary tract infection,
5. Tuberculosis, Leprosy, Plague, Anthrax, Typhus fever, syphilis, Gonorrhea and other STD’s
6. Monochrome staining (simple staining),
7. Gram’s staining
8. Study of motility of capsule
9. Study of bacterial capsule
10. Study of acid fast bacilli
Isolation of bacteria by streak plate techniques
To perform qualitative Widal test

Reference Books

1. Mims' Medical Microbiology Richard Goering, Hazel Dockrell, Mark Zuckerman, Ivan M. Roitt, Professor Peter L. Chiodini Publisher Elsevier Health Sciences
2. Roitt’s Essential Immunology Delves, Peter J., Martin, seamusJ.Burton, Dennis R. Roitt, Ivan M Ananthanarayan and Paniker’s Textbook of Microbiology Kapil, artied
4. Parasitology Chatterjee K.d.
5. Microbiology Pelczar, Michal J and Others
6. Medical Microbiology Greenwood David and Other
7. Ananthanarayan and Panikar’s text book of Microbiology Artikapil
8. Immunology Male David and Other
9. Mackie and McCartney practical Medical Microbiology Collee J.G and Other
10. Bailey and Scott’s Diagnostic Microbiology, 13th edition Patricia Tille
Objective: To get basic knowledge of Spectroscopic, Electrophoretic, Chromatographic and Radio Isotopic Techniques

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I
- Spectroscopic Technique

SECTION II
- Electrophoretic Techniques
  - Electrophoretic Techniques : Principles and applications of the following electrophoresis techniques. Paper and gel electrophoresis, high voltage electrophoresis, SDS-PAGE : Discontinuous electrophoresis, isotachophoresis, isoelectric focussing and immunoelectrophoresis.
- Centrifugation Techniques :

SECTION III
- Chromatographic Techniques
  - Chromatographic Techniques :Introduction to Chromatography
  - General principles of chromatography and the application of following chromatographic procedures in isolation and purification of biomolecules : Absorption, partition, paper and thin layer chromatography.
  - Gas liquid chromatography. High performance liquid chromatography (HPLC), Ion exchageand Exclusion chromatography. Affinity chromatography

SECTION IV
- Radio Isotopic Techniques
  - Properties of radioactive emissions. Units of radioactivity. Techniques used to measure radioactivity; GM counter and liquid scintillation counting and gamma counter. Labelling of Biochemical compounds and autoradiography.
  - Use of radioactive tracers in the study of enzyme reaction mechanisms and metabolic pathways. Radioimmuno assay.
  - Biological hazards of radiation and safety measures in handling radioisotopes

PRACTICAL
Separation and identification of amino acids by
(i) Paper chromatography (ii) Thin layer chromatography
(ii) Separation of phospholipids by thin layer chromatography.
Preparation of starch from potato and its hydrolysis by salivary amylase
Estimation of lactic acid in blood before and after exercise.
Gel Electrophoresis of Nucleic Acids D. RickWood and B.D. Hames
Reference Books

Principles and Techniques of Biochemistry and Molecular Biology by Keith Wilson

1. Introduction to Instrumentation in Life Sciences by Prakash Singh Bisen, Anjana Sharma


8. Introductory Practical Biochemistry by S. K. Sawhney, R. Singh
Job Role: Medical Lab Technician

Objective:
1. To gain elementary knowledge about Immunology
2. To understand the basics of Humoral Immunity, Cell Mediated Immunity and Antigen-Antibody Interactions

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
- Immunity/Immune system, innate immunity, adaptive immunity, cells and organs involved in immune system
- Introduction and history of Immunology, Non-specific Defense; Physical Barriers, Chemical Barriers, Phagocytosis, Inflammation, Fever, Types of Immunity, Active & Passive Immunity, Immunological memory, Primary & Secondary Lymphoid organs, Mucosa Associated Lymphoid tissue (MALT), Cutaneous Associated Lymphoid Tissue (CALT), Lymphocyte Traffic, Cells of immune system, Antigens; factors affecting Immunogenicity, epitopes, haptns.
- Infection and immune system, Cancer Immunology

Section II
- Humoral Immunity

Section III
- Cell Mediated Immunity
- Cell Mediated Immune System, Mechanism of CMI, Types of effector T Cells, Helper T-cells, Suppressor, T-cells, cytotoxic T cells, Killer T cells, Cytokines, Lymphokines, Colony Stimulating factors, Tumour Necrosis factor, Interferons, Accessory cells (Macrophages), the Complement System, Classical and Alternate pathway, HLA, Monoclonal antibody technology and its applications, Interactions between B and T lymphocytes.

Section IV
- Antigen-Antibody Interactions
- Antigen-Antibody Interactions : Precipitation reaction, Immuno-diffusion test, counter current Immuno electrophoresis, complement fixation tests, Widal test, Wasserman’s test, Weil Felix reaction, Western Blotting, Types of vaccines.

Practical
- Antigen-antibody interactions
  - Agglutination
  - Precipitation
  - Blood grouping
  - Immunodiffusion

REFERENCE BOOKS
7. A Handbook of Practical Immunology – G P Talkwar
9. Immunology by Roitt
10. Immunology by Rao, C.V.
11. Immunology by Roitt, Jonathan Rofft and David Male
12. Immunology and Serology by Joshi
13. Molecular and antibody Probes in Diagnosis by Mathew R. Walker
14. Molecular Biology in Medicine by Timothy M. Cox
15. Molecular Biotechnology by Glick
16. Current topics in AIDS (Volume I) by M.S. Gotlib
B.Voc. (Medical Lab Technology)     SEMESTER V
PAPER Skill BMLT 504 : Serology : Introduction & Serological Lab Procedures     Credits: 6

Job Role: Medical Lab Technician

Objectives:
To provide basic knowledge of serology, serological techniques and serological tests.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I

- Introduction to serology
- Antigens, antibodies, structure and classes of antibodies, monoclonal antibodies and its uses.
- Collection and preparation of specimen, Epidemiological markers of microorganism serotyping.
- Principles of immunologic reactions, serodiagnosis.
- Collection and preparation of specimen, Serological test for syphilis (STS). Agglutination tests, CRP, Rheumatoid arthritis test (RA), Serodiagnosis of streptococcal infection, Serodiagnostic tests for miscellaneous disorders, Immunologic test for pregnancy RIA, ELISA

SECTION II

- Epidemiological markers of microorganism serotyping.
- Serological Tests-Widal, ASO, LFT, CRP, Rosewaller, brucella agglutination, cold agglutination, VDRL, TPHA, PTA-ABS
- Lab diagnosis of fungal infections - Superficial dermatophyte fungal infections, Candidiasis, cryptococosis, Pulmonary infections, Mycetoma, other deep mycotic infections, subcutaneous fungal infections, subcutaneous fungal infections - spozotrichosis, chromoblastomycosis, Eye and ear fungi infections

SECTION III

- Serological tests for fungal infections and skin tests
- Advanced techniques in microbiology ELISA, RIA, CCIEA, Co-agglutination GLC, HPLC etc.
- Rapid diagnostic methods and Automation in Microbiology.
- Principles of Serological techniques used in virology - ELISA, RIA, IF, Immuno peroxidase test

SECTION IV

- Principles of serological techniques used in Virology-Part 1: HA, HAI, Had, SRH, RPHA, IHA, CFT, CIIEP
- Principles of Serological techniques used in Virology-Part-11 Nt, ELISA, RIA, IF, Immuno-peroxidase test

PRACTICALS

1. Serological tests Serological test for syphilis (STS). Agglutination- 4 tests, C-reactive protein test (CRP), Rheumatoid arthritis test (RA), Serodiagnosis of streptococcal infection, HBsAg, HIV-1 (Rapid TriDot test) Widal test, Tuberculin test
2. SEROLOGICAL TESTS: Widal, ASO, LFT, CRP, Rosewaller, Brucella agglutination, cold agglutination, VDRL, TPHA, FTA-ABS.
3. Principles of Serological techniques used in virology - ELISA, RIA, IF, Immuno peroxidase test
4. Serological tests for fungal infections and skin tests
5. Advanced techniques in microbiology ELISA, RIA, CCIEA, Co-agglutination GLC, HPLC etc.
6. Rapid diagnostic methods and Automation in Microbiology.

Reference books

1. Clinical Immunology and Serology: A Laboratory Perspective (Clinical Immunology and Serology (Stevens)) Paperback – Import, 1 Dec 2009 by Christine Dorresteyn Stevens
2. Immunology & Serology in Laboratory Medicine, 5th Edition By Mary Louise Turgeon, EdD, MLS(ASCP)CM
3. Kuby Immunology By Judy Owen, Jenni Punt, Sharon Stratford Publisher W.H.Freeman & Co Ltd
SEMESTER V
B.Voc. (Medical Lab Technology)

Skill BMLT 505 Paper - Clinical Biochemistry -I

Credits 6

Job Role: Medical Lab Technician

Objectives: Clinical enzymology. Elementary knowledge of Hormones Elementary knowledge of Minerals and Electrolytes To Understand about Therapeutic Drug Monitoring

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit, Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I

- Clinical enzymology , Enzyme Histochemistry and demonstrations of phosphatases, dehydrogenases oxidases and peroxidases etc.

Section II

- Determination of serum glutamate pyruvate transaminase (SGPT) and serum glutamate Oxaloacetate transaminase (SGOT) End point reaction

Section III

- Estimation of important Amino acids and enzymes: Enzymes Acid Phosphatase (ACP), Alkaline Phosphatase (ALP), Transaminase, LDH, AST, ALT, Amylase and lactate dehydrogenase, Creatinine, Creatine Phosphokinase (CPK), CPK-MB.

Section IV

- Liver tests, Renal tests, Endocrine function tests, Lipid profile

Practical

Liver tests, Renal tests, Endocrine function tests, Lipid profile,
Estimation of important Amino acids and enzymes: Enzymes Acid Phosphatase (ACP), Alkaline Phosphatase (ALP), Transaminase, LDH, AST, ALT, Amylase and lactate dehydrogenase, Creatinine, Creatine Phosphokinase (CPK), CPK-MB.
Determination of serum glutamate pyruvate transaminase (SGPT) and serum glutamate Oxaloacetate transaminase (SGOT) End point reaction

Reference Books

1. A guidebook to Biochemistry Michael Yudkin
3. Biochemistry Voet and Voet
4. Biochemistry Stryer
6. Clinical Biochemistry Richard Luxton
7. Clinical Diagnosis & Management by Laboratory method0 (20/e) John Bernard Henary
8. Clinical Biochemistry G. Guru
9. Handbook of Biochemistry M.A. Siddique
10. Textbook of Medical Biochemistry S. Ramkrishnan
11. Biochemical Techniques K. Choudhary
12. Text book of Medical Biochemistry Chaterjee&Shinde
14. Principles of Biochemistry Lehninger
15. Textbook of Biochemistry and Human Biology G.P. Talwar
16. Textbook of Medical Laboratory Technology Godkar and Godkar
17. Outline of Biochemistry Conn Stumpf
18. Principles of Internal Medicine Isselbacher
27. Practical Clinical Biochemistry Harold Varley, CBS, 6 edition (1 December 2006)
SEMESTER VI
B.Voc. (Medical Lab Technology)

PAPER  Skill  BMLT 602 : Sensitization to Blood Banking and Infection Control  Credits 6

Job Role: Medical Lab Technician

Objectives:

1. To understand blood transfusion reactions
2. To understand the importance and methodology of cleanliness, and hygiene environment
3. To understand the practices to curb infection

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I
- Components of blood
- Immuno-hematology in detail
- ABO blood group system in detail
- Rh blood group system in detail

Section II
- Methodology to identify blood groups
- Different aspects of Blood transfusion techniques
- Investigation of transfusion reaction.
- Transfusion of various components of blood

Section III
- Serum immunoglobulin
- Different aspects of working in blood
- Storage of Blood

Section IV
- Infection control and prevention
  - Practices to curb infection
    - Hospital borne infections
  - Prevention and treatment of needle stick injury
    - Management of blood and body substance spills in the health care setting
  - The path of disease transmission:
    - paths of transmission including direct contact and penetrating injuries
    - risk of acquisition
    - sources of infecting microorganisms including persons who are carriers, in
  - The incubation phase of the disease or those who are acutely ill
  - Aspects of infectious diseases including:
    - opportunistic organisms, pathogens

Reference Books

1. Atlas of haematology (5/e) G.A. McDonald
2. Clinical Haematology Christopher A. Ludlam
3. Practical Haematology J.B. Dacie
4. Practical Haematology (8/e) S ir John
5. Haematology (International edition) Emmanuel C.Besa
6. Haematology (Pathophysiological basis for clinical practice (3/e) Stephen M. Robinson
7. Haematology for students Practitioner RamsrikSood
8. Hand book of Medical Laboratory Technology (2/e) V.H. Talib
11. Textbook of Blood Banking and Transfusion Medicine - Elsevier eBook on VitalSource, 2nd Edition By Sally V. Rudmann, PhD, MT(ASCP)SBB, CLS
12. Textbook of Blood Banking and Transfusion Medicine by Sally V. Rudmann
13. Hospital Epidemiology and Infection Control by C. Glen Mayhall
15. Hospital Infection Control Guidelines: Principles and Practice by Singh Sanjeev, Gupta Shakti Kumar, Kant Sunil
16. Bennett &Brachman's Hospital Infections Sixth Edition by William R. Jarvis MD (Author)
17. Handbook of Hospital Infection Control, 2013 by Sanjay Singhal
Job Role: Medical Lab Technician

Objectives:
1. To learn the techniques of collection of samples, their processing and the identifications of the various pathogens, like bacteria, parasites, viruses, using different techniques.
2. To provide vigorous training in the use of standard safety measures while handling highly infected material.
3. To provide basic knowledge of the different diseases caused by various microorganisms is also imparted.

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

Section I

- Preservation of microbes and lyophilisation methods.
- Total and viable counts of bacteria.
- Testing of disinfectants-Rideal-Walker, Chick-Martini and In-use tests.
- Bacteriological examination of water, milk, food and air.
- Nosocomial infections and sterility testing of I/V fluids and processing of various samples for hospital infections.
- Toxin-Antitoxin assays and pathogenicity tests.
- Epidemiological markers of microorganisms-Serotyping, Bacteriophage and Bacteriocine typing methods.

Section II

- Lab, Diagnosis of common bacterial infection viz: Pyogenic infections, Respiratory tract infections, Meningitis, Diphtheria, whooping cough, Gas gangrene, Food-poisoning, Enteric fever, Acute diarrhoeas diseases, Cholera Urinary tract infection, Tuberculosis, Leprosy, Plague, Anthrax, Typhus fever, Syphilis, Gonorrhoea and other STD’s.
- SEROLOGICAL TESTS: Widal, ASO, LFT, CRP, Roseewaller, Brucella agglutination, cold agglutination, VDRL, TPHA, FTA-ABS.
- Lab diagnosis of fungal infections viz:SuperficialDermatophyle fungal infections
- Candidiasis, Cryptococosis, pulmonary infections, Mycetoma, other deep mycotic infections, subcutaneous fungal infections-Spozotrichosis, Chromoblastomycosis,
- Eye and Ear fungi infections.
- Serological tests for fungal infections and skin tests.
- Advanced techniques in microbiology-ELISA, RIA, CCIIEP, Co-agglutination GLC, HPLC etc.
- Rapid diagnostic methods and Automation. in Microbiology.

Section III

- Handling of fresh histological specimen(tissues) cryo/frozen sections of fresh and fixed tissues, freeze drying.
- Lipids, identification and demonstration
- Micro-organisms in tissues- various staining technique for their demonstration
- Identification of Nucleic acids, DNA and RNA special stains and procedures
- Cytoplasmic constituents and their demonstration
- Cervical cytology-basis of detection of maligrant and premalignant lesions
- Hormoral assessment with cytologic techniques and sex chromatis and pregnancy tests.
- Allergy
- Rheumatological diseases and investigations.

Section IV

- Advanced techniques and future trends in field of microbiology
- Updated on advanced techniques and future trends in field of diagnostic microbiology
- Updated on advanced techniques and future trends in field of molecular diagnostic technique
• Updated on advanced techniques and future trends in field of tele-pathology

Practicals

1. Preservation of microbes and Iyophilisation methods.
2. Total and viable counts of bacteria.
3. Testing of disinfectants-Rideal-Walker, Chick-Martin and In-use tests.
4. Preparation and standardization of vaccines and immunization schedule
5. Lab. Diagnosis of common bacterial infection viz: Pyogenic infections, Respiratory tract infections, Meningitis, Diphtheria, whooping cough, Gas gangrene, Food-poisioning, Enteric fever, Acute diarrhoeas diseases, Cholera Urinary tract infection, Tuberculosis, Leprosy, Plague, Anthrax, Typhus fever, Syphilis, Gonorrhoea and other STD’s.
6. SEROLOGICAL TESTS: Widal, ASO, LFT, CRP, Rosewallar, Brucella agglutination, cold agglutination, VDRL, TPHA, FTA-ABS.
7. Lab diagnosis of fungal infections viz:Superficial Dermatophyle fungal infections
8. Candidiasis, Cryptococosis, pulmonary infections, Mycetoma, other deep mycotic infections, subcutaneous fungal infections-Spozotrichosis, Chromoblastomycosis,
9. Eye and Ear fungi infections.
10. Serological tests for fungal infections and skin tests.
11. Advanced techniques in microbiology-ELISA, RIA, CCIIEP, Co-agglutination GLC, HPLC etc.
12. Rapid diagnostic methods and Automation. in Microbiology.

Reference Books

1. Mims' Medical Microbiology  Richard Goering , Hazel Dockrell , Mark Zuckerman , Ivan M. Roitt , Professor Peter L. Chiodini Publisher Elsevier Health Sciences
2. Ananthnaryans and Paniker’s Text book of Microbiology edited by CKJ paniker 7th edition, Publisher Orient Longman
5. Parasitology Chatterjee K.D.
6. Microbiology Pelczar, Michal J and Others
7. Medical microbiology Greenwood David and Other
8. Ananthanarayan and Paniker’s text book of Microbiology Artikapil
9. Immunology Male David and Other
10. Mackie and McCartney practical Medical Microbiology Collee J.G and Other
11. Bailey and Scott’s Diagnostic Microbiology,13th edition Patricia Tille
13. Stephenson Calculations for Molecular Biology
14. Gerald Karp Cell Molecular Biology
15. Stanier General Microbiology
Job Role: Medical Lab Technician

Objectives:

To understand various tests of Clinical Biochemistry and advanced techniques and future trends in field of biochemistry.

Instructions:

1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit.
3. Question number one is compulsory of short answer type questions covering the whole syllabus.
4. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
5. All questions carry equal marks

SECTION I

- Glucose tolerance test, insulin tolerance test, gastric analysis, Xylose absorption test
- Clearance test for renal function
- Analysis of calculi and CSF
- Automation in clinical biochemistry laboratory

SECTION II

- Mechanism and testing in detail
- Bone marrow in detail
- Detailed Examination of Stool
- Detailed Examination of Semen
- Detailed Examination of Sputum
- Detailed Examination of CSF, and other body fluids like pleural fluid, pericardial, peritoneal, synovial, ascitic fluid.

SECTION III

- Advanced techniques and future trends in field of biochemistry
- Advanced techniques and future trends in field of clinical pathology

SECTION IV

- Describe archiving protocol emphasizing on storage and retrieval of samples, specimens data and records,
- Describe source of error/ interference/ quality of work and initiate corrective action as applicable
- Describe assessment of results to initiate follow-up testing, Understanding of chemicals/reagents useful in sample analysis
- Understanding of maintaining record of inventory, test results, etc.
- Inspect the availability of medical supplies or diagnostic kits
- Differentiation between clinically significant and insignificant findings
- Able to establish and monitor quality assurance programs or activities to ensure the accuracy of insignificant findings
- Quality control of clinical investigations, Able to establish and monitor quality assurance programs or activities to ensure the accuracy of laboratory results

Practicals

- Glucose tolerance test
- insulin tolerance test
- gastric analysis
- Xylose absorption test
- Clearance test for renal function
- Analysis of calculi and CSF
- Automation in clinical biochemistry laboratory
- Detailed Examination of Stool
- Detailed Examination of Semen
- Detailed Examination of Sputum
Detailed demonstrations of examinations of bone marrow, CSF, and other body fluids like pleural fluid, pericardial, peritoneal, synovial, ascitic fluid.

Reference Books

1. A guidebook to Biochemistry Michael Yudkin
3. Biochemistry Voet and Voet
4. Biochemistry Stryer
6. Clinical Biochemistry Richard Luxton
7. Clinical Diagnosis & Management by Laboratory method0 (20/e) John Bernard Henary
8. Clinical Biochemistry G. Guru
9. Handbook of Biochemistry M.A. Siddique
10. Textbook of Medical Biochemistry S. Ramkrishnan
11. Biochemical Techniques K. Choudhary
12. Text book of Medical Biochemistry Chaterjee & Shinde
14. Principles of Biochemistry Lehninger
15. Textbook of Biochemistry and Human Biology G.P. Talwar
16. Textbook of Medical Laboratory Technology Godkar and Godkar
17. Outline of Biochemistry Conn Stumpf
18. Principles of Internal Medicine Isselbacher
Job Role: Medical Lab Technician

Objectives:
1. To enable the students to perform various tests for haematological disorders
2. To study the techniques for cytogenetics
3. To understand the use of radioisotopes in Haematology

Instructions:
1. The syllabus of this paper has been divided into four units.
2. Examiner will set a total of nine questions comprising two questions from each unit. Question number one is compulsory of short answer type questions covering the whole syllabus.
3. The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
4. All questions carry equal marks

SECTION I
- Laboratory tests for assessing bleeding disorders
- Laboratory investigation for disseminated intravascular coagulation (DIC)

SECTION II
- Mechanism of fibrinolysis test for fibrinolysis
- Platelet function tests and their interpretation

SECTION III
- Techniques available for cytogenetic studies
- Use of Radioisotopes in hematology
- Safety measures for handling Radioisotopes

SECTION IV
- Advanced techniques and future trends in field of haematology & blood banking
- Advanced techniques and future trends in field of clinical pathology
- Advanced techniques and future trends in field of histopathology & cytopathology

Practicals
1. Tests for assessing bleeding disorders
2. Laboratory investigation for disseminated intravascular coagulation (DIC)
3. Mechanism of fibrinolysis test for fibrinolysis
4. Platelet function tests and their interpretation

Reference Books
1. Clinical Haematology Christopher A. Ludlam
2. Practical Haematology J.B. Dacie
3. Practical Haematology (8/e) Sir John
5. Haematology (Pathophysiological basis for clinical practice (3/e) Stephen M. Robinson
6. Haematology for students Practitioners Ramnik Sood
7. Hand book of Medical Laboratory Technology (2/e) V.H. Talib
8. Atlas of haematology (5/e) G.A. McDonald

***************
Syllabus is same for 2017-18

DEPARTMENT OF PHYSICAL EDUCATION
FACULTY OF EDUCATION
(PANJAB UNIVERSITY CHANDIGARH)

SYLLABUS FOR
BACHELOR OF PHYSICAL EDUCATION (B.P.Ed)
Two Year (SEMESTER SYSTEM)
SESSION: 2016-2017
PREAMBLE:

The Bachelor of Physical Education (B.P.Ed) – Two Years (Four Semesters) Programme is meant for preparing quality teacher in Physical Education for Secondary Schools.

VISION

In line with the University mission, the Department has the aim of educating the "whole-person" and to produce quality teachers to serve as administrators in the profession of physical education and sports. Through improving our academic programme and services to the University and local community, we pledge to continually strive for academic excellence and to maintain our leadership role in our profession.

MISSION

1. To produce quality physical education teachers for imparting instructions in the subject of physical education.
2. To make people aware about the benefits of physical activity through extension lectures and demonstrations.
3. To provide excellent research and teaching in Physical Education in order to promote and develop the health and well being of people.
4. To promote health through specific physical activities, prescribed by a specialized physical educationalist.
5. To collaborate with the different organizations which are involved in promoting the quality life of the human beings i.e., educational institutions and NGOs.
6. To provide harmonious and stimulated academic environment for the promotion of quality teaching and research in the department.
7. To provide opportunity to faculty and students of the department for their self evaluations, accountability, autonomy and innovations in the area of physical education and sports.
8. To concentrate on quality research in the area of health, physical education and sports.
9. To introduce consultancy and training programmes for different educational institutions and other organizations for the conduct of sports and fitness events.
10. To update the curriculum and syllabi as per global needs and challenges.
OBJECTIVES:

This programme shall strive to achieve the following objectives:

General Objectives:
1. To enable teacher to understand the nature, purpose and philosophy of physical education at secondary stage.
2. To prepare teachers of physical education with broader educational perspective.
3. To develop for potentialities and organizing physical education programmes and activities.
4. To develop capacity to organized leisure and recreational activities.
5. To empower them to inspire their students to actively participate in physical and yogic exercises.
6. To enable teachers to develop personality, character, willpower, democratic values and positive games and sports.
7. To make teachers capable of imparting basic knowledge about health, hygiene and nutrition
8. To develop skills and competencies to organized school and community games and sports.
9. To cultivate the spirit of sportsmanship, mental and physical alertness, scientific temper and optimism.
10. To promote mental health, power of self- decision and self control, correct judgment and action emotional stability and equanimity, respect for others and acceptance of authority and rules
11. To promote appreciation and interest for indigenous games, sports and yogic exercises
12. To create awareness about health and hygiene in the community.

Specific Objectives
1. To lay down a sound foundation for higher and advance studies in Physical Education in India.
2. To produce quality teachers in physical education.
3. To prepare students for advance coaching Diplomas in disciplines – Athletics, Gymnastics, Hockey, Swimming, Basketball, Football etc.
4. To fulfill the eligibility criteria of Foreign Universities to get admission in post graduate courses abroad since it is a basic and global programme.
5. To generate employment in the fields of Health Fitness and Gym-Management, Physiotherapy, Journalism, Aquatics and Yoga.
6. To provide opportunity to talented students to excel in sports and become outstanding sports persons.
7. To promote mass participation in Physical Education activities (Games, Sports Displays etc) through intra- mural and Extra- mural programmes.
OUTLINES OF TESTS, SYLLABI AND COURSES FOR THE BACHELOR OF PHYSICAL EDUCATION (B.P.Ed.) EXAMINATION (SEMESTER SYSTEM) FOR THE SESSION: 2015-2016

The course of instruction for the B.P.Ed Examination consists of three parts as under:

<table>
<thead>
<tr>
<th>PART – I</th>
<th>Theory Papers</th>
<th>1600 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART – II</td>
<td>Practical Course (Skill and Prowess)</td>
<td>800 Marks</td>
</tr>
<tr>
<td>PART – III</td>
<td>Practice of Teaching</td>
<td>800 Marks</td>
</tr>
</tbody>
</table>

Total: 3200 Marks

Note I:
- Part-I will be evaluated externally.
- Part-II will be evaluated by a panel of three internal examiners appointed by the Chairman/Principal of the Department/Institution.
- Part-III will be evaluated with one external and one internal examiner.

Successful candidate shall be classified as follows:

<table>
<thead>
<tr>
<th></th>
<th>Pass</th>
<th>Third Division</th>
<th>Second Division</th>
<th>First Division</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part-I: Theory</strong></td>
<td>35%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Part-II: Practical Course (Skill and Prowess)</strong></td>
<td>40%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Part-III: Practice of Teaching</strong></td>
<td>40%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Note: Since this is a professional course aimed at improving the standard of games and sports, it is essential that special attention be given to the practical aspect of Track and Field, Games and Sports. Therefore, specified 20 hours per week must be devoted to the practical teaching.
SEMESTER-I

PART–I: THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.</td>
<td>CC-101</td>
<td>History, Principles and Foundation of Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>II.</td>
<td>CC-102</td>
<td>Anatomy and Physiology</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>III.</td>
<td>CC-103</td>
<td>Educational Technology and Methods of Teaching in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Elective Course (Any One)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>EC-101</td>
<td>Olympic Movement</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>EC-102</td>
<td>Officiating and Coaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PART-II PRACTICAL COURSE (SKILL AND PROWESS)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC-101</td>
<td>Track and Field (Sprints, Shot-Put, Long Jump, Relays)</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-102</td>
<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-103</td>
<td>Calisthenics, Dumb-bells, Opening and Closing Ceremonies of Sports Events</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-104</td>
<td>Basketball, Football, Kabaddi, Kho-Kho</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20</td>
<td>-</td>
<td>80</td>
</tr>
</tbody>
</table>

PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT-101</td>
<td>Movement Lesson</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>(A)80+20=100</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(A) Action Song</td>
<td></td>
<td></td>
<td></td>
<td>(B)80+20=100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(B) Motion Story</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
Each candidate will be required to take a minimum of 10 supervised lessons in the movement lesson, preferably in primary schools. The candidate shall prepare a note book covering action song and motion story lessons which shall carry (20+20) 40 marks.
Paper –I (CC-101)
HISTORY, PRINCIPLES AND FOUNDATION OF PHYSICAL EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT 1: INTRODUCTION
- Meaning, Definition and Scope of Physical Education
- Aims and Objective of Physical Education
- Importance of Physical Education in present era.
- Misconceptions about Physical Education.
- Relationship of Physical Education with General Education.
- Physical Education as an Art and Science.

UNIT- 2 HISTORICAL DEVELOPMENT OF PHYSICAL EDUCATION IN INDIA
- Indus Valley Civilization Period. (3250 BC  2500 BC)
- Vedic Period (2500 BC  600 BC)
- Early Hindu Period (600 BC  320 AD) and Later Hindu Period (320 AD  1000 AD)
- British Period (Before 1947)
- Physical Education in India (After 1947)
- Y.M.C.A. and its contributions.

UNIT- 3 FOUNDATION OF PHYSICAL EDUCATION
- Philosophical foundation:
  - Idealism
  - Pragmatism
  - Naturalism
  - Realism
  - Humanism and Existentialism
- Fitness and wellness movement in the contemporary perspectives
- Sports for all and its role in the maintenance and promotion of fitness.

UNIT-4 PRINCIPLES OF PHYSICAL EDUCATION
- Biological
  - Growth and development
  - Age and gender characteristics
  - Body Types
  - Anthropometric differences
- Psychological
  - Learning types, learning curve
  - Laws and principles of learning
  - Attitude, interest, emotions and sentiments
- Sociological
  - Society and culture
  - Leadership
  - Social integration and cohesiveness
REFERENCES:
Paper –II (CC-102)
ANATOMY AND PHYSIOLOGY

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: ANATOMY AND PHYSIOLOGY
- Introduction of Anatomy and physiology and its importance in the field of physical education and sports.
- Introduction of Cell and Tissue.
- The arrangement of the skeleton Function - of the skeleton Ribs and Vertebral column and the extremities.
- Joints of the body and their types
- Gender differences in the skeleton.

UNIT-II: SYSTEMS OF HUMAN BODY
- Blood and circulatory system: Constituents of blood and their function Blood groups and blood transfusion, clotting of blood, the structure of the heart-properties of the heart muscle, circulation of blood, cardiac cycle, blood pressure, Cardiac output.
- The Respiratory system: The Respiratory passage the lungs and their structure and exchange of gases in the lungs, mechanism of respiration (internal and external respiration) lung capacity, tidal volume.
- The Digestive system: structure and functions of the digestive system, Digestive organs, Metabolism,
- Excretory system: Structure and functions of the kidneys and the skin.
- The Endocrine glands: Functions of glands pituitary, Thyroid, Parathyroid. Adrenal, Pancreatic and the sex glands.
- Nervous systems: Function of the Autonomic nervous system and Central nervous system. Reflex Action,

UNIT-III: NEUROMUSCULAR JUNCTIONS
- Muscles: Types of muscles, Properties and functions.
- Neuromuscular junction
- Fuel for muscular activity
- Role of oxygen- oxygen debt, second wind, vital capacity.
- Fatigue: Meaning and sites of fatigue.

UNIT-IV: EFFECTS OF EXERCISE ON VARIOUS SYSTEMS
- Effect of exercise and training on cardiovascular system.
- Effect of exercise and training on respiratory system.
- Effect of exercise and training on muscular system
- Physiological concept of physical fitness, warming up, conditioning.
REFERENCES:
Paper –III (CC-103)
EDUCATIONAL TECHNOLOGY AND METHODS OF TEACHING IN PHYSICAL EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I INTRODUCTION
- Education and Education Technology: Meaning and Definitions.
- Types of Education: Formal, Informal and Non-Formal education.
- Teaching: Meaning and Principles of teaching.
- Importance of technological devices used for imparting knowledge.

UNIT II TEACHING METHODS AND PRESENTATION TECHNIQUES
- Teaching Methods: Lecture method, Command method, Demonstration method, Imitation method, project method, Whole method, Whole-part-whole method, Part method, At will method etc.
- Factors affecting teaching methods.
- Presentation Techniques: Personal and technical preparation, Steps of presentation.
- Types of class formations and Methods of classification of students.

UNIT III TEACHING AIDS
- Teaching Aids: Meaning, Importance, types of teaching aids.
- Criteria for selecting teaching aids.
- Team Teaching: Meaning, Principles and advantage of team teaching.
- Difference between Teaching Methods and Teaching Aid.

UNIT IV LESSON PLANNING AND TEACHING INNOVATIONS
- Lesson Planning: Meaning, Importance and Types
- Principles of lesson plans.
- Micro Teaching: Meaning, steps of micro teaching, advantages and principles
- Simulation Teaching: Meaning, Types and steps of simulation teaching.

REFERENCES:
Paper –IV (EC-101)
OLYMPIC MOVEMENT

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I ORIGIN OF OLYMPIC MOVEMENT
- Philosophy of Olympic movement
- The early history of the Olympic movement
- The significant stages in the development of the modern Olympic movement
- Educational and cultural values of Olympic movement

UNIT II MODERN OLYMPIC GAMES
- Significance of Olympic Ideals, Olympic Rings, Olympic Flag
- Olympic Protocol for member countries
- Olympic Code of Ethics
- Olympism in action
- Sports for All

UNIT III DIFFERENT OLYMPIC GAMES
- Para Olympic Games
- Summer Olympics
- Winter Olympics
- Youth Olympic Games

UNIT IV COMMITTEES OF OLYMPIC GAMES
- International Olympic Committee - Structure and Functions
- National Olympic committees and their role in Olympic movement
- Olympic commission and their functions
- Olympic medal winners of India

REFERENCES:
Paper – IV (EC-102)
OFFICIATING AND COACHING

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT- I: INTRODUCTION OF OFFICIATING AND COACHING
  o Concept of officiating and coaching
  o Importance and principles of officiating
  o Relation of official and coach with management, players and spectators
  o Measures of improving the standards of officiating and coaching

UNIT- II: COACH AS A MENTOR
  o Duties of coach in general, pre, during and post game.
  o Philosophy of coaching
  o Responsibilities of a coach on and off the field
  o Psychology of competition and coaching

UNIT- III: DUTIES OF OFFICIAL
  o Duties of official in general, pre, during and post game.
  o Philosophy of officiating
  o Mechanics of officiating position, singles and movement etc.
  o Ethics of officiating

UNIT- IV: QUALITIES AND QUALIFICATIONS OF COACH AND OFFICIAL
  o Qualities and qualification of coach and official
  o General rules of games and sports
  o Eligibility rules of intercollegiate and inter-university tournaments, preparation of TA, DA bills
  o Integrity and values of sports

REFERENCES:
### SEMESTER-II

#### PART – I THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Subject</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>V.</td>
<td>CC-201</td>
<td>Yoga Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>VI.</td>
<td>CC-202</td>
<td>Health Education and Environmental Studies</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>VII.</td>
<td>CC-203</td>
<td>Organization and Administration</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>VIII.</td>
<td>EC-201</td>
<td>Contemporary issues in Physical Education, Fitness and Wellness</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>EC-202</td>
<td>Sports Nutrition and Weight Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Elective Course (Any One)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Subject</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

#### PART-II PRACTICAL COURSE (SKILL AND PROWESS)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Subject</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC-201</td>
<td></td>
<td>Track and Field (Middle Distance Races, Hurdles, Discus Throw, High Jump)</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-202</td>
<td></td>
<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-203</td>
<td></td>
<td>Aerobics, Lezium, Indian Clubs</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-204</td>
<td></td>
<td>Hockey, Volleyball, Handball, Softball,</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20</td>
<td>-</td>
<td>80</td>
</tr>
</tbody>
</table>

#### PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Subject</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT-201</td>
<td></td>
<td>(A) General Lesson (B) Theory Lesson</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>(A)80+20=100 (B)80+20=100</td>
<td>200</td>
</tr>
</tbody>
</table>

**Note:**

Each candidate will be required to take a minimum of 10 supervised lessons (General and Theory Lessons), preferably in Secondary Schools. The candidate shall prepare a note book covering General and Theory Lessons which shall carry (20+20) 40 marks.
Paper –V (CC-201)
YOGA EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I: INTRODUCTION
- Meaning and Definition of Yoga
- Aims and Objectives of Yoga
- Yoga in Early Upanisads
- The Yoga Sutra: General Consideration
- Need and Importance of Yoga in Physical Education and Sports

UNIT II: FOUNDATION OF YOGA
- The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi
- Yoga in the Bhagavadgita - Karma Yoga, Raja Yoga, Jnana Yoga and Bhakti Yoga

UNIT - III ASANAS
- Effect of Asanas and Pranayama on various system of the body
- Classification of asanas with special reference to physical education and sports
- Influences of relaxtive, meditative posture on various system of the body
- Types of Bandhas and mudras
- Types of kriyas

UNIT IV YOGA EDUCATION
- Basic, applied and action research in Yoga
- Difference between yogic practices and physical exercises
- Yoga education centers in India and abroad
- Competitions in Yogasanas

REFERENCES:
Paper –VI (CC-202)
HEALTH EDUCATION AND ENVIRONMENT STUDIES

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

Unit I Health Education
- Concept, Dimensions, Spectrum and Determinants of Health
- Definition of Health, Health Education, Health Instruction, Health Supervision
- Aim, objective and Principles of Health Education
- Health Service and guidance instruction in personal hygiene

Unit II Health Problems in India
- Communicable and Non Communicable Diseases
- Obesity, Malnutrition, Adulteration in food, Environmental sanitation, Explosive Population,
- Personal and Environmental Hygiene for schools
- Objective of school health service, Role of health education in schools
- Health Services Care of skin, Nails, Eye health service, Nutritional service, Health appraisal,
- Health record, Healthful school environment, first- aid and emergency care etc.

Unit III Environmental Science
- Definition, Scope, Need and Importance of environmental studies.
- Concept of environmental education, Historical background of environmental education,
- Celebration of various days in relation with environment.
- Plastic recycling & probation of plastic bag / cover.
- Role of school in environmental conservation and sustainable development.

Unit IV Natural Resources and related environmental issues:
- Water resources, food resources and Land resources
- Definition, effects and control measures of: Air Pollution, Water Pollution, Soil Pollution,
- Noise Pollution, Thermal Pollution
- Management of environment and Govt. policies, Role of pollution control board.
REFERENCES:

Paper –VII (CC-203)
ORGANIZATION AND ADMINISTRATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I: ORGANIZATION AND ADMINISTRATION
  o Meaning and importance of Organization and Administration in physical education.
  o Qualification and Responsibilities of Physical Education teacher and pupil leader.
  o Planning and their basic principles,
  o Program planning: Meaning, Importance, Principles of program planning in physical education.
  o Functions of Management: Planning, organizing, staffing, directing, communicating, co-ordination, controlling, evaluating and innovating.

UNIT II: OFFICE MANAGEMENT, RECORD, REGISTER & BUDGET
  o Office Management: Meaning, definition, functions and kinds of office management
  o Records and Registers: Maintenance of attendance Register, stock register, cash register, physical efficiency record, Medical examination Record.
  o Budget: Meaning, Importance of Budget making,
  o Criteria of a good Budget, Sources of Income, Expenditure, Preparation of Budget.

UNIT III: FACILITIES, & TIME-TABLE MANAGEMENT
  o Facilities and equipment management: Types of facilities; Infrastructure-indoor, out door.
  o Playfields: Area, Location, layout and care
  o Equipment: Need, importance, purchase, care and maintenance.
  o Time Table Management: Meaning, Need, Importance and Factor affecting time table.

UNIT IV: COMPETITION ORGANIZATION
  o Tournament and its importance.
  o Types of Tournament and its organization structure - Knock-out Tournaments, League or Round Robin Tournaments, Combination Tournament, consolation tournaments and challenge Tournament.
  o Organization structure of Athletic Meet.
  o Sports Event Intramurals & Extramural Tournament planning.
REFERENCES:


Paper –VIII (EC-201)
CONTEMPORARY ISSUES IN PHYSICAL EDUCATION, FITNESS AND WELLNESS

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I CONCEPT OF PHYSICAL EDUCATION AND FITNESS
- Definition, Aims and Objectives of Physical Education, fitness and Wellness
- Importance and Scope of fitness and wellness
- Modern concept of Physical fitness and Wellness
- Physical Education and its Relevance in Inter Disciplinary Context.

UNIT II FITNESS, WELLNESS AND LIFESTYLE
- Fitness Types of Fitness and Components of Fitness
- Understanding of Wellness
- Modern Lifestyle and Hypokinetic Diseases Prevention and Management
- Physical Activity and Health Benefits

UNIT III PRINCIPLES OF EXERCISE PROGRAM
- Means of Fitness development aerobic and anaerobic exercises
- Exercises and Heart rate Zones for various aerobic exercise intensities
- Concept of free weight Vs Machine, Sets and Repetition etc
- Concept of designing different fitness training program for different age group.

UNIT IV SAFETY EDUCATION AND FITNESS PROMOTION
- Health and Safety in Daily Life
- First Aid and Emergency Care
- Common Injuries and their Management

REFERENCES:
Paper –VIII (EC-202)
SPORTS NUTRITION AND WEIGHT MANAGEMENT

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I INTRODUCTION TO SPORTS NUTRITION
  o Meaning and Definition of Sports Nutrition
  o Basic Nutrition guidelines
  o Role of nutrition in sports
  o Factor to consider for developing nutrition plan

UNIT II NUTRIENTS: INGESTION TO ENERGY METABOLISM
  o Carbohydrates, Protein, Fat Meaning, classification and its function
  o Role of carbohydrates, Fat and protein during exercise
  o Vitamins, Minerals, Water Meaning, classification and its function
  o Role of hydration during exercise, water balance, Nutrition daily caloric requirement and expenditure.

UNIT III NUTRITION AND WEIGHT MANAGEMENT
  o Meaning of weight management Concept of weight management in modern era Factor affecting weight management and values of weight management
  o Concept of BMI (Body mass index), Obesity and its hazard, Myth of Spot reduction, Dieting versus exercise for weight control, Common Myths about Weight Loss
  o Obesity Definition, meaning and types of obesity,
  o Health Risks Associated with Obesity, Obesity - Causes and Solutions for Overcoming Obesity.

UNIT IV STEPS OF PLANNING OF WEIGHT MANAGEMENT
  o Nutrition Daily calorie intake and expenditure, Determination of desirable body weight
  o Balanced diet for Indian School Children, Maintaining a Healthy Lifestyle
  o Weight management program for sporty child, Role of diet and exercise in weight management, Design diet plan and exercise schedule for weight gain and loss
REFERENCES:

### SEMESTER-III
#### PART – I THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IX.</td>
<td>CC-301</td>
<td>Computer Application in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>X</td>
<td>CC-302</td>
<td>Sports Psychology and Sociology</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>XI</td>
<td>CC-303</td>
<td>Sports Training</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Elective Course (Any One)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XII.</td>
<td>EC-301</td>
<td>Sports Medicine, Physiotherapy, and rehabilitation</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>EC-302</td>
<td>Curriculum Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PART-II PRACTICAL COURSE (SKILL AND PROWESS)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC-301</td>
<td>Track and Field (Long Distance Races, Javelin Throw, Triple Jump, Steeple Chase)</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-302</td>
<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-303</td>
<td>Folk Dances</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-304</td>
<td>Cricket, Badminton, Table-Tennis, Lawn-Tennis</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20</td>
<td>-</td>
<td>80</td>
</tr>
</tbody>
</table>

#### PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT-301</td>
<td>Teaching Lesson (A) Games (B) Track &amp; Field</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>(A)80+20=100 (B)80+20=100</td>
<td>200</td>
</tr>
</tbody>
</table>

**Total: 800 marks**

**Note:**
Each candidate will be required to take a minimum of 10 supervised lessons (Games, Track & Field), preferably in Secondary/ Senior Secondary Schools. The candidate shall prepare a note book covering lessons of above said Games and Track & Field events which shall carry (20+20) 40 marks.
Paper – IX (CC-301)  
COMPUTER APPLICATION IN PHYSICAL EDUCATION

Total Marks : 100  
Theory Marks : 80  
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I: INTRODUCTION TO COMPUTER
  o Meaning, need and importance of information and communication technology (ICT).
    Application of Computers in Physical Education
  o Components of computer, input and output device
  o Application software used in Physical Education and sports

UNIT II: MS WORD
  o Introduction to MS Word
  o Creating, saving and opening a document
  o Formatting Editing features Drawing table
  o Page setup, paragraph alignment, spelling and grammar check printing option, inserting page number, graph, footnote and notes

UNIT III: MS EXCEL
  o Introduction to MS Excel
  o Creating, saving and opening spreadsheet
  o Creating formulas
  o Format and editing features adjusting columns width and row height understanding charts.

UNIT IV: MS POWER POINT
  o Introduction to MS Power Point
  o Creating, saving and opening a ppt. file
  o Format and editing features slide show, design, inserting slide number
  o Picture, graph, table
  o Preparation of Power point presentations

REFERENCES:
Paper –X (CC-302)
SPORTS PSYCHOLOGY AND SOCIOLOGY

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT -I: INTRODUCTION
- Meaning, Importance and scope of Educational and Sports Psychology
- General characteristics of Various Stages of growth and development
- Types and nature of individual differences; Factors responsible - Heredity And environment
- Psycho-sociological aspects of Human behavior in relation to physical education and sports

UNIT-II: SPORTS PSYCHOLOGY
- Nature of learning, theories of learning, Laws of learning,
- Plateau in Learning; & transfer of training
- Meaning and definition of personality, characteristics of personality,
- Dimension of personality, Personality and Sports performance
- Nature of motivation: Factors influencing motivation; Motivation and techniques and its impact on sports performance.
- Mental Preparation Strategies: Attention focus, Self-talk, Relaxation, Imaginary.
- Aggression and Sports, Meaning and nature of anxiety, Kinds of anxiety
- Meaning and nature of stress; Types of stress, Anxiety, Stress, Arousal and their effects on sports performance

UNIT-III: RELATION BETWEEN SOCIAL SCIENCE AND PHYSICAL EDUCATION.
- Orthodoxy, customs, Tradition and Physical Education.
- Festivals and Physical Education.
- Socialization through Physical Education.
- Social Group life, Social conglomeration and Social group, Primary group and Remote group.

UNIT-4 CULTURE: MEANING AND IMPORTANCE.
- Features of culture,
- Importance of culture.
- Effects of culture on people life style.
- Different methods of studying Observation/ Inspection method, Questionnaire method, Interview method
REFERENCES:
Syllabus: B.P.Ed-Two Year-Semester System, P.U., Chandigarh

Paper –XI (CC-303)
SPORTS TRAINING

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I INTRODUCTION TO SPORTS TRAINING
- Meaning and Definition of Sports Training
- Aim and Objective of Sports Training
- Principles of Sports Training
- System of Sports Training - Basic Performance, Good Performance and High Performance Training

UNIT II TRAINING COMPONENTS
- Strength - Mean and Methods of Strength Development
- Speed - Mean and Methods of Speed Development
- Endurance - Mean and Methods of Endurance Development
- Coordination - Mean and Methods of coordination Development
- Flexibility - Mean and Methods of Flexibility Development

UNIT III TRAINING PROCESS
- Training Load - Definition and Types of Training Load
- Principles of Intensity and Volume of stimulus
- Technical Training - Meaning and Methods of Technique Training
- Tactical Training - Meaning and Methods of Tactical Training

UNIT IV TRAINING PROGRAMMING AND PLANNING
- Periodization - Meaning and types of Periodization
- Aim and Content of Periods - Preparatory, Competition, Transitional etc.
- Planning - Training session
- Talent Identification and Development

REFERENCES:
Paper –XII (EC-301)
SPORTS MEDICINE, PHYSIOTHERAPY AND REHABILITATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: - SPORTS MEDICINE:
- Sports Medicine: Meaning, Definition, Aims, Objectives, Modern Concepts and Importance.
- Athletes Care and Rehabilitation: Contribution of Physical Education Teachers and Coaches.
- Need and Importance of the study of sports injuries in the field of Physical Education
- Prevention of injuries in sports Common sports injuries Diagnosis
- First Aid - Treatment - Laceration Blisters Contusion - Strain Sprain Fracture Dislocation and Cramps Bandages Types of Bandages trapping and supports.

UNIT-II: PHYSIOTHERAPY
- Definition Guiding principles of physiotherapy, Importance of physiotherapy, Introduction and demonstration of treatments - Electrotherapy infrared rays Ultraviolet rays short wave diathermy ultrasonic rays.

UNIT-III: HYDROTHERAPY:
- Introduction and demonstration of treatments of Cry therapy, Thermo therapy, Contrast Bath, Whirlpool Bath Steam Bath Sauna Bath Hot Water Fomentation Massage: History of Massage Classification of Manipulation (Swedish System) physiological Effect of Massage.

UNIT-IV: THERAPEUTIC EXERCISE:
- Definition and Scope Principles of Therapeutic Exercise Classification, Effects and uses of Therapeutic exercise passive Movements (Relaxed, Forced and passive - stretching) active movements (concentric, Eccentric and static) application of the therapeutic exercise: Free Mobility Exercise Shoulder, Elbow Wrist and Finger Joints Hips, Knee, ankle and Foot joints Trunk. Head and Neck exercises.
REFERENCES:
Paper – XII (EC-302)
CURRICULUM DESIGN

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I MODERN CONCEPT OF THE CURRICULUM
- Need and importance of curriculum, Need and importance of curriculum development, the role of the teacher in curriculum development.
- Factors affecting curriculum - Social factors - Personnel qualifications - Climatic consideration - Equipment and facilities - Time suitability of hours.
- National and Professional policies, Research finding

UNIT II BASIC GUIDE LINE FOR CURRICULUM CONSTRUCTION; CONTEST (SELECTION AND EXPANSION)
- Focalization
- Socialization
- Individualization
- Sequence and operation
- Steps in curriculum construction.

UNIT III CURRICULUM-OLD AND NEW CONCEPTS, MECHANICS OF CURRICULUM PLANNING
- Basic principles of curriculum construction.
- Curriculum Design, Meaning, Importance and factors affecting curriculum design.
- Principles of Curriculum design according to the needs of the students and state and national level policies.
- Role of Teachers

UNIT IV Under-graduate preparation of professional preparation.
- Areas of Health education, Physical education and Recreation.
- Curriculum design-Experience of Education, Field and Laboratory.
- Teaching practice.
- Professional Competencies to be developed-Facilities and special resources for library, laboratory and other facilities.
REFERENCES:
# SEMESTER-IV
## PART – I THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XIII.</td>
<td>CC-401</td>
<td>Measurement and Evaluation in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>XIV.</td>
<td>CC-402</td>
<td>Kinesiology and Biomechanics</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>XV.</td>
<td>CC-403</td>
<td>Research and Statistics in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>XVI.</td>
<td>EC-401</td>
<td>Theory of Sports and Games</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>EC-402</td>
<td>Sports Management</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

## PART-II PRACTICAL COURSE (SKILL AND PROWESS)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC-401</td>
<td>Track and Field (Race Walk, Road Race, Hammer throw, Pole Vault)</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-402</td>
<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-403</td>
<td>Mass Demonstrations</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>PC-404</td>
<td>Wrestling, Judo, Boxing, Kabaddi (circle Style)</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20+20</td>
<td>-</td>
<td>80</td>
</tr>
</tbody>
</table>

## PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
<th>Title (A) Games (B) Track &amp; Field</th>
<th>Total Hours</th>
<th>Credit</th>
<th>(A)80+20=100 (B)80+20=100</th>
<th>Total: 800 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT-401</td>
<td>Coaching Lesson (A) Games (B) Track &amp; Field</td>
<td>68</td>
<td>4</td>
<td>(A)80+20=100 (B)80+20=100</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Each trainee will be required to take a minimum of 10 supervised lessons (Games, Track & Field), preferably in Secondary/Senior Secondary Schools. The candidate shall prepare a note book covering lessons of above said Games and Track & Field events which shall carry (20+20) 40 marks.
MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I INTRODUCTION TO TEST & MEASUREMENT & EVALUATION
- Meaning of Test & Measurement & Evaluation in Physical Education
- Need & Importance of Test & Measurement & Evaluation in Physical Education
- Principles of Evaluation

UNIT-II CRITERIA, CLASSIFICATION AND ADMINISTRATION OF TEST
- Criteria of good Test
- Criteria of tests, scientific authenticity (reliability, objectivity, validity and availability of norms)
- Type and classification of Test
- Administration of test

UNIT- III PHYSICAL FITNESS TESTS
- AAHPER youth fitness test
- National physical Fitness Test
- Indiana Motor Fitness Test
- JCR test

UNIT- IV SPORTS SKILL TESTS
- Lockhart and McPherson badminton test
- Johnson basketball test
- McDonald soccer test
- S.A.I volleyball test

REFERENCES:
Paper –XIV (CC-402)
KINESIOLOGY AND BIOMECHANICS

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I  INTRODUCTION TO KINESIOLOGY AND SPORTS BIOMECHANICS
- Meaning and Definition of Kinesiology and Sports Biomechanics
- Importance of Kinesiology and Sports Biomechanics to Physical Education Teacher, Athletes and Sports Coaches.
- Terminology of Fundamental Movements
- Fundamental concepts of following terms Axes and Planes, Centre of Gravity, Equilibrium, Line of Gravity

UNIT II FUNDAMENTAL CONCEPT OF ANATOMY AND PHYSIOLOGY
- Classification of Joints and Muscles
- Types of Muscle Contractions
- Posture Meaning, Types and Importance of good posture.
- Fundamental concepts of following terms- Angle of Pull, All or None Law, Reciprocal Innovation

UNIT III MECHANICAL CONCEPTS
- Force - Meaning, definition, types and its application to sports activities
- Lever - Meaning, definition, types and its application to human body.
- Newton's Laws of Motion Meaning, definition and its application to sports activities.
- Projectile Factors influencing projectile trajectory.

UNIT IV  KINEMATICS AND KINETICS OF HUMAN MOVEMENT
- Linear Kinematics Distance and Displacement, speed and velocity, Acceleration
- Angular kinematics Angular Distance and Displacement, Angular Speed and velocity, Angular Acceleration.
- Linear Kinetics Inertia, Mass, Momentum, Friction.
- Angular Kinetics Moment of inertia, Couple, Stability.
REFERENCES:
Paper – XV (CC-403)
RESEARCH AND STATISTICS IN PHYSICAL EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT I INTRODUCTION TO RESEARCH
- Definition of Research
- Need and importance of Research in Physical Education and Sports.
- Scope of Research in Physical Education & Sports.
- Classification of Research
- Research Problem, Meaning of the term, Location and criteria of Selection of Problem, Formulation of a Research Problem, Limitations and Delimitations.

UNIT II SURVEY OF RELATED LITERATURE
- Need for surveying related literature.
- Literature Sources, Library Reading
- Preparation of Research proposal / project.
- Research Report: A group project is to be undertaken by a small batch of students under the supervision of a teacher, wherein it is expected to survey school facilities of physical education, health assessment programme evaluation, fitness status of the students, staff and other stakeholders etc. and submit the report to the institution.

UNIT-III Basics of Statistical Analysis
- Statistics: Meaning, Definition, Nature and Importance
- Class Intervals: Raw Score, Continuous and Discrete Series, Class Distribution, Construction of Tables
- Graphical Presentation of Class Distribution: Histogram, Frequency Polygon, Frequency Curve. Cumulative Frequency Polygon, Ogive, Pie Diagram

UNIT-IV Statistical Models in Physical Education and Sports
- Measures of Central Tendency: Mean, Median and Mode-Meaning, Definition, Importance, Advantages, Disadvantages and Calculation from Group and Ungrouped data
- Measures of Variability: Meaning, importance, computing from group and ungroup data
- Percentiles and Quartiles: Meaning, importance, computing from group and ungroup data
REFERENCES:
Paper – XVI (EC-401)
THEORY OF SPORTS AND GAMES

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: GENERAL INTRODUCTION OF SPECIALIZED GAMES AND SPORTS
Athletics, Badminton, Basketball, Cricket, Football, Gymnastic, Hockey, Handball, Kabaddi, Kho-Kho, Tennis, Volleyball and Yoga.

Each game or sports to be dealt under the following heads
- History and development of the Game and Sports
- Ground preparation, dimensions and marking
- Standard equipment and their specifications
- Ethics of sports and sportsmanship

UNIT-II: SCIENTIFIC PRINCIPLES OF COACHING: (Particular Sports And Game Specific)
- Motion: Types of motion and Displacement, Speed, Velocity, Acceleration, Distance and Newtons Law of motions.
- Equilibrium and its types
- Lever and its types
- Sports Training: Aims, Principles and characteristics.
- Training load: Components, Principles of load, Over Load (causes and symptoms).

UNIT-III: PHYSICAL FITNESS COMPONENTS: (Particular Sports and Game Specific)
- Speed and its types
- Strength and its types
- Endurance and its types
- Flexibility and its types
- Coordinative ability and its types
- Training methods: Development of components of physical fitness and motor fitness through following training methods (continuous method, interval method, circuit method, fartlek /speed play and weight training)

UNIT-IV: CONDITIONING EXERCISES AND WARMING UP
- Concept of Conditioning and warming up.
- Role of weight training in games and sports.
- Teaching of fundamental skill & their mastery (technique, tactic and different phases of skill acquisition).
- Recreational and Lead up games
- Strategy: Offence and defense, Principles of offence and defense.

REFERENCES:
Paper –XVI (EC-402)
SPORTS MANAGEMENT

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I
- Progressive concept of Sports management.
- The purpose and scope of Sports Management.
- Essential skills of Sports Management.
- Qualities and competencies required for the Sports Manager.
- Event Management in physical education and sports.

UNIT-II
- Meaning and Definition of leadership
- Leadership style and method.
- Elements of leadership.
- Forms of Leadership.
  - Autocratic
  - Laissez-faire
  - Democratic
  - Benevolent Dictator
- Qualities of administrative leader.
- Preparation of administrative leader.
- Leadership and Organizational performance.

UNIT-III
- Sports Management in Schools, colleges and Universities.
- Factors affecting planning
  - Planning a school or college sports programme.
- Directing of school or college sports programme.
- Controlling a school, college and university sports programme.
  - Developing performance standard
  - Establishing a reporting system
  - Evaluation
  - The reward/punishment system

UNIT-IV
- Financial management in Physical Education & sports in schools, Colleges and Universities.
- Budget
  - Importance, Criteria of good budget,
- Steps of Budget making
- Principles of budgeting
REFERENCES:
DEPARTMENT OF PHYSICAL EDUCATION
FACULTY OF EDUCATION
(PANJAB UNIVERSITY CHANDIGARH)

SYLLABUS FOR
MASTER OF PHYSICAL EDUCATION (M.P.Ed)
(SEMESTER I &II)
SESSION: 2017-2018
PREAMBLE:

The Master of Physical Education (M.P.Ed) – Two Years (Four Semesters) Programme is meant for preparing quality Physical Education teachers.

VISION

In line with the University mission, the Department has the aim of educating the "whole-person" and to produce quality teachers to serve as administrators in the profession of physical education and sports. Through improving our academic programme and services to the University and local community, we pledge to continually strive for academic excellence and to maintain our leadership role in our profession.

MISSION

1. To produce quality physical education teachers for imparting instructions in the subject of physical education.
2. To make people aware about the benefits of physical activity through extension lectures and demonstrations.
3. To provide excellent research and teaching in Physical Education in order to promote and develop the health and well being of people.
4. To promote health through specific physical activities, prescribed by a specialized physical educationalist.
5. To collaborate with the different organizations which are involved in promoting the quality life of the human beings i.e., educational institutions and NGOs.
6. To provide harmonious and stimulated academic environment for the promotion of quality teaching and research in the department.
7. To provide opportunity to faculty and students of the department for their self evaluations, accountability, autonomy and innovations in the area of physical education and sports.
8. To concentrate on quality research in the area of health, physical education and sports.
9. To introduce consultancy and training programmes for different educational institutions and other organizations for the conduct of sports and fitness events.
10. To update the curriculum and syllabi as per global needs and challenges.
OBJECTIVES: This programme shall strive to achieve the following objectives:

General Objectives:
1. To enable teacher to understand the nature, purpose and philosophy of physical education.
2. To prepare teachers of physical education with broader educational perspective.
3. To develop for potentialities and organizing physical education programmes and activities.
4. To develop capacity to organized leisure and recreational activities.
5. To empower them to inspire their students to actively participate in physical and yogic exercises.
6. To enable teachers to develop personality, character, willpower, democratic values and positive games and sports.
7. To make teachers capable of imparting basic knowledge about health, hygiene and nutrition
8. To develop skills and competencies to organized school and community games and sports.
9. To cultivate the spirit of sportsmanship, mental and physical alertness, scientific temper and optimism.
10. To promote mental health, power of self-decision and self control, correct judgment and action emotional stability and equanimity, respect for others and acceptance of authority and rules
11. To promote appreciation and interest for indigenous games, sports and yogic exercises
12. To create awareness about health and hygiene in the community.

Specific Objectives
1. To lay down a sound foundation for higher and advance studies in Physical Education in India.
2. To produce quality teachers in physical education.
3. To prepare students for advance coaching Diplomas in disciplines – Athletics, Gymnastics, Hockey, Swimming, Basketball, Football etc.
4. To fulfill the eligibility criteria of Foreign Universities to get admission in post graduate courses abroad since it is a basic and global programme.
5. To generate employment in the fields of Health Fitness and Gym- Management, Physiotherapy, Journalism, Aquatics and Yoga.
6. To provide opportunity to talented students to excel in sports and become outstanding sports persons.
7. To promote mass participation in Physical Education activities (Games, Sports Displays etc) through intra – mural and Extra- mural programmes.
OUTLINES OF TESTS, SYLLABI AND COURSES FOR THE MASTER OF PHYSICAL EDUCATION (M.P.Ed.) EXAMINATION (SEMESTER I & II) FOR THE SESSION: 2017-2018

The course of instruction for the M.P.Ed Examination consists of three parts as under:

<table>
<thead>
<tr>
<th>PART – I</th>
<th>Theory Papers</th>
<th>1600 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART – II</td>
<td>Practical Course (Skill and Prowess)</td>
<td>800 Marks</td>
</tr>
<tr>
<td>PART – III</td>
<td>Practice of Teaching and Coaching</td>
<td>800 Marks</td>
</tr>
</tbody>
</table>

Total: 3200 Marks

Successful candidate shall be classified as follows:

<table>
<thead>
<tr>
<th>PART</th>
<th>Pass</th>
<th>Third Division</th>
<th>Second Division</th>
<th>First Division</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part-I: Theory</td>
<td>35%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
<tr>
<td>Part-II: Practical Course (Skill and Prowess)</td>
<td>40%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
<tr>
<td>Part-III: Practice of Teaching and Coaching</td>
<td>40%</td>
<td>Less than 50% marks in Aggregate</td>
<td>50%</td>
<td>60%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Note I:
- Part-I will be evaluated externally.
- Part-II will be evaluated by a panel of three internal examiners appointed by the Chairman/Principal of the Department/Institution.
- Part-III will be evaluated with one external and one internal examiner.

Note II: Each student is required to undertake 10 supervised lessons (each semester) in the above mentioned areas. Out of 10 lessons at least five lessons shall be taken in the schools and five lessons in class itself. In addition each student shall complete four projects in different games/track and field as identified by the Chairman/Head. The Chairman/Head will certify on the candidate’s notebook that all requirements pertaining to teaching practice, projects and officiating have been fulfilled by him/her.

Since this is a professional course aimed at improving the standard of games and sports, it is essential that special attention be given to the practical aspect of Track and Field, Games and Sports. Therefore, specified 20 hours per week must be devoted to the practical teaching.
SEMESTER-I
PART-I: THEORY PAPERS
## SYLLABUS: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

### SEMESTER-I

#### PART–I: THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Course</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I.</td>
<td>MPCC-101</td>
<td>Research Process in Physical Education and Sports Sciences</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>II.</td>
<td>MPCC-102</td>
<td>Test, Measurement and Evaluation in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>III.</td>
<td>MPCC-103</td>
<td>Theory Game-I (Basketball/ Football / Gymnastics)</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td><strong>Elective Course (Any One)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>MPEC-101</td>
<td>Educational Technology and Pedagogic Techniques in Physical Education and Sports</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>MPEC-102</td>
<td>Yogic Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PART–II PRACTICAL COURSE (SKILL AND PROWESS)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPPC-101</td>
<td></td>
<td>Track and Field</td>
<td>68</td>
<td>4</td>
<td>75</td>
<td>-</td>
<td>75</td>
</tr>
<tr>
<td>MPPC-102</td>
<td>Game: Basketball/ Football/ Gymnastics</td>
<td>68</td>
<td>4</td>
<td>75</td>
<td>-</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>MPPC-103</td>
<td>Swimming</td>
<td>68</td>
<td>4</td>
<td>50</td>
<td>-</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

#### PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPPT-101</td>
<td></td>
<td>Track and Filed</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>MPPT-102</td>
<td>Game: Basketball/ Football/ Gymnastics</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

*Total: 800 Marks*
Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: INTRODUCTION, RESEARCH PROBLEM, REVIEW OF RELATED LITERATURE AND RESEARCH HYPOTHESIS
- Meaning of Research and its characteristics, Classification of Research, Qualities of a Researcher
- Research Problem: Sources of Research Problem, Identifying a research problem
- Criteria in selecting a research problem
- Stating the research problem

UNIT-II: METHODS OF RESEARCH:
Historical Research:
- Sources of historical materials
- Evaluation of historical material
- Pitfalls of historical writing.
Survey method:
- Meaning and importance of survey
- Types of survey
- Interview- structured and unstructured.
Experimental Research
- Meaning of Experimental Research
- Experimental Validity – Threat to it and ways to reduce it
- Types of Experimental Design

UNIT –III: POPULATION AND SAMPLING:
- Concept of population and sampling
- Importance and characteristics of sampling
- Sampling techniques: Probability and Non - Probability.

UNIT IV: DATA ANALYSIS/ WRITING STYLES:
- Qualitative and Quantitative analysis
- Data interpretation:
  - Analyzing, organizing and presenting data, discussion of results.
  - Formulation of conclusions and recommendation
- Writing Research Report/ Research Paper/ Thematic Paper
- Basic Writing Guidelines
- Format of Dissertation –American Psychology Association/ Chicago Dissertation Writing System/ Local
- How to write abstract and full paper for Journal/ Conference/Seminar
- Oral and Poster Presentation
REFERENCES

Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper-II (MPCC-102)
TEST, MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT - I: INTRODUCTION
- Meaning and Definition of test, measurement, evaluation
- Principle and Scope of test, measurement and evaluation
- Importance of measurement and evaluation in physical education
- Approach to measurements

UNIT - II: TEST
Classification
- Physical / psychomotor aptitude
- Standardized/ teacher made (objective/ subjective)
- Construction
- Knowledge tests
- Sports skill tests
- Criteria for test selection: reliability, validity, objectivity, feasibility and precision
- Norms and standards

Administration
- Administrative protocols (administrative guidelines)
- Preparation of reports (construction of tables, groups & reporting)

UNIT – III: IDENTIFICATION OF FITNESS AND MOTOR ABILITY
Differentiating Fitness and Motor Terms
- Kraus Weber test,
- Cooper’s 12 minutes run/ walk test
- Margarita’s anaerobic test
- Shuttle run test
- Scoot motor ability test
- Borrow motor ability test
- Harvard step test
- AAHPER Youth Physical Fitness Test
- AAHPER Health Related Physical Fitness Test

UNIT-IV: MEASUREMENT OF SPORTS SKILLS
- Basketball: Johnson basketball rest, Knox basketball test, Harrison basketball test
- Hockey: Henry Fridal field hockey test, Schmithal’s dribble, dodge, circular tackle & drive, Schmithal’s goal shooting, field & drive test
- Soccer: Johnson soccer test, Shautele’s volleying, passing& recovery test, Shautele’s Judgment in passing test
- Volleyball: Brady’s volleying test, French & Cooper’s repeated volleying test, French & Cooper’s serve test
REFERENCES
Paper-III (MPCC-103)  
THEORY GAME-I (Basketball)

Total Marks : 100  
Theory Marks : 80  
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: HISTORICAL DEVELOPMENT
• Historical development of the concerned game in India, Asia and world level
• Main tournament organized at national and international levels
• Records/Statistics of the game at World, Olympics, Asia, National.
• Award in the game and list of at least ten players who got these awards

UNIT-II: OFFICIATING
• Play area dimensions and marking
• Equipment Specifications
• Rules of the Game and their interpretation

UNIT-III: TECHNIQUES (SKILL)
• Classification of Skills
• Sequential explanation of skills
• Various faults in skills, their causes and corrections, types of exercises to develop and consolidate fundamental skills of the game

UNIT-IV: TACTICS AND STRATEGY
• Individual, group and team tactics
• Offensive and defensive tactics
• System of Play their tactical training
• Selection of team (Selection Procedure)
• Analysis of Performance in competition

REFERENCES
Paper-III (MPCC-103)
THEORY GAME-I (Football)

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: HISTORICAL DEVELOPMENT
- Historical development of the concerned game in India, Asia and world level
- Main tournament organized at national and international levels
- Records/Statistics of the game at World, Olympics, Asia, National.
- Award in the game and list of at least ten players who got these awards

UNIT-II: OFFICIATING
- Play area dimensions and marking.
- Equipment Specifications
- Rules of the Game and their interpretation

UNIT-III: TECHNIQUES (SKILL)
- Classification of Skills
- Sequential explanation of skills
- Various faults in skills, their causes and corrections, types of exercises to develop and consolidate fundamental skills of the game

UNIT-IV: TACTICS AND STRATEGY
- Individual, group and team tactics
- Offensive and defensive tactics
- System of Play their tactical training
- Selection of team (Selection Procedure)
- Analysis of Performance in competition

REFERENCES
Paper-III (MPCC-103)
THEORY GAME-I (Gymnastics)

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: HISTORICAL DEVELOPMENT
• Historical development of the concerned game in India, Asia and world level
• Main tournament organized at national and international levels
• Records/Statistics of the game at World, Olympics, Asia, National.
• Award in the game and list of at least ten players who got these awards

UNIT-II: OFFICIATING
• Play area dimensions and marking
• Equipment Specifications
• Latest Changes in apparatus
• Rules of the Game and their interpretation
• Modern Trends in Gymnastics

UNIT-III: TECHNICAL REGULATION AND CODE OF POINT
• Technical regalement
• Qualifying criteria for Olympics, Asian and other international and national championships.
• Gymnasium – its sizes, facilities to be provided, its construction, lighting, flooring system.
• Code of points (Men’s/women’s Artistic Gymnastics).
• Role of various motor abilities in gymnastics
• Methods and means of their development

UNIT-IV: TRAINING AND PSYCHOLOGICAL PREPARATION
• Children Training in Gymnastics
• Principles and procedure of training.
• Psychological Preparation of a Gymnast
• Principles and methods of development of mental pre-requisites for training
• Mental preparation for competition and mental training during competition
• Construction of an exercise for various levels of competitions

REFERENCES
5. Provaznik Marie and Zabka N.B. “Gymnastic Activities with Hand Apparatus” Burgess Publishing Company, Minneapolis (1965)
Paper-IV (MPEC-101)
EDUCATIONAL TECHNOLOGY AND PEDAGOGIC TECHNIQUES IN PHYSICAL EDUCATION AND SPORTS

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: EDUCATIONAL TECHNOLOGY:
• Educational technology: Need, Nature and Scope
• Effective teaching and Principles of teaching
• Teacher’s responsibilities
• Phases and levels of teaching
• A review of methods of teaching employed in physical education

UNIT-II: PLANNING LESSON, FEED BACK
• Lesson plan: meaning, importance of lesson plan
• Principles of lesson plan, Types of lesson plan
• Various parts of a lesson plan
• Feed back: student feedback on lesson content and lesson effectiveness
• Teacher’s self evaluation.

UNIT-III: TECHNOLOGY IN PHYSICAL EDUCATION AND SPORTS
• Initiating technology
• Use of Audio/Video technology
• Image analysis
• Technological devices used in Physical activity and sports
• Techniques of presentation and class management skills

UNIT-IV: USE OF ICT IN PHYSICAL EDUCATION
• Computer analysis instructional software
• Using technology to improve instructional process
• Use of World Wide Web
• Power point presentation
• Assessing student learning

REFERENCES
Paper-IV (MPEC-102)
YOGIC SCIENCES

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: FOUNDATION OF YOGA
- Meaning, Definition, types, aims and objectives of yoga
- Importance of yoga in education & other fields of life.
- Historical development of yoga from ancient to modern times.

UNIT-II: TRAINING PROCESS OF YOGA
- Asanas: Their meeting, types of Asanas, preparation & technique of different asanas and their effects on the body.
- Pranayama: Their meaning, types of pranayama, preparation & technique of different pranayama and their effects on the body.
- Shatkiryas: Their meaning, types, preparation & benefits of Shatkiryas on the body Neti, Dhauti, Nauli, Basti, Kapal bhatis tratak
- Bandhas: Meaning, types, techniques their benefits on human body. (Jalandhar, Uddyana, mool & Maha bandha)

UNIT-III: ASHTANG YOGA, MEDITATION, RELAXATION
- Meaning, types, principal of ashtang yoga.
- Meaning, technique and benefit of mediation on the human body.
- Meaning, technique of relaxation to reduce physical & mental stress.

UNIT-IV: WELLNESS & NUTRITION
- Naturopathy
- Cure of injuries & various diseases through yoga.
- Psycho-Physical & Spiritual effectiveness.
- Yogic diet
- Message Yogic Nidra

Practical
1. Asanas
2. Prayer
3. Asanas, pranayama, shatkarma, bandha (as mentioned in theory)
4. Yoga-nidra/relaxation techniques
5. Visit to yoga centre

REFERENCES
5. Harvey, Paul “Yoga for Everybody”, (2001) Tucker Slings by Publisher Ltd.
PART-II: PRACTICAL COURSE (SKILL AND PROWESS)

*Note: Candidates will be evaluated in skill and prowess out of 75 Marks each in Track and Field and Game.*

**MPPC-101: Track and Field**
- Sprints
- Long Jump
- Shot Put

**MPPC-102: Game: Basketball/Football/Gymnastics**
Student shall choose one among the following games for semester-I &II

<table>
<thead>
<tr>
<th>BASKETBALL</th>
<th>FOOTBALL</th>
<th>GYMNASTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stance and Position</td>
<td>Dribbling</td>
<td>Floor Exercise: Handstand from Swing (M&amp;W)</td>
</tr>
<tr>
<td>Passing</td>
<td>Kicking</td>
<td>Vaulting Table: Straddle Vault (M&amp;W)</td>
</tr>
<tr>
<td>Dribbling</td>
<td>Trapping</td>
<td>Pommel Horse: Scissors (M)</td>
</tr>
<tr>
<td>Shooting</td>
<td>Throw-in</td>
<td>Roman Rings: Inverted Hang Position (M)</td>
</tr>
<tr>
<td>Rebounding and Boxing out</td>
<td>Passing</td>
<td>Rebounding and Boxing out</td>
</tr>
<tr>
<td></td>
<td>Heading</td>
<td>Parallel Bars: Upstart from upper arms support (M)</td>
</tr>
</tbody>
</table>

**MPPC-103: Swimming: (Free Style-25metre)**

50 Marks
PART-III: PRACTICE OF TEACHING

Note: The candidate will be evaluated by the examiners in the following contents.

MPPT-101: Track And Field (Compulsory) 100 Marks
- Sprints
- Long Jump
- Shot Put

Evaluation Plan

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Contents</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teaching Lesson</td>
<td>30 Marks</td>
</tr>
<tr>
<td>2.</td>
<td>Marking of Track Events</td>
<td>30 Marks</td>
</tr>
<tr>
<td>3.</td>
<td>Officiating and Specifications</td>
<td>30 Marks</td>
</tr>
<tr>
<td>4.</td>
<td>Note Book</td>
<td>10 Marks</td>
</tr>
</tbody>
</table>

MPPT-101: Game: Basketball/Football/Gymnastics 100 Marks
Student Shall Choose One among the Following Games for Semester-I &II

<table>
<thead>
<tr>
<th>BASKETBALL</th>
<th>FOOTBALL</th>
<th>GYMNASTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Stance and Position</td>
<td>- Dribbling</td>
<td>- Floor Exercise: Handstand from Swing (M&amp;W)</td>
</tr>
<tr>
<td>- Passing</td>
<td>- Kicking</td>
<td>- Vaulting Table: Straddle Vault (M&amp;W)</td>
</tr>
<tr>
<td>- Dribbling</td>
<td>- Trapping</td>
<td>- Pommel Horse: Scissors (M)</td>
</tr>
<tr>
<td>- Shooting</td>
<td>- Throw-in</td>
<td>- Roman Rings: Inverted Hang Position (M)</td>
</tr>
<tr>
<td>- Rebounding and Boxing out</td>
<td>- Passing</td>
<td>- Rebounding and Boxing out</td>
</tr>
<tr>
<td></td>
<td>- Heading</td>
<td>- Parallel Bars: Upstart from upper arms support (M)</td>
</tr>
</tbody>
</table>

Evaluation Plan

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Contents</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teaching Lesson</td>
<td>30 Marks</td>
</tr>
<tr>
<td>2.</td>
<td>Field/Court/Floor Marking</td>
<td>30 Marks</td>
</tr>
<tr>
<td>3.</td>
<td>Officiating and Specifications</td>
<td>30 Marks</td>
</tr>
<tr>
<td>4.</td>
<td>Note Book</td>
<td>10 Marks</td>
</tr>
</tbody>
</table>
SEMESTER-II
PART–I: THEORY PAPERS
## SEMESTER-II
### PART - I: THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course Code</th>
<th>Title of the Papers</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>MPCC-201</td>
<td>Applied Statistics in Physical Education and Sports</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>VI</td>
<td>MPCC-202</td>
<td>Sports Biomechanics and Kinesiology</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>VII</td>
<td>MPCC-203</td>
<td>Track and Field Theory-I</td>
<td>68</td>
<td>4</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

### Elective Course (Any One)

| VIII  | MPEC-201    | Management of Physical Education and Sports | 68          | 4      | 20             | 80             | 100         |
|       | MPEC-202    | Adapted Physical Education                   |             |        |                |                |             |

### PART - II PRACTICAL COURSE (SKILL AND PROWESS)

| MPPC-201 | Track and Field | 68          | 4      | 75 | - | 75 |
| MPPC-202 | **Game:** Basketball/ Football/ Gymnastics | 68          | 4      | 75 | - | 75 |
| MPPC-203 | Swimming       | 68          | 4      | 50 | - | 50 |

### PART - III PRACTICE OF TEACHING AND COACHING

| MPPT-201 | Track and Filed | 68          | 4      | - | 100 | 100 |
| MPPT-202 | **Game:** Basketball/ Football/ Gymnastics | 68          | 4      | - | 100 | 100 |

*Total: 800 Marks*
Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper-V (MPCC-201)
APPLIED STATISTICS IN PHYSICAL EDUCATION AND SPORTS

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: INTRODUCTION TO STATISTICS
- Meaning, Definition, Need and Importance of Statistics in Physical Education
- Types of Statistical Process: descriptive, comparative, inferential, predictive
- Attribute and variable, Frequency distribution, Raw scores, Single scores
- Types of data, Population and sample
- Parameters and statistics
- Discrete and continuous class intervals

UNIT-II: MEASURE OF CENTRAL TENDENCY AND MEASURES OF VARIABILITY
- Measure of Central Tendency (MCT) - Mean, Median, Mode: Definition, Meaning, characteristics, uses and computation of Mean, Median, Mode.
- Measure of Variability (Range, Quartile Deviation, Mean Deviation, Standard Deviation
- Definition, Meaning, characteristics, uses and computation

UNIT-III: NORMAL CURVE, NON-PARAMETRIC STATISTIC
Normal Curve
- Meaning and definition of normal curve
- Properties of Normal Curve
- Skewness and Kurtosis
- Non-Parametric Statistic
- Uses and application of non-parametric statistic
- Computation of chi-square, rank order correlation

UNIT-IV: RELATIONSHIP AND COMPARATIVE STATISTICS
- Principles of relationship
- Coefficient of correlation
- Product moment correlation
- t-ratio – independent and paired
- ANOVA – one way and two way

REFERENCES
1. Best John & Kahni, J.V. Research in Education, New Delhi, Prentice Hall of India (Pvt.)
5. Shaw, Dhananjoy., Fundamental statistics in physical Education & Sports sciences, sports.
Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT – I: INTRODUCTION TO BIOMECHANICS

- Meaning of Biomechanics and its importance in Physical Education and Sports
- Biomechanical Principles of Movements
- Analysis of fundamental Movements: Walking, Running, throwing, Lifting, Pulling,
- Catching and Climbing
- Fluids Mechanics: Static and Dynamic
- Projectile motion

UNIT–II: STRUCTURAL KINESIOLOGY, THE ATTACHMENTS AND ACTION OF MUSCLES OF FOLLOWING JOINTS

- The concept of Structural Kinesiology and its Academic and Professional objectives
- Professional applications of Structural Kinesiology
- The fundamental movement of joints and their terminology
- The structural classification of skeletal muscles and type of contractions
- Classification of Muscles produced movements
- The techniques of muscular analysis.
- Movable, partly moveable and immovable
- The Attachments and Action of Muscles of Following Joints: Shoulder Girdle and Shoulder, elbow joint, hip joint, knee joint, ankle joint, neck joint and truck joint

UNIT-III: LINEAR AND ANGULAR KINETICS & KINEMATICS

- Newton’s law of gravitation
- Momentum and impulse
- Eccentric force, couple, moment of force, torque
- moment of inertia and angular momentum
- transfer of angular velocity
- equilibrium and stability,
- Interrelationship between displacement, velocity and acceleration vectors projectile motion
- Angular distance and angular displacements
- Angular speed, angular velocity and angular acceleration
- Centripetal and centrifugal force, Friction

UNIT-IV: INVESTIGATIONAL PROCEDURES IN SPORTS BIOMECHANICS

Anthropometric procedures:
- Experimental procedure and analytical procedures

Kinematic Methods:
- Determination of angular distance: Goniometry
- Measurement of time
- Determination of velocity and acceleration

Imaging Measurement Technique:
• Cinematography
• Single plate methods
• Video
• Optoelectronic technique
• Kinetic Methods: Dynamometry

PRACTICAL
• Development of a Velocity time graph from a cinematographically and/video system and/photo specially recorded sprint and / Vertical jump and / analysis movement.
• Determination of centre of Gravity by Reaction Board Method.
• Determination of centre of Gravity by Joint- point – method.
• Determination of centre of Gravity of Main- point method.
• Determination of combined center of Gravity (joint-point method).
• Demonstration of the Principle conservation of Angular momentum.
• Demonstration of Principle of action and reaction.
• Biomechanical analysis of a given technique. (Qualitative)

REFERENCES
Paper-VII (MPCC-203)
TRACK AND FIELD THEORY-I

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I
• Historical development of the concerned track and field even in India, Asia and world level
• Main tournament organized at national and international levels
• Records/Statistics of the track and field event at World, Olympics, Asia, National.
• Awards in the Track and Field
• Books and magazines on the Track and Field

UNIT-II
• Layout of Track and Field Events
• Equipment Specifications
• Rules of the Track and Field Events and their interpretation (except combined events, steeple chase, race walking, road races and cross country)

UNIT-III
Sprint Events:
• Sprints and Relays: phases of sprints, coaching techniques in sprints
• Hurdles (High and Low Hurdle) : Hurdle technique, hurdle training
The Jumps:
• The High Jump: techniques, advantage of Fosbury Flop, common faults and corrective techniques
• The Long Jump: techniques, common faults and corrective techniques
The Throws:
• The Shot Put: techniques, common faults and corrective techniques
• The Javelin: techniques, common faults and corrective techniques

UNIT-IV
• The use of talent predictive factors and the selection of Track and Field Athletes
• Planning and Administration a Track and Field Meet
• Feedback and evaluation techniques in Athletic
• Scores Sheets of Track and Field Events

REFERENCES:
5. Gambetta, Vern, The Athletics Congress’s Track and Field Coaching Manual, Lewisure Press:
6. Guthrie, Mark, Coaching Track and Field Successfully, Human Kinetics: Champaign IL, 2006
Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper-VIII (MPEC-201)
MANAGEMENT OF PHYSICAL EDUCATION AND SPORTS

Total Marks : 100
Theory Marks : 80
Sessional Marks : 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT – I: MANAGEMENT AND ROLES OF MANAGER
- Management: Meaning, definition, scope, principles, functions of management: Planning, Organizing, Staffing, Directing, Controlling, Coordinating, Evaluating and innovating
- Skills of management: Personal skills, Human skills, Conceptual skills, Technical skills and Conjoined skills
- Styles of management
- Roles of manager: Interpersonal roles, Informational roles, Decisional roles
- Qualities of a manager

UNIT – II: PROGRAMME PLANNING, PUBLIC RELATIONS AND FINANCIAL MANAGEMENT
- Programme planning, Steps in programme planning, Principles of programme planning, Evaluation of physical education programme
- Public relations: Meaning, Definitions, Principles, Planning and organizing public relations programme
- Financial management: Need for financial management, Principles of financial Management, preparation of budget, Sources of funds, Expenditure

UNIT – III: CLASS MANAGEMENT, FACILITIES AND EQUIPMENT MANAGEMENT
- Class management: Meaning, Steps in class management: Strength of class, Place and time, Uniform, Class formation, Safety measures and Discipline
- Principles of class management
- Facilities and Equipment management: Types of facility/infrastructure-indoor, outdoor.
- Playfield: Area, Location, Layout and Care
- Equipments: Need, Importance, Purchase, Care and Maintenance

UNIT – IV: ORGANISATION OF TOURNAMENTS, INTRAMURAL AND SPORTS EVENTS
- Tournament organization: Types of tournament-Knock out or Elimination, League or Round Robin, Combination, Consolation, Challenge Tournaments
- Intramural Competitions: Meaning and Importance of Intramural, Objectives of Intramural,
- Conduct of Intramural
- Process of organizing sports events, Notifications, Invitations, Selection of officials, Monitoring, Writing reports, maintaining records

REFERENCES
Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short types of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I INTRODUCTION TO ADAPTED PHYSICAL EDUCATION
- Meaning and definitions
- Aims and objectives
- Need and importance
- Role of physical education in adapted physical education
- Brief historical review of adapted physical education

UNIT-II CLASSIFICATION OF DISABILITY
- Changing concept of disability handicaps, retardation, physically and mentally challenged
- Physical disability, Characteristics, Category
- Functional limitation, General causes
- Mental retardation and learning disability
- Characteristics, Category
- Functional limitation, General causes
- Hearing and speech impairment
- Characteristics, Category
- Functional limitation, General causes
- Visual impairment
- Characteristics
- Category
- Functional limitation
- General causes
- Other disabled conditions
- Behavioural problems associated with disability
- Adjustment problem
- Emotional problem
- Personality problem
- Social problems
- Social stigma
- Discrimination
- Social rejection

UNIT-III ADAPTED PHYSICAL EDUCATION PROGRAMMES
- Guiding principles for adapted physical education programme (AAHPER Principle)
- Physical education programme for disabled of:
  - Elementary school
  - Middle school
  - High school
- Special adapted programme for various types and categories of physical disability
- Regular physical activity
• Informal games and special activity
• Informal and formal competitions
• Special adapted programme for hearing and speech impairment, visual impairment, mental retardation and learning impairment
• Regular physical activity
• Informal games and special activity
• Informal and formal competitions

UNIT-IV ACTIVITIES FOR DISABLED
• Co-curricular activities for disabled
• Outdoor programmes for disabled
• Adventure based outdoor programme
• Creative development and hobby & culture development programme
• Aquatic activity programme for disabled
• Importance of activity for disabled
• Nature of aquatic activity programme based on types of various disability
• Rehabilitative role and importance of aquatic activity

REHABILITATION AND GOVERNMENTAL WELFARE PROGRAMMES
• Rehabilitation
  o Aims and objectives of rehabilitation
  o Meaning of functional and occupational rehabilitation
  o Importance of adapted programme in rehabilitation
  o Functional rehabilitation
  o Psychological rehabilitation – adjustmental, environmental and personality development
• Governmental Welfare Programme
  o Provisions of special rights and privilege for disabled through legislations
  o Social welfare programmes for disabled
  o Mass public education/awareness programme
  o Education approach
  o Service approach
  o Legislative approach

REFERENCES
PART-II: PRACTICAL COURSE (SKILL AND PROWESS)

Note: Candidates will be evaluated in skill and prowess out of 75 Marks each in Track and Field and Game.

MPPC-201: Track and Field 75 marks
- Relay Races
- Middle Distance
- High Jump
- Discus Throw

MPPC-202: Game: Basketball/Football/Gymnastics 75 Marks
Student shall continue the opted game for Semester-II

<table>
<thead>
<tr>
<th>BASKETBALL</th>
<th>FOOTBALL</th>
<th>GYMNASTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offence</td>
<td>Feinting</td>
<td>Floor Exercise: Back Flip (M&amp;W)</td>
</tr>
<tr>
<td>Defence</td>
<td>Tackling</td>
<td>Vaulting Table: Handsome &amp; Yamashita (M&amp;W)</td>
</tr>
<tr>
<td>Fast Breaks</td>
<td>Shooting</td>
<td>Pommel Horse: Double Leg Circle (M)</td>
</tr>
<tr>
<td>Smarts (Faking)</td>
<td>Volleying</td>
<td>Roman Rings: Press Handstand (M)</td>
</tr>
<tr>
<td>Systems of Play</td>
<td>Goal Keeping</td>
<td>Parallel Bars: Stutz (M)</td>
</tr>
<tr>
<td></td>
<td>Systems of Play</td>
<td>Horizontal Bar: Forward Giant Circle (Men)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Balancing Beam: Back Flip (W)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uneven Bars: Giant Circle (women)</td>
</tr>
</tbody>
</table>

MPPC-203: Swimming: (Back Style-25metre) 50 Marks
PART-III PRACTICE OF TEACHING AND COACHING

Note: The candidate will be evaluated by the examiners in the following contents.

MPPT-201: Track And Field (Compulsory) 100 Marks
- Relay Races
- Middle Distance
- High Jump
- Discus Throw

<table>
<thead>
<tr>
<th>Evaluation Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. No.</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>

MPPT-201: Game: Basketball/Football/Gymnastics 100 Marks
Student shall continue the opted game for Semester-II

<table>
<thead>
<tr>
<th>BASKETBALL</th>
<th>FOOTBALL</th>
<th>GYMNASTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offence</td>
<td>Feinting</td>
<td>Floor Exercise: Back Flip (M&amp;W)</td>
</tr>
<tr>
<td>Defence</td>
<td>Tackling</td>
<td>Vaulting Table: Handsome &amp; Yamashita (M&amp;W)</td>
</tr>
<tr>
<td>Fast Breaks</td>
<td>Shooting</td>
<td>Pommel Horse: Double Leg Circle (M)</td>
</tr>
<tr>
<td>Smarts (Faking)</td>
<td>Volleying</td>
<td>Roman Rings: Press Handstand (M)</td>
</tr>
<tr>
<td>Systems of Play</td>
<td>Goal Keeping</td>
<td>Parallel Bars: Stutz (M)</td>
</tr>
<tr>
<td></td>
<td>Systems of Play</td>
<td>Horizontal Bar: Forward Gaint Circle (Men)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Balancing Beam: Back Flip (W)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uneven Bars: Gaint Circle (women)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr. No.</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>
SYLLABUS FOR
MASTER OF PHYSICAL EDUCATION (M.P.Ed)
(SEMESTER III & IV)
SESSION: 2017-2018
# SEMESTER-III

## PART - I THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Code</th>
<th>Subject Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XI.</td>
<td>SPB-301</td>
<td>Sports Biomechanics</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XII.</td>
<td>PPC-302</td>
<td>Professional Preparation and Curriculum Design</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XIII.</td>
<td>AIT-303</td>
<td>Computer Application and SPSS in Physical Education</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XIV.</td>
<td>STT-304</td>
<td>Sports Training and Talent Identification</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XV.</td>
<td>TGII-305</td>
<td>**Theory Game-II (Hockey/ Volleyball/ Badminton)</td>
<td>80 + 20 = 100</td>
</tr>
</tbody>
</table>

**Note:** **Three theory papers separately will be set for the students of M.P.Ed Semester-III as per options of the students.**

## PART - II PRACTICE OF TEACHING

**Note:** The candidate will be evaluated by the examiners in the following contents.

### A. TRACK AND FIELD (COMPULSORY) 90 Marks

- Javelin Throw
- Triple Jump
- Steeple Chase
- Combined Events

  a) Teaching Lesson 30 Marks
  b) Marking of Track Events 30 Marks
  c) Officiating and Specifications 20 Marks
  d) Note Book 10 Marks

### B. GAME 90 Marks

Student shall choose one among the following games for semester-III & IV

<table>
<thead>
<tr>
<th>1. HOCKEY</th>
<th>2. VOLLEYBALL</th>
<th>3. BADMINTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dribbling</td>
<td>Volley Pass</td>
<td>Holding of Racket</td>
</tr>
<tr>
<td>Hitting</td>
<td>Dig Pass</td>
<td>Holding of Shuttle</td>
</tr>
<tr>
<td>Stopping</td>
<td>Spike (Straight spice)</td>
<td>Service (basic)</td>
</tr>
<tr>
<td>Pushing</td>
<td>Service</td>
<td>Strokes</td>
</tr>
<tr>
<td>Flick</td>
<td>Block (single)</td>
<td></td>
</tr>
<tr>
<td>Passing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

  (a) Teaching Lesson 30 Marks
  (b) Field/Court Markings 30 Marks
  (c) Specifications of Equipments 20 Marks
  (d) Note Book 10 Marks

**Swimming:** Students shall be evaluated by the examiner in the following Stroke
(Breast Stroke-25metre)  

**PART – III SKILL AND PROWESS**

**Note:** Candidates will be evaluated in skill and prowess out of 25 Marks each in Track and Field and Game.

**A) TRACK AND FIELD (COMPULSORY)**

1. Sprints
2. Long Jump
3. Shot Put
4. Relay Races
5. Middle Distance
6. High Jump
7. Discus Throw
8. Race Walking

**B) GAME**

1. **HOCKEY**
   - Dribbling
   - Hitting
   - Stopping
   - Pushing
   - Flick
   - Passing

2. **VOLLEYBALL**
   - Volley Pass
   - Dig Pass
   - Spike (Straight spice)
   - Service
   - Block (single)

3. **BADMINTON**
   - Holding of Racket
   - Holding of Shuttle
   - Service (basic)
   - Strokes
Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT – I: INTRODUCTION TO BIOMECHANICS
- Meaning of Biomechanics and its importance in Physical Education and Sports
- Biomechanical Principles of Movements
- Fluids Mechanics: Static and Dynamic
- Projectile motion

UNIT-II: LINEAR AND ANGULAR KINETICS
- Inertia, mass, force and weight
- Newton’s law of gravitation
- Momentum and impulse
- Newton’s law of motion
- Eccentric force, couple, moment of force, torque
- moment of inertia and angular momentum
- transfer of angular velocity
- equilibrium and stability,
- Lever, types of levers and their mechanical advantage and disadvantage with special reference to physical education and sports application.

UNIT-III: LINEAR AND ANGULAR KINEMATICS
- Distance and displacement
- Speed, velocity and acceleration
- Interrelationship between displacement, velocity and acceleration vectors projectile motion
- Angular distance and angular displacements
- Angular speed, angular velocity and angular acceleration
- Angular motion vectors
- Interrelationship between linear motion and angular motion
- Centripetal and centrifugal force, Friction

UNIT-IV: INVESTIGATIONAL PROCEDURES IN SPORTS BIOMECHANICS
- Anthropometric procedures:
  - Experimental procedure and analytical procedures

  Kinematic Methods:
  - Determination of angular distance: Goniometry
  - Measurement of time
  - Determination of velocity and acceleration
Imaging Measurement Technique:
- Cinematography
- Single plate methods
- Video
- Optoelectronic technique

Kinetic Methods: Dynamometry

PRACTICAL
1. Development of a Velocity time graph from a cinematographically and video system and photo specially recorded sprint and Vertical jump and analysis movement.
2. Determination of centre of Gravity by Reaction Board Method.
4. Determination of centre of Gravity of Main-point method.
5. Determination of combined center of Gravity (joint-point method).
6. Demonstration of the Principle conservation of Angular momentum.
7. Demonstration of Principle of action and reaction.
8. Biomechanical analysis of a given technique. (Qualitative)

REFERENCES
PROFESSIONAL PREPARATION AND CURRICULUM DESIGN

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: HISTORICAL PERSPECTIVE
- Professional Preparation in India
  - Pre Independence perspective
  - Post Independence perspective
- Comparative analysis of professional preparation program in U.S., Europe and China

UNIT-II: PROFESSIONAL PREPARATION POLICY PERSPECTIVE
- Role and responsibilities of Centre and State in the implementation of policies on education and physical education.
- Compulsions and constrains affecting planning and implementation of educational policies and programs.

PHYSICAL EDUCATION AND PROFESSIONALISM
- Concept and meaning of Profession, Professional and Professionalism.
- Physical education as a profession.

UNIT-III: CAREER AVENUES & JOB OPPORTUNITIES IN PHYSICAL EDUCATION & SPORTS
- Career avenues after under graduation and post graduation and research degrees.
- Exploring and venturing into new avenues: challenges and opportunities in physical education
- Inter-relationship among various careers in physical education and sports
- Planning for a career: self-assessment, motivational dynamics, decision making, counseling and guidance

UNIT-IV: PROFESSIONAL PREPARATION PROGRAMMES
- Foundation: need, objectives and characteristic of professional preparation programmes
- Courses available in physical education and sports.
- Level of study: undergraduate preparation, graduate study, post-graduate study, advance professional study
- Laboratory experience, teaching practice, field work, non-curricular preparation
- Role of physical education teacher and institutes in professional preparation programmes

REFERENCES
Paper –XIII (CAP-303)  
COMPUTER APPLICATION AND SPSS IN PHYSICAL EDUCATION

Total Marks 100  
Theory Marks 80  
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I: INTRODUCTION TO COMPUTERS
- Computer, Types of Computers
- Function and components of computer
- Input and Output Devices
- Software and Hardware, Storage devices
- Types of Networks: LAN and WAN

UNIT –II: INTRODUCTION TO MS WORD AND EXCEL

MS WORD
- Opening documents and creating documents
- Formatting and Editing, Features
- Drawing table, page setup,
- Paragraph alignment, spelling grammar check
- Printing documents, Graph, footnote and notes, finding and replacing text

MS EXCEL
- Creating, saving and opening a spreadsheet
- Formatting and Editing Features
- Creating formulas, adjusting columns width and row height
- Understanding charts

UNIT-III: MS POWERPOINT, INTERNET AND MULTIMEDIA

MS POWERPOINT
- Creating, saving and opening a ppt file
- Formatting and editing features
- Slide show, design
- Inserting slide number, Picture, graph and table
- Hyperlink

INTERNET AND MULTIMEDIA
- Application of internet and multimedia in Physical Education and sports
- Search Engines in Physical Education and Sports
- E-mail and mailing basics
- World Wide Web (WWW)
- Computer application in physical education and sports

UNIT-IV: SPSS PACKAGE IN PHYSICAL EDUCATION
- Introduction of SPSS
- Application of SPSS in physical education and sports
- Creating and saving a SPSS data file
Data entry and analysis of:
- Descriptive Statistics
- Dependent and independent t-test
- One way and two Way ANOVA
- Correlation

REFERENCES
Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper-XIV (304)
SPORTS TRAINING AND TALENT IDENTIFICATION

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I SPORTS TRAINING
- Importance and definition of sports training
- Aim and objectives of sports training
- Characteristics of sports training
- Principles of sports training

Training Load, Adaptation and Recovery
- Concept of load and Adaptation
- Relationship of load and recovery, physiotherapeutic and psychological means of Recovery
- Variables of Training: Volume, Intensity, Density, Complexity
- Relationship between volume and intensity
- Fatigue and overtraining: monitoring treating, and preventing overtraining.

Training Methods
- Interval training method
- Continuous training method
- Circuit training method
- Fartlek training method
- Weight training method
- Plyometric method
- Cross training

UNIT-II BIO-MOTOR ABILITIES AND THEIR DEVELOPMENT

STRENGTH AND POWER DEVELOPMENT
- Types of strength
- Factors affecting strength performance
- Methods of strength training: training maximum strength; explosive strength and Strength
- endurance

ENDURANCE TRAINING
  - Definition, Types and significance of endurance
  - Factors affecting endurance
  - Training Parameters for Aerobic and Anaerobic Endurance
  - Methods to develop endurance

SPEED TRAINING
- Definition, Forms of speed
- Factors determining speed
- Load parameters to develop speed
- Methods to develop speed abilities

FLEXIBILITY TRAINING
- Definition, Types of flexibility and Factors affecting flexibility;
- Methods used to develop flexibility

COORDINATION TRAINING
• Definition, Classification of coordinative abilities
• Factors affecting coordination and Methods to develop coordination

UNIT-III TECHNICAL AND TACTICAL PREPARATION
• Definition and meaning of technique, skill and style
• Technique training & its implication in various phases; methods employed for
• technique training, causes of technical fault and their correction
• Definition and meaning of tactics, aim of tactics according to sport
• Training for tactics
• Principles of tactical preparation

UNIT-IV PERIODIZATION TRAINING
Planning
• Need and importance in planning
• Principles of planning
• Types of plan (training conception, macro, micro, meso and training session plan)
Annual training programme
• Periodization, psychological supercompensation
• Periodization of strength training, speed and endurance
• Annual plan Training Phases and characteristics
• Criteria for compiling an annual plan
• Peaking for Competitions, Factors facilitating peaking

LONG TERM PLANNING AND TALENT IDENTIFICATION
• Stages of Athletic Development: Generalized and Specialized training
• Olympic Cycle: classification of Olympic cycle plan and compiling an Olympic cycle plan
• Talent Identification: Methods, Criteria, Factors and Phases of Talent Identification.

PRACTICAL
• Designing & formulation of macro/micro/meso/training session plans.
• Assignment: Scheduled Preparation: long term and short term
• Monitoring of Intensity in interval training by using different methods
• Demonstration of Preparatory, auxiliary and supplementary exercises for different
• Setting-up of circuit training stations

REFERENCES
   Louis, 1993.
7. Matveyew, L.P. Fundamentals of Sports Training (Translation from Russian) Mir. Publishes,
   Moscow, 1991.
Total Marks  100
Theory Marks  80
Sessional Marks  20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I HISTORICAL DEVELOPMENT
- Historical development of the concerned game in India, Asia and world level
- Main tournament organized at national and international levels
- Records/Statistics of the game at World, Olympics, Asia, National.
- Award in the game and list of at least ten players who got these awards

UNIT-II OFFICIATING
- Play area dimensions and marking.
- Equipment Specifications
- Rules of the Game and their interpretation

UNIT-III TECHNIQUES (SKILL)
- Classification of Skills
- Sequential explanation of skills
- Various faults in skills, their causes and corrections, types of exercises to develop and consolidate fundamental skills of the game

UNIT-IV TACTICS AND STRATEGY
- Individual
- Offensive and defensive tactics
- System of Play their tactical training
- Selection of team (Selection Procedure)
- Analysis of Performance in competition

References
Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I HISTORICAL DEVELOPMENT

- Historical development of the concerned game in India, Asia and world level
- Main tournament organized at national and international levels
- Records/Statistics of the game at World, Olympics, Asia, National.
- Award in the game and list of at least ten players who got these awards

UNIT-II OFFICIATING

- Play area dimensions and marking.
- Equipment Specifications
- Rules of the Game and their interpretation

UNIT-III TECHNIQUES (SKILL)

- Classification of Skills
- Sequential explanation of skills
- Various faults in skills, their causes and corrections, types of exercises to develop and consolidate fundamental skills of the game

UNIT-IV TACTICS AND STRATEGY

- Individual
- Offensive and defensive tactics
- System of Play their tactical training
- Selection of team (Selection Procedure)
- Analysis of Performance in competition

References

THEORY GAME-II (Badminton)

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I HISTORICAL DEVELOPMENT
- Historical development of the concerned game in India, Asia and world level
- Main tournament organized at national and international levels
- Records/Statistics of the game at World, Olympics, Asia, National.
- Award in the game and list of at least ten players who got these awards

UNIT-II OFFICIATING
- Play area dimensions and marking.
- Equipment Specifications
- Rules of the Game and their interpretation

UNIT-III TECHNIQUES (SKILL)
- Classification of Skills
- Sequential explanation of skills
- Various faults in skills, their causes and corrections, types of exercises to develop and consolidate fundamental skills of the game

UNIT-IV TACTICS AND STRATEGY
- Individual
- Offensive and defensive tactics
- System of Play their tactical training
- Selection of team (Selection Procedure)
- Analysis of Performance in competition

References
PART - I THEORY PAPERS

<table>
<thead>
<tr>
<th>Paper</th>
<th>Code</th>
<th>Subject Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVI.</td>
<td>FTW-401</td>
<td>Fitness and Wellness</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XVII.</td>
<td>SPM-402</td>
<td>Sports Medicine</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XVIII.</td>
<td>TTF-304</td>
<td>Theory Track and Field-II</td>
<td></td>
</tr>
<tr>
<td>XIX.</td>
<td>YOG-404</td>
<td>Yoga</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td>XX.</td>
<td>DIS-405</td>
<td>Choose any one of the following:</td>
<td>***(100 marks)</td>
</tr>
<tr>
<td></td>
<td>APE-406</td>
<td>a. Dissertation ***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIM-407</td>
<td>b. Adapted Physical Education</td>
<td>80 + 20 = 100</td>
</tr>
<tr>
<td></td>
<td>SPJ-408</td>
<td>c. Sports Industry and Marketing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSS-409</td>
<td>d. Sports Journalism</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e. Sports Sociology</td>
<td></td>
</tr>
</tbody>
</table>

Note: Four theory papers separately will be set for the students of M.P.Ed Semester-IV as per options of the students.

PART - II PRACTICE OF TEACHING

Note: The candidate will be evaluated by the examiners in the following contents.

A. TRACK AND FIELD (COMPULSORY) 90 Marks

- Javelin Throw
- Triple Jump
- Steeple Chase
- Combined Events

(a) Coaching Lesson 30 Marks
(b) Field/Court/Floor Marking 30 Marks
(c) Officiating and Specifications 20 Marks
(d) Note Book 10 Marks

B. GAME 90 Marks

Student shall continue the same game opted in the third semester

1. HOCKEY
- Scoop
- Dodging
- Tackling
- Goal Keeping
- Systems of Play
- Set Plays

2. VOLLEYBALL
- Jump and Pass
- Slide attack
- Jump Service
- Libero (Defence with sprawl)
- Block (Double)
- Systems of Play

3. BADMINTON
- Service (Advance)
- Shots
- System of Play
- Tactics and Elementary system of Game
- Systems of Play

(a) Coaching Lesson 30 Marks
(b) Officiating 30 Marks
(c) Knowledge of Rules and their Interpretations 20 Marks
(d) Note Book 10 Marks
Swimming: Students shall be evaluated by the examiner in the following Stroke

(Butterfly Stroke-25metre) 20 Marks

PART – III SKILL AND PROWESS 50 Marks

Note: Candidates will be evaluated in skill and prowess out of 25 Marks each in Track and Field and Game.

A) TRACK AND FIELD (COMPULSORY) 25 marks

(1) Javelin Throw (2) Hurdles
(3) Triple Jump (4) Hammer Throw
(5) Steeple Chase (6) Pole Vault
(7) Combined Events

B) GAME 25 Marks

1. HOCKEY
   - Scoop
   - Dodging
   - Tackling
   - Goal Keeping
   - Whole Game

2. VOLLEYBALL
   - Jump and Pass
   - Slide attack
   - Jump Service
   - Block (Double)
   - Whole Game

3. BADMINTON
   - Service (Advance)
   - Shots
   - Tactics and Elementary system of Game
   - Whole Game


Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper – XVI (FTW-401)
FITNESS AND WELLNESS

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT – I: INTRODUCTION
- Meaning and concept of fitness and wellness
- Components of Physical fitness
  - Health Related
  - Motor Skill Related
- Components of wellness
- Factors affecting Physical Fitness and Wellness
- Principles of Physical Fitness and Wellness
- Importance of fitness and wellness in present scenario

UNIT – II: FITNESS PROGRAMME
- Means of Fitness Development: Aerobic Activities (walking, bicycling, jogging and running, swimming, indoor fitness, home gym, stretching, strengthening, circuit training, participation in games and sports)
- Benefits of fitness programme
- Exercise Prescription: Mode of exercise, exercise frequency, exercise duration, exercise intensity.
- Exercise Programme: Warm-up and stretching activities, endurance training, cool-down and stretching activities, flexibility training, resistance training, recreational training.

UNIT – III: HEALTH HAZARDS, STRESS AND INJURY MANAGEMENT
- Hazards of substance abuse: smoking, alcohol & tobacco
- Valuable use of leisure time
- Emphasis on proper rest, sleep and dreams
- Healthy Living and positive lifestyle
- Wellness of mind, body and soul
- Stress: meaning, causes and management
- Staying safe & preventing injuries

UNIT – IV: NUTRITION, OBESITY AND WEIGHT MANAGEMENT
- Nutrition and Weight Management
- Knowledge of Nutrition & its implication on healthy lifestyle
- Role of diet & physical activity in weight management
- Obesity:
  - Meaning, definition and types of obesity
  - Causes, prevention and general treatment
  - Health problems associated with obesity and excessive weight
  - Body Mass Index

PRACTICAL
1. FITNESS LABS: Various labs testing related to cardio-vascular endurance, flexibility, muscular strength and body composition
2. PHYSIOLOGICAL TESTING: - Blood pressure, VO2 max, vital capacity, pulse rate
3. STRESS MANAGEMENT: - Yogic practices (Asanas, Pranayama and Meditation)
4. SURVEY PROJECT: - Fitness & wellness assessment of local community
5. NUTRITIONAL DIET ANALYSIS: - Given diet

REFERENCES
UNIT-I INTRODUCTION
- Meaning and definition of related terminologies
  - Athlete, fitness, wellness, performance
  - Care
  - Rehabilitation
  - Sports
  - Medicine
  - Sports Medicine
- Aim, objectives and scope of ACR/SM
- Principles of care and rehabilitation
- Role of physical educators in athletic care and Rehabilitation
- Exercise as a preventive measure for disease

UNIT-II SPORTS INJURIES
- Introduction: meaning, definition
- Various classification of Sports Injuries
- Causes/reasons of sports injuries
- Prevention of sports injuries
- Treatment and management of sports injuries

UNIT-III AGE AND GENDER CONSIDERATION IN SPORTS
- Biological, chronological age and age determination
- Suitability of sports at various stages of growth
- Special problems women and sports performance
- Exercise benefits at various stages of life
- Physical, physiological, bio-chemical and bio-mechanical difference between men & women

UNIT-IV ENVIRONMENT & SPORTS PERFORMANCE INTRODUCTION
- Various types of environmental conditions
- Medical problems due to environment and their symptoms
- Treatment of medical problem and acclimatization in temperature
- Training in different temperature and altitude (high & low Pressure)
- Training of different surface

ERGOGENIC AIDS & DOPING IN SPORTS
- Meaning, definition, classification benefits of ergogenic
- Nutrition and sports Performance
- Definition, classes, method of doping
- Side effects, detection and sanction against doping
- IOC, FIMS, WADA, NADO, RADO

PRACTICALS
- Demonstration for assisting the following sports related problems:
- Shin splint
- Tennis elbow and related problems
- Back pain
- Joint injury evaluation and
- Assessment of muscle shortening of thigh and leg
- Stretching and strengthening exercises for low back pain, spondylitis
- Practical demonstration and use of the modalities used to different purpose of physiotherapy

REFERENCES
Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I
- History of Steeple chase, cross country, road races, race walking and combined events
- Organizational setup of Steeple chase, cross country, road races, race walking and combined events at National and International level.
- Rules of Steeple chase cross country, road races, race walking and combined events with their interpretations.
- Marking of Steeple chase, cross country, road races, race walking and combined events.
- Rules of Steeple chase cross country, road races, race walking and combined events with their interpretations.

UNIT-II
- Technique of Triple Jump: Approach, Take off, Developing techniques of Hop, Step and Jump, triple jump drills, common faults and corrective techniques
- Technique of Pole Vault: The Grip, Approach, Take off, Bar Clearance, Landing, common faults and corrective techniques
- Techniques and Tactics of Middle and Long Distance Events, Cross Country and Road Races.

UNIT-III
- Hammer: The Grip, Preliminary Swings, Turns, Release, Recovery, common faults and corrective techniques
- Discus: The techniques, common faults and corrective techniques
- Preparation of Training Schedule of Track and Field Events.

UNIT-VI
- Steeple chase: Hurdle clearance techniques, water jump, common faults and corrective techniques and Tactics
- Combined Events (Heptathlon and Decathlon), common faults and corrective techniques and Tactics
- Race Walking: Techniques, common faults and corrective techniques and Tactics

References:
1. Guthrie, Mark, Coaching Track and Field Successfully, Human Kinetics: Champain IL, 2006
Syllabus: M.P.Ed-Two Years-Semester System, P.U., Chandigarh

Paper –XIX (YOG-404)

YOGA

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

YOGA

Unit-I: FOUNDATION OF YOGA
- Meaning, Definition, types, aims and objectives of yoga
- Importance of yoga in education & other fields of life.
- Historical development of yoga from ancient to modern times.

Unit-II: TRAINING PROCESS OF YOGA

- Asanas: Their meeting, types of Asanas, preparation & technique of different asanas and their effects on the body.
- Pranayama: Their meaning, types of pranayama, preparation & technique of different pranayama and their effects on the body.
- Shatkiryas: Their meaning, types, preparation & benefits of Shatkiryas on the body Neti, Dhauti, Nauli, Basti, Kapal bhati tratak
- Bandhas: Meaning, types, techniques their benefits on human body. (Jalandhar, Uddyana, mool & Maha bandha)

Unit-III: ASHTANG YOGA, MEDITATION, RELAXATION.

- Meaning, types, principal of ashtang yoga.
- Meaning, technique and benefit of mediation on the human body.
- Meaning, technique of relaxation to reduce physical & mental stress.

Unit-IV: WELLNESS & NUTRITION

- Naturopathy
- Cure of injures & various diseases through yoga.
- Psycho-Physical & Spiritual effectiveness.
- Yogic diet
- Message Yogic Nidra

Practical
1. Asanas
2. Prayer
3. Asanas, pranayama, shatkarma, bandha (as mentioned in theory)
4. Yoga-nidra/relaxation techniques
5. Visit to yoga centre

REFERENCES
b. ADAPTED PHYSICAL EDUCATION

Total Marks 100
Theory Marks 80
Sessional Marks 20

Note: Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

UNIT-I INTRODUCTION TO ADAPTED PHYSICAL EDUCATION
• Meaning and definitions
• Aims and objectives
• Need and importance
• Role of physical education in adapted physical education
• Brief historical review of adapted physical education

UNIT-II CLASSIFICATION OF DISABILITY
• Changing concept of disability handicaps, retardation, physically and mentally challenged
• Physical disability, Characteristics, Category
• Functional limitation, General causes
• Mental retardation and learning disability
• Characteristics, Category
• Functional limitation, General causes
• Hearing and speech impairment
• Characteristics, Category
• Functional limitation, General causes
• Visual impairment
• Characteristics
• Category
• Functional limitation
• General causes
• Other disabled conditions
• Behavioural problems associated with disability
• Adjustment problem
• Emotional problem
• Personality problem
• Social problems
• Social stigma
• Discrimination
• Social rejection

UNIT-III ADAPTED PHYSICAL EDUCATION PROGRAMMES
• Guiding principles for adapted physical education programme (AAHPER Principle)
• Physical education programme for disabled of :
  • Elementary school
  • Middle school
  • High school
• Special adapted programme for various types and categories of physical disability
• Regular physical activity
• Informal games and special activity
• Informal and formal competitions
• Special adapted programme for hearing and speech impairment, visual impairment,
• mental retardation and learning impairment
• Regular physical activity
• Informal games and special activity
• Informal and formal competitions

UNIT-IV ACTIVITIES FOR DISABLED
• Co-curricular activities for disabled
• Outdoor programmes for disabled
• Adventure based outdoor programme
• Creative development and hobby & culture development programme
• Aquatic activity programme for disabled
• Importance of activity for disabled
• Nature of aquatic activity programme based on types of various disability
• Rehabilitative role and importance of aquatic activity

REHABILITATION AND GOVERNMENTAL WELFARE PROGRAMMES
• Rehabilitation
  – Aims and objectives of rehabilitation
  – Meaning of functional and occupational rehabilitation
  – Importance of adapted programme in rehabilitation
  – Functional rehabilitation
  – Psychological rehabilitation – adjustmental, environmental and
  – personality development
• Governmental Welfare Programme
  – Provisions of special rights and privilege for disabled through legislations
  – Social welfare programmes for disabled
    – Mass public education/awareness programme
    – Education approach
    – Service approach
• Legislative approach

REFERENCES
c. SPORTS INDUSTRY AND MARKETING

UNIT-I INTRODUCTION OF SPORTS INDUSTRY AND MARKETING
- Evolution, growth and scope of sports industry and sports marketing
- Structure of sports industry
- Framework of sports marketing
- Basic marketing principles

UNIT-II ECONOMICS OF SPORTS INDUSTRY
- Definition, meaning and scope of economics in sports
- Theory of demand and supply in sports industry
- Fiscal problems in sports management
- Major components of sports industry

UNIT-III RESEARCH PROCESSES IN SPORTS MARKETING
- Selection of problem or opportunity
- Research tools for selecting potential market
- Research design type and data collection techniques
- Data analysis and final report.

UNIT-IV PRODUCTION AND MARKETING
- Concept of sports product; new product; life cycle of product
- Pricing concepts and strategies
- Distribution concepts and sponsorship programmes
- Promotion planning; advertising and personal selling

LEGAL IMPLICATIONS
- Constitution and registration of firms
- Consumer rights – guarantee, warranty, after-sales service and insurance
- Patent, royalty and approval.
- Laws pertaining to sports industry and marketing

REFERENCES

Sport Management
4. Sandhu, K. Sports Dynamics: Psychology, Sociology and Management
**Paper -XX (SPJ-408)**

d. SPORTS JOURNALISM

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Marks</td>
<td>80</td>
</tr>
<tr>
<td>Sessional Marks</td>
<td>20</td>
</tr>
</tbody>
</table>

**Note:** Nine questions will be set. Question number one will be compulsory of 20 marks with ten short type of answers covering the entire syllabus. Four questions are to be attempted selecting one from each unit and each question will carry 15 marks.

**UNIT- I: INTRODUCTION TO JOURNALISM: PRINT, RADIO AND TELEVISION**

- Print Journalism: Definition of news values, news writing, 5Ws and 1H, Inverted pyramids and hourglass structure of news
- Radio and TV journalism: Language of camera, camera movements, basic shots, transitions, camera perspective and camera compositions
- Basic script writing skills
- Changing concepts of news in contemporary scenario

**UNIT-II: WRITING SKILL FOR MEDIA**

- Print: Fundamentals of sports story, advance story, follow up, analysis, columns, interpretive writing, box items, features and interviews
- Broadcast: Curtain raiser, commentators, hosts, anchors, panel discussions and interviews, talk shows and sports features
- Production of sports programmes: Pre- Production, Production and Post-Production

**UNIT-III: ORGANISATION**

- Organisational structure of a newspaper and functions of various departments
- Organisational structure of radio and TV organisation and functions of various departments
- Importance of design/ makeup. Significance of pictures and illustrations in sports news
- Writing captions and photo features

**UNIT –IV: EXTENDED RELEVANT DIMENSIONS**

- Role of Public Relations, Promotion and Advertising
- Press Release, Press Conference, Exhibitions, Event Management
- Sports coverage of special events: Olympics, World Cups, Asian Games etc
- Relevance of research in sports: computer assisted reporting, importance of statistics and records
- Ethics and responsibilities of sports journalists

**REFERENCES**

UNIT-I INTRODUCTION TO SPORTS SOCIOLOGY
- Meaning and Concept of sports sociology
- Sociology of sports as a separate discipline
- Sports sociology as a science of social relationships

UNIT-II SPORT AND RELIGION
- Definition and concept of religion
- Similarities and differences between religion and sports as a social phenomenon
- Challenges in combining sports and religion
- Sports as a religious phenomenon

UNIT-III SPORT AND RESEARCH METHODS
- Methods in sports sociology (field work), and survey
- Check list and participant observation
- Interview - structured and non-structured
- Content analysis of historical evidence
- Theme - identification in qualitative research

UNIT-IV SPORT AND COMMERCIALIZATION
- Emergence and growth of commercial sport
- Impact of commercialization and changes in sport
- Impact of media on sports and sponsorship
- Role of media in making and breaking of images in sports
- Club culture and its impact on sport development

SPORT AND FUTURE
- Ideological issues in sport
- Visualization of major sport forms in the future
- Changing trends and forecasts in the growth of sports
- National sports policy – Challenging and constraints

PRACTICAL AND ASSIGNMENT
1. Student alienation scale, superstition scale
2. Write a paper on a comparative analysis of selected religions contributing to sport by using Weber’s approach
3. Make a comparison of newspaper coverage of six sports, (three individual and three team sport) evaluate the impact of coverage on the popularity of each sport
4. Analyze new trends in social research specifically in relation to qualitative and quantitative techniques at international level and compare with research work in India

REFERENCES
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

FACULTY OF ARTS

SYLLABI

FOR

M.A. HISTORY (SEMESTER SYSTEM)

EXAMINATIONS, 2017-2018

© The Registrar, Panjab University, Chandigarh.

All Rights Reserved.
APPLICABILITY OF REGULATIONS FOR THE TIME BEING IN FORCE

Notwithstanding the integrated nature of a course spread over more than one academic year, the regulations in force at the time a student joins a course shall hold good only for the examinations held during or at the end of the academic year. Nothing in these regulations shall be deemed to debar the University from amending the regulations subsequently and the amended regulations, if any, shall apply to all students whether old or new.
GUIDELINES FOR CONTINUOUS INTERNAL ASSESSMENT (20%) FOR REGULAR STUDENTS OF POST-GRADUATE COURSES OF HISTORY (Semester System)  
(Effective from the First Year Admission for the Academic Session 2007-2008)

1. The Syndicate has approved the following guidelines, mode of testing and evaluation including Continuous Internal Assessment of students:

   (i) Terminal Evaluation : 80 %

   (ii) Continuous Assessment : 20 %

   (iii) Continuous Assessment may include written assignment, snap tests, participation in discussions in the class, term papers, attendance etc.

   (iv) In order to incorporate an element of Continuous Internal Assessment of students, the Colleges/Departments will conduct one written test and one snap test as quantified below:

   (a) Written Test : 25 (reduced to 5)

   (b) Snap Test : 25 (reduced to 5)

   (c) Participation in Class discussion : 15 (reduced to 3)

   (d) Term Paper : 25 (reduced to 5)

   (e) Attendance : 10 (reduced to 2)

   Total : 100 reduced to 20

2. Weightage of 2 marks for attendance component out of 20 marks for Continuous Assessment shall be available only to those students who attend 75% and more of classroom lectures/seminars/workshops. The break-up of marks for attendance component for theory papers shall be as under:

<table>
<thead>
<tr>
<th>Attendance Component</th>
<th>Mark/s for Theory Papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 75 % and above upto 85 %</td>
<td>1</td>
</tr>
<tr>
<td>(b) Above 85 %</td>
<td>2</td>
</tr>
</tbody>
</table>

3. It shall not be compulsory to pass in Continuous Internal Assessment. Thus, whatever marks are secured by a student out of 20% marks, will be carried forward and added to his/her score out of 80 % i.e. the remaining marks allocated to the particular subject and, thus, he/she shall have to secure pass marks both in the University examinations as well as total of Internal Continuous Assessment and University examinations.

4. Continuous Internal Assessment awards from the affiliated Colleges/Departments must be sent to the Controller of Examinations, by name, two weeks before the commencement of the particular examination on the proforma obtainable from the Examination Branch.

SPECIAL NOTE:

(i) The theory question paper will be of 80 marks and 20 marks will be for internal assessment.

(ii) In the case of Postgraduate Course in the Faculties of Arts, Science, Languages, Education, Design & Fine Arts, and Business Management & Commerce (falling under the purview of Academic Council), where such a provision of Internal Assessment/Continuous Assessment already exists, the same will continue as before.
MA Programme at the Department of History 2017-18

Courses and Syllabus (Semester System)

The MA programme at the Department of History is spread over two years divided into four semesters. This programme is governed by the Calendar of the Panjab University and various rules and regulations put in place by the university from time to time.

A candidate has to earn a minimum of 96 credits, with at least 78 credits being through courses offered in the Department of History. In the first semester a candidate has to earn at least 24 credits from courses in the Department of History.

Note: The Syllabus for Semester I to IV below is applicable to candidates admitted in July 2017. Papers kept in abeyance will not be offered in Sessions till further orders.

Course Outline

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper I:</td>
<td>HIS 111</td>
<td>The Punjab (mid-fifteenth to seventeenth centuries)</td>
<td>6 credits</td>
</tr>
<tr>
<td>Paper II</td>
<td>HIS 231</td>
<td>Ancient India: An Overview</td>
<td>6 credits</td>
</tr>
<tr>
<td>Paper III</td>
<td>HIS 221</td>
<td>Medieval India: Political Processes</td>
<td>6 credits</td>
</tr>
<tr>
<td>Paper IV</td>
<td>HIS 211</td>
<td>Modern India: Political Processes</td>
<td>6 credits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group-I Paper I:</td>
<td>HIS 125</td>
<td>Punjab in the Eighteenth Century (Compulsory)</td>
<td>6 credits</td>
</tr>
<tr>
<td>Group-II Paper II: Any one of the following</td>
<td>HIS 713</td>
<td>Opt. (i) Agrarian Economy of Ancient India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 712</td>
<td>Opt. (ii) Agrarian Economy of Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 711</td>
<td>Opt. (iii) Agrarian Economy of Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 721</td>
<td>Opt. (iv) Industry, Trade &amp; Urbanization in Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 730</td>
<td>Opt. (v) Industry and Trade in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 733</td>
<td>Opt. (vi) Urbanization in Modern India(In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
</tbody>
</table>

| Group-III Paper III: Any one of the following | HIS 831| Opt. (i) Modern World (Mid 15th - 19th Century)   | 6 credits |
|                                                | HIS 844| Opt. (ii) China & Japan (1840-1950)                | 6 credits |
|                                                | HIS 821| Opt. (iii) History of Canada( In abeyance till further orders) | 6 credits |
|                                                | HIS 811| Opt. (iv) American Imperialism in the Nineteenth and Twentieth Centuries( In abeyance till further orders) | 6 credits |

| Group-IV Paper IV: Any one of the following | HIS 812| Opt. (i) USA (1820-1973)                              | 6 credits |
|                                                | HIS 832| Opt. (ii) World in the Twentieth Century             | 6 credits |

<table>
<thead>
<tr>
<th>Semester III</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group-I Paper I:</td>
<td>HIS 123</td>
<td>Punjab in the Nineteenth Century (Compulsory)</td>
<td>6 credits</td>
</tr>
<tr>
<td>Group-II Paper II: Any one of the following</td>
<td>HIS 431</td>
<td>Opt. (i) Evolution of Ancient Societies</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 421</td>
<td>Opt. (ii) Feudal Society in Western Europe</td>
<td>6 credits</td>
</tr>
<tr>
<td>Semester IV</td>
<td>Group-I Paper I:</td>
<td>HIS 126</td>
<td>Punjab in the Twentieth Century (compulsory)</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
<td>---------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Group-II Paper II: Any one of the following</td>
<td>HIS 911</td>
<td>Opt.(i) History and Historiography</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 912</td>
<td>Opt.(ii) History and Historical Method</td>
<td>6 credits</td>
</tr>
<tr>
<td>Group-III Paper III: Any one of the following</td>
<td>HIS 720</td>
<td>Opt. (i) Religious And Social Processes In Ancient India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 438</td>
<td>Opt. (ii) Buddhism in Ancient India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 428</td>
<td>Opt. (iii) Religious Developments in Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 426</td>
<td>Opt. (iv) Islamic Traditions of Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td>Group-IV Paper III: Any one of the following</td>
<td>HIS 471</td>
<td>Opt. (i) Dalit Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 731</td>
<td>Opt. (ii) Working Class Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 467</td>
<td>Opt. (iii) Peasant Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 418</td>
<td>Opt. (iv) Socio-Religious Reform Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 462</td>
<td>Opt. (v) History of Caste and Caste Politics in Modern India (In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
</tbody>
</table>
PAPER I: THE PUNJAB (MID-FIFTEENTH TO SEVENTEENTH CENTURIES)

COURSE CODE: HIS 111

Objective: This paper aims to examine the politico-administrative, social and religious milieu of Guru Nanak in order to understand his response to the contemporary environment and the foundation of Sikh movement. It also deals with growth of Sikh movement under his first four successors, the phase of confrontation with Mughal state and its culmination under Guru Gobind Singh. It also attempts to discuss the administrative structure, agrarian and urban economy of the Punjab under the Mughals.

Pedagogy: Class room lectures, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms
Sultan; Muqaddam; Baburvani; Hadith; Nirguna Bhakti; Hukum; Raza; Maya; Sachkhand; Jogi and Nathas; Udasi(travels)of Guru Nanak Dev Ji; Udasi Sect; Manji System; Masand System; Guru; Gurudwara; Guru Janamsakhi writings; Concept of Sahadat; Sikhism; Akal Takht; Miri and Piri; Khaha Panth; Zafarnama; Suba; Pargana; Faujdar; Communication of agriculture; Function of Urban Centres; Land Transport, River Transport

Unit I
Political developments and administrative structure under the Afghans; systems of religious beliefs and practices; response of Guru Nanak to contemporary religious systems; response of Guru Nanak to contemporary social order; response of Guru Nanak to contemporary politics.

Unit II
New Institutions established by Guru Nanak; development of Sikh Panth with special reference to Guruship and Gurudwara; making of the Sikh scripture and its structure; Janam Sakhis as sources of history; emergence of different sects within the Sikh movement.

Unit III
Martyrdoms of Sikh Gurus; politicization of the Sikh Community under Guru Hargobind; the new baptism and its implications; historical significance of the Zafarnama and Guru Gobind Singh’s relations with Bahadur Shah.
Unit IV
Provincial administration under the Mughals; major crops and commercialization of agriculture; economic base of urban centres; land and riverine transport.

Essential Readings
Ashraf, K.M., Life and Conditions of the People of Hindustan, New Delhi: Munshiram Manoharlal, 1979 (2nd ed.)

Reference Readings

Paper II: Ancient India: An Overview
COURSE CODE: HIS 231
Objective: Building upon a prior basic knowledge of the history of ancient India, this course introduces the student to the major currents in the study of that history. It focuses on the political processes that underlay the structures of the state and society but also takes the student into the details of social and cultural history.

Pedagogy: Lectures and tutorial discussions are the basic tools used in this course.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Mehargarh; Gopati; Bhupati; Vidatha; Janapada; Mahajanapada; Gana-Sangha; Gahapati; Karshapana(Punch marked coins); Ashoka’s Dhamma; Saptanga(seven limb’s of the state /rajya); Stri-dhana; Silk-route; Sreni; Bali/Bhaga/Shulka; Vishti; Prasasti; Mahayana; Hinayana; Puranic Hinduism; Agraharas; Devadana; Vanagramma;
Samanta; Varnasamkara (Inter-mixing of Varnas); Tirthankara/Arhat; Uttarapatha; Dakshinapatha; Concept of urban decay; Kali Age Crisis; Mandapika; Nagaram.

Unit I:
From Stone Age to Vedic Age: Technological and Cultural Developments in Palaeolithic, Mesolithic and Neolithic Ages; Proto-Historic Age (Theories of the Origin of Indus Valley Civilization, Urban Centres, Society and Economy, Decline- various Debates); Vedic Age (Aryan Homeland debate, Polity, Society and Economy).

Unit II:
Age of Mahajanapadas: Emergence of the State Systems in the Ganga Valley (Monarchy and Ganga-Sanghas); Society (emergence of Buddhism and Jainism) and Economy (Second Urbanization, Trade and Crafts, Formation of Peasant Economy); The Mauryan Empire (Nature of Mauryan Empire, Ashoka’s Dhamma, Causes of the Maurya’s Decline).

Unit III:
Post Mauryan Period: Non-Indigenous Polities (Indo-Greeks, Shakas, and Kushanas) and Indigenous Polities (Satavahanas, Gana-Sanghas and Sangam Chiefships); Post Mauryan Economy (Indo-Roman Trade, Agriculture and Irrigation, Artisans, Traders and Guilds, Coinage); Indian Feudalism Debate.

Unit IV:
Early Medieval Polity: Regional State Formations (Formation of New Ruling Lineages and Processes of Political Legitimization); Early Medieval Society (Land-Grants, Peasantization of Tribes, and Proliferation of Castes; Untouchability).

Essential Readings


REFERENCE READINGS


PAPER III: MEDIEVAL INDIA: POLITICAL PROCESSES

COURSE CODE: HIS 221

Objective: This paper seeks to examine the major political developments in the Indian subcontinent during a span of nearly five centuries i.e. from the thirteenth to the seventeenth century. It aims at an in-depth analysis of the processes of state formation in the Delhi Sultanate and Mughal Empire. It lays emphasis on (1) the long-term strategies that enabled these two states to establish political control and (2) to explore the functioning of political institutions and the articulation of political ideologies. It pays equal attention to the changing composition of the ruling class as well as the response of the powerful local elements.

Pedagogy: In the teaching of this paper, effort is made to gradually build on the foundation of knowledge laid at the undergraduate level. Discussions on various sub-themes need to be interspersed with critical references to the contemporary sources as well as divergent historiographical approaches.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each
The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Nasir Amir ul Mominin; Dar al-harb; Zimmi; Shaik ul-Islam; wasaya; mawali; bandagan i khas; Amir-i-Chahalgani; Tazik; Balban’s Theory of Kingship; hukm i masahat bafa i biswa; Sera i Adl; Charai and Gharai; Amir i sada; Taccavi (Taqavi); Diwan i khairat, Kharaj i Jizya; Patha and Qabuliyat; Farr i izidi; Mahzar; Sulh i kal; Tauhid i-illahi; Ibadat Khana, Mansab; Ain i Dahsala; watan jagir; Satnamis; Jats’ revolt in Doab; chauth; sardeehshmukhi; Satnam Revolt

Unit I
Consequences of the Ghorian invasions; political consolidation under Iltutmish; problems and policies of Balban; nobility during the thirteenth century; agrarian reforms of Alauddin Khalji; mechanism of his market regulations and their impact.

Unit II
Political and religious orientation of Muhammad bin Tughluq; rationale, implementation and consequences of his projects; administrative reforms of Firuz Shah Tughluq; nobility under the Tughluqs; the Afghan concept of monarchy; the land revenue system of Sher Shah Sur.

Unit III
Abul Fazl’s concept of monarchy; Akbar’s relations with the Rajput chiefs; the policy of religious tolerance; evolution of the mansab system; salient features of the jagir system; development of the land revenue system.

Unit IV
Mughal expansion in the Deccan during the first half of the seventeenth century; popular uprisings in northern India during the reign of Aurangzeb; his breach with Mewar and Marwar; his military conflict with the Marathas; his conquest of Bijapur and Golconda.

Essential Readings

Reference Readings
Objective: The paper is a study of British colonialism in which India can be studied as a classic case of British Imperialism. The historical context has been undertaken with a holistic interpretation of different approaches and interpretations such as Colonialist, Nationalist, Marxist, Subaltern, and Gandhian. The construction of the colonial state in north and south India followed constitutional changes which further enhanced to establish British control. Indian nationalism responded starting with peasant and tribal revolts, mutiny of 1857, emergence of Indian National Congress, militant movements, Subhas Bose, feminist movements.

Pedagogy: Methodology adopted would include lectures, discussions, review, seminars, and power point presentations.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms, given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Colonialist historiography; Nationalist historiography; Marxist historiography; Subalterns; Gandhian historiography; Ahimsa; Civilizing mission; Separate Electorates; Dyarchy; Provincial Autonomy; Board of Control; Court of Directors; Bicameral Legislature; Montagu Declaration; Santhals; Mundas; Moplahs; Lathiylals; First War of Indian Independence; Military Uprising; Safety valve theory; Moderates; Extremists; Revolutionaries; Militant Nationalism; Indian National Army; Swaraj; Non-Cooperation; Civil Disobedience; Quit India.

Unit I
Historiography on the modern Indian state – approaches and interpretation: Colonialist, Nationalist, Marxist, Subaltern, Gandhian.

Unit II
Construction of colonial state policy and programme of expansion in north and south India: Oudh; Punjab; Bengal; Marathas; Deccan; Mysore.
Unit III

Unit IV
Colonial state and Indian response; peasant and tribal movements, nature of the revolt of 1857; Emergence, programme and policies of Indian National Congress; militant movements; Subhas Chandra Bose and INA; women movements.

Essential Readings

Reference Readings:


<table>
<thead>
<tr>
<th>Semester II</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group-I Paper I:</strong></td>
<td>HIS 125</td>
<td>Punjab in the Eighteenth Century (Compulsory)</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Group-I Paper II:</strong></td>
<td>HIS 713</td>
<td>Opt. (i) Agrarian Economy of Ancient India</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Any one of the following</strong></td>
<td>HIS 712</td>
<td>Opt. (ii) Agrarian Economy of Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 711</td>
<td>Opt. (iii) Agrarian Economy of Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 710</td>
<td>Opt. (iv) Industry, Trade &amp; Urbanization in Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 720</td>
<td>Opt. (v) Industry and Trade in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 733</td>
<td>Opt. (vi) Urbanization in Modern India (In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Group-II Paper III:</strong></td>
<td>HIS 831</td>
<td>Opt. (i) Modern World (Mid 15th - 19th Century)</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Any one of the following</strong></td>
<td>HIS 844</td>
<td>Opt. (ii) China &amp; Japan (1840-1950)</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 821</td>
<td>Opt. (iii) History of Canada (In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 811</td>
<td>Opt. (iv) American Imperialism in the Nineteenth and Twentieth Centuries (In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Group-IV Paper IV:</strong></td>
<td>HIS 812</td>
<td>Opt. (i) USA (1820-1973)</td>
<td>6 credits</td>
</tr>
<tr>
<td><strong>Any one of the following</strong></td>
<td>HIS 832</td>
<td>Opt. (ii) World in the Twentieth Century</td>
<td>6 credits</td>
</tr>
</tbody>
</table>

**PAPER I : PUNJAB IN THE EIGHTEENTH CENTURY (COMPULSORY)**

**COURSE CODE: HIS 125**

**Objective:** This paper challenges the notion of the eighteenth century as a ‘dark period’ in the Indian history and brings out the political process by which over a hundred new centres of power and not only the ‘twelve misaldars’ came up in the Punjab after the decline of the Mughal Empire. It deals with all the new rulers, Sikh as well as non-Sikh, in terms of their political organization, administrative arrangements, patterns of state patronage and the main features of urban as well as agrarian economy.

**Pedagogy:** The classroom teaching is supplemented by familiarizing the students with the maps of the area besides distribution of outlines for greater effectiveness. The evaluation is based on continuous internal assessment which comprises of unit tests, presentation of seminars, classroom participation and attendance.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). The duration of written examination will be 3 hours. In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.
Concepts and Terms:
Coin of Banda Bahadur; Mukhlispur; Banjaras; Suzerainty; Vassal; Watan jagir; Intermediary zamindar; Pubaqi; Ijaradar; Absentee Jagirdar; Third Battle of Panipat; Khalsa; Kardar; Pargana; Dal Khalsa; Gurmatta; Rakhi; Batai; Hundi; Kankut; Katra; Bunga; Misl; Trini; Haq-Buja; Ghiana; Inam jagir; Gobind Shahi coin; Nanak Shahi coin; Madad-i-ma’ash.

Unit I
Establishment of independent rule under Banda Singh Bahadur and basis of his support; measures of the Mughal State; Impact of the decline of the Mughal Empire on administrative functioning and finances of the Punjab; struggle for power the Mughals, the Afghans and the Marathas; Ahmad Shah Abdali and the Sikhs.

Unit II
Emergence of the new powers in the second half of the eighteenth century: the Rajput chieftains in the hills; the Muslim rulers in the plains; the Sikhs as rulers; role of Gurmatta, Dal Khalsa and Rakhi System in the political process; re-construction of “eighteenth century as Misaldari period”.

Unit III
Civil and military administration under the new rulers; conception of suzerainty and coinage; Agrarian conditions and land revenue System.

Unit IV
Features of Jagirdari System; working and recepients of dharmarth grants; development of urban centres; trade and manufacture; eighteenth Century debate and the Punjab.

Essential Readings
Sachdeva, Veena, Polity and Economy of the Punjab during the Late Eighteenth Century, New Delhi: Manohar, 1993.
Sachdeva, Veena, Mughal Raj de Patan Uprant da Punjab (Atharvi Sadi), Chandigarh: Unistar, 2015 (Punjabi Medium)

Reference Readings
Gupta, Hari Ram, History of the Sikh Confederacies (1708-1769), New Delhi: Munshiram Manoharlal, 1978 (3rd edn.).
Objective: This course enlightens the students about the beginning of food production and agriculture system with special reference to bronze and iron ages. The role of agriculture and other allied trades to generate the state revenue. It also acquaints the students with the duties of the state administration to bestow all peasants and other vocational with various facilities and endowments to boost up the production and revenue of the state. It throws light on the origin and evolution of Levy system in ancient India, its determination and mode of collection.

Pedagogy: The students are taught with the help of slides, photographs, topographical maps, political maps etc. In addition to it lectures, workshops, seminars and field trips are arranged to enhance the articulating skill of the students and to understand the subject in a better way.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Mehargarh; Gramani/gramika; kutumbika; gahapatis; Dasa-karmakars; Bali/Bhaga; Paranaya; Sali/Vrihi; Rajuka/Agronomoi; Sitadhyaakasha; Sudarshana lake; Vishti; Agrahara; Deva-agrahara/devagrahara; devadana;vaishyagrahara;Kara-shasana; Samanta; Bhumicchidra-nyaya; urban decay; Kosambi’s two stage theory of feudalism; Araghatta/ghatyantra; Kupa/vapi; Damaras; Kali age crisis; tamra-patra/tamra-patta/tamra-sasana; hatta; mandapika; pentha; nagaram; Kaivartas; Kalabharas.

Unit I: Evolution of Agriculture: Neolithic Age (Beginning of Agriculture and Domestication of Animals in India); Bronze Age(Indus Valley Civilization, Agricultural Techniques, Crop Patterns, and Irrigation); Iron Age(Iron Technology and Surplus Production Debate, Cultivation Techniques and Processes, Crop Patterns and Irrigation).

Unit II: State and Land Systems: Land Rights (Communal Rights, Individual Rights, and Royal Rights); State and Private Property (Demarcation of Land, and Boundary Disputes); LandRevenue and Tax Relief Provisions in Literary and Epigraphical Sources.

Unit III: Peasantry: Peasant hierarchy in Early Indian Society; Political and Social Relationships between Peasantry, Donors, and Donees; Peasant Unrests (Causes and Nature of Peasant Unrests; Kaivarta and Kalabhara Uprisings).

Unit IV: Land Grants and Expansion of Agriculture: A Study of agrahara, devadana, vaishyagrahara and kara-shasana; Study of the Krshiparasara(Agricultural processes and Techniques); Early Medieval Agrarian Changes and Their Theoretical Explanations (Indian Feudalism, and Integrative-Processual Model).

Essential Readings


**Reference Readings**


20. Thapar, Romila, History and Beyond, New Delhi: Oxford University Press, 2010. (Particularly, From Lineage to State, and Interpreting Early India).

PAPER II OPT. (II) AGRARIAN ECONOMY OF MEDIEVAL INDIA

Objective: This paper aims at a multi-dimensional picture of the historical changes that occurred in the agrarian economy during the medieval period. For the sake of clarity and convenience, it is divided into two chronological phases, the Delhi Sultanate and Mughal Empire. It seeks to make an in-depth analysis of the social structure, with particular reference to the various classes of peasantry as well as the intermediaries. It pays adequate attention to the technological aspects of agriculture and irrigation, besides the land rights and agrarian revolts. It also examines the mechanism evolved by the state to extract the social surplus.

Pedagogy: Since it is assumed that the student is quite familiar with the political history of medieval India, it is possible to delve into advanced writings of historians like Irfan Habib and Satish Chandra. Changes in the agrarian economy are studied in relation to the social structure and state formation, with stress on interpreting evidence from contemporary documentation.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Village Aristocracy; Khuts; Chaudhuri; Zayad crop; rabi and kharif; noria and saqiya; Persian wheel; Khwaja; Kharaj; hukm i masahat bafa i biswa; Iqta; Madad-i-Ma’ash; abwab; Zamindar; Banth and Talpad; jins i- kamil; sair land; malikana; Deh kharj; panch mukadamman; khudh ka’sht; Karori experiment (1574-75); Ain-i-Dahsala; nasq; kankut; Zabti System; jama and hasil; Gaz-i-Ilahi; Jagirdari crisis; zamindar zortalab;
Unit I
Structure of the rural society in the Delhi Sultanate; aristocracy, intermediaries and peasantry; methods of cultivation and types of crops; means of irrigation and water lifting devices; projects of agrarian expansion; prices of agricultural produce.

Unit II
Agrarian taxation in the Delhi sultanate; from tribute to a uniform land tax; magnitude of state share and methods of collection; changes in the system under successive rulers; salient features of the iqta system; stages in the evolution of the iqta system.

Unit III
Conditions of peasantry in Mughal India; stratification among the peasantry; the nature of agrarian property; structure of the village community; zamindars and nature of their income; genesis, composition and strength of the zamindars.

Unit IV
Assessment of land tax under the Mughals; magnitude of state share and mechanism of its collection; salient features of the jagirdari system; fiscal rights of jagirdars and management of jagirs; crisis in the jagirdari system; nature of the agrarian revolts.

Essential Readings

Reference Readings
PAPER II OPT. (III) AGRARIAN ECONOMY OF MODERN INDIA

COURSE CODE: HIS 711

Objective: This course examines the impact of colonialism on India’s agrarian economy in the nineteenth and early twentieth centuries.

Pedagogy: Class room lectures and tutorial discussions.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Agrarian; Agrarian society; Ryotwari; Mahalwari; Permanent settlement of Bengal; Classical Theory of Rent; Jajmani system; rural indebtedness; commercialization of agriculture; canalization; colonization; ICAR; Central Banking Enquiry Committee; Royal Commission of Agriculture; Cooperative Movement; ‘self sufficient’ village economy; Agrarian relations; Famine Relief; Cash crops; Agricultural Labour; Taccavi Loan; Agricultural Technology; Punjab Land Alienation Act; Famine Relief Fund; Pattidar; Miras Land; Bombay Service System; Luxury Trade; War Financing; Balanced Budget.

Unit I

Agrarian Context: Mid 18th century background and British Agrarian Policy; Agrarian settlement – Permanent; Ryotwari; Mahalwari, consequences of periodic settlements.

Unit II

Agricultural Trends: Changes in agriculture-North India; Eastern India; Western India; South India; Famine and the Peasantry; Commercialization of agriculture; Indebtedness.

Unit III

Agrarian Relations: Northern and Central India; Eastern India; Western India; South India.

Unit IV

Development of irrigation in Colonial times; Canalization and colonization of Punjab; Agrarian Production and Technology; Trade in Agricultural Produce; Agricultural Labour

Essential Readings


Bhatia, B.M., Famines in India


**Reference Readings**


Hardiman, David, *Peasant Resistance in India* 1858-1914, Delhi 1992

Mukherjee, Mridula, *Colonializing Agriculture: The Myth of Punjab Exceptionalism*, New Delhi, Sage Publications, 2005


PAPER-II OPT. (IV) INDUSTRY, TRADE & URBANIZATION IN MEDIEVAL INDIA

**COURSE CODE: HIS 721**

**Objective:** This paper focuses on the Urban Economy of the Medieval period and looks with detail at the Urban pattern, Trade and Industry, Administration of towns and Social Classes in towns. It aims to introduce the urban dimension to students of Medieval India to add to their basic understanding of the period.

**Pedagogy:** Students will be introduced to new readings on the theme and a familiarization with debates on several issues.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**

Urban centre; qasbah; temple urbanism; urbanization; dynastic towns; mohalla; katra; tripolia; qahwakhana; kotwal; mir-i-mohalla; pol; rach bharmar; talimguru; chikandoz; naqqash; baradari; karkhana; jital; ganj; ahl-i-saif; ahl-i-qalam; hakeem; hunarmardan; balda; urban revolution 13th century; hundi; asharfi; qadam sharif; nakhas; manzil
Unit I
Urban pattern in the early medieval period; urban revolution in the 13th century; urban development up to mid 18th century; types of urban centres; morphology of towns; administration of towns.

Unit II
Major industries – textiles, metal work; forms of organization; technology and labour; profile of medieval craftsmen; state policy; case studies – Shahjahanabad, Agra, Surat.

Unit III
Major trade routes; organization of trade; items, volume and trade pattern; currency, credit and monetary system; markets; state control; case studies—Chief Trading Centres.

Unit IV
Urban classes; nobility; commercial and trading classes; professional classes; artisans and craftsmen; labouring classes and slaves; courtly and popular culture.

Essential Readings
Abul Khan Muhammad Farooque, Road and Communications in Mughal India, Adab-I-Adabiyat-i-Delhi, Delhi, 1977.
Ashraf, K.M., Life and Conditions of the People of Hindustan, Delhi, 1978.
Gupta, I.P., Urban glimpses of Mughal India: Agra the Imperial Capital, Discovery, Delhi, 1986.
M.P. Singh, Town, Market, Mint and Ports Towns in the Mughal Empire, Delhi: Adam, 1985.
Naqvi, H.K., Urban Centres & Industries in Upper India, Bombay: Asia, 1968.

Reference Readings
Bayly, C.A., Rulers, Townsmen and Razaars: North India Society in the Age of British Expansion, Oxford University Press.
Mallick, B.S., Money Banking & Trade in Mughal India, Jaipur: Rawat, 1991.
Objective: To examine the manner of early trade and industry in India and the evolution of private enterprise.

Pedagogy: Class room lectures, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Mercantilism; Imperialism; Nationalism; Balance of Trade; Exchange Banks; De-industrialization; East India Company; Subsidiary Alliance; Public Limited Company; Private Limited Company; Equality; Wootz; Free Trade; Chintz; Scientific temper; Swadeshi; Non-cooperation; Swarajya; Civil Disobedience; Dyarchy; Artisan; Trade Union; Factory Act; Labour Legislation; Industrial Entrepreneurship; Iron and Steel Industry; Cotton Industry; Textile Industry

Unit I
Trade and East India Company: Growth; Composition; Value of Trade; Balance of Trade; Impact of Presidency Banks and Exchange Banks on trade.

Unit II
Foreign Trade 1857-1947: Reasons of Trade expansion, Composition; Export and Import; Balance of Trade; Direction; Impact of two world wars on Indian foreign trade.

Unit III
The traditional artisanal industries: the de-industrialisation question; Nature of modern industry under colonial rule-major industries- Cotton, Textile, Jute, Iron and Steel; reasons for industrial expansion; Industrial entrepreneurship.

Unit IV
Industrial Labour under the Colonial rule: Wages and Standard of living; Trade Union movement; Labour Disputes, Labour Legislation.

Essential Books
Objective: The course introduces a new perspective and analyses the process of urbanization in India from the mid 18th to the 20th century. The changing patterns of urban development in the regional context; new urban forms, new social and economic institutions, urban administration and urban problems are examined. Case studies allow for an indepth analysis of the urban dimensions adding to our understanding of history and the impact of urbanization on society.

Pedagogy: The key concepts and context are taken up in class discussion which incorporates urban studies from allied disciplines as well. Maps and diagrams form an integral part of study.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Urban Centre; Urbanization; metropolis; megalopolis; Urban pattern; Mofussil town; qasbah; new urban forms; hill station; cantonement; colony town; civil lines; Brides of the Sea; Black town; municipal committee; octroi; municipal corporation; notified area; civic amenities; pseudo urbanization; over urbanization; ribbon development; economic institutions in towns; slums; circulation of traffic; Leaf plan of Chandigarh; superblock; garden city; million city; maximum city.

Unit I

Urban patterns in the mid 18th century; urban development in the colonial period; factors influencing urbanization; types of urban centers; case study of New Delhi- phases of growth, town planning and society.

Unit II

New Urban Forms: the hill station; cantonement; civil lines; colony town; the port cities; case study- Bombay-growth, morphology and social structure.
Unit III
Early administration in towns; introduction of municipal government; municipal functions and working; resources; nature of urban government in colonial times.

Unit IV
Urbanization in post-independence India; regional patterns; classification of urban places; urban problems- slums, lack of civic amenities, haphazard growth; urbanization policy; case study- Chandigarh- plan, growth and social dimensions.

Essential Readings
12. Sharma, Kavita et al., Chandigarh Lifescape: brief social history of a planned city, Chandigarh: Chandigarh Administration, 1999.

Reference Readings:
2. Broeze, Frank (ed), Brides of the Sea: Port Cities of Asia from the 16th to the 20th centuries, New South Wales University Press, 1983.

PAPERS III
PAPERS IV OPT. (I) MODERN WORLD (MID 15TH-19TH CENTURY)

Objectives: The paper focuses on the Modern phase of World history with particular reference to Modern ideas with emphasis on ‘humanism’, politics revolving around European State System and colonial and economic developments are highlighted. The social and economic change which took place in Europe from 17th to 19th century effecting the transition from Feudalism to Capitalism and the rise of Nationalism in the 19th century are focused in the course.

Pedagogy: The Course is taught on the basis of lectures, seminars, discussions & tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours..

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Renaissance; Humanism; Reformation; Enlightenment; Socialism; Utopian; Socialists; Commercial Revolution; Price Revolution; Bloodless Revolution; Industrial Revolution; Scientific Revolution; Liberty; Equality; Constitutionalism; Nationalism; State building; Feudalism; Capitalism; Parliamentary Monarchy; Liberalism; Democracy; Absolutism; Nation State; New World; Age of Exploration; Free Trade; Continental System;

Unit I
Enlightenment and Modern Ideas: Renaissance, its social roots, humanism and its spread in Europe; Reformation, its origins, course and significance; Spread of Enlightenment, outside Europe; Rise of Socialist ideas (to Marx).

Unit II
Origins of Modern Politics: European States System- Spain, France and England; Colonial expansion and economic developments; Early colonial empires of Portugals and Spain; Shift of economic balance from Mediterranean to the Atlantic, Commercial revolution and Price revolution.

Unit III
Europe in the 17th and 18th Centuries: Economic, Social and Political dimensions- The English Revolution; Scientific Revolution; American Revolution and the constitution; French Revolution and its aftermath; European political patterns in the 18th century - parliamentary Monarchy and Patterns of Absolutism in Europe.

Unit IV
Modern Nation State System: English Industrial Revolution, transition from Feudalism to Capitalism; Rise of Nationalism in the 19th century; State building in Germany and Italy; Liberalism and democracy in Britain; Disintegration of Empires through emergence of nationalities; 19th century European revolutions.

Essential Readings

Reference Readings
Lefebvre, G., The French Revolution
Rude, George, Revolutionary Europe, Collins, 1964.
Thompson, Davis, Europe Since Napoleon, Australia: Penguin, 1966.
Objective: This course aims to trace the various phases of history of China and Japan in modern times in the context of their struggle against invasion of the west. Also, the present course seeks to evaluate the internal struggle as well as various efforts made within these nations which were directed towards the quest of their identities as important powers of the world.

Pedagogy: The said course is taught on the basis of lectures, seminars, discussions, and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and term given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Opening of China; Cutting of the Chinese Melon; Open Door Policy; Co–hong; Taiping Rebellion; Battle of Concessions; Boxer Society; Li–Ito Convention; Campradores; Warlords; K.M.T.; League of Comman Alliance; C.C.P.; Communism; Communes; Modernization of Japan; Meiji Restoration; Opening of Japan; Perry expedition; Tonghaks’ rebellion; Most Favoured Nation Treatment; Right of Extra Territoriality; Treaty of Shimonoseki; Treaty of Portsmouth; 21 Demands; Aims of Washington Conference; Five Power Naval Treaty; Zaibatsu; Japanese militarism; Manchurian Crisis; Fall of Japan.

Unit I

Opening of China w.r.t. the First Opium War and the Second Opium War; Taiping rebellion; Battle of Concessions (1895-98); Boxer movement (1900); the Impact of foreigners in China – disintegration of family centered society and the rise of new classes.

Unit II

Sun Yat Sen and the revolution of 1911; May 4th 1919 Movement; C.C.P.’s relations with K.M.T. till 1949 and triumph of communism; the inauguration of first Five Year Plan and land reforms; the role of communes.

Unit III

Opening of Japan w.r.t. Perry expedition and its significance; Meiji restoration and reforms for modernisation-end of feudalism, reorganization of central administration, reforms in education, economic progress, industrial and agricultural reforms, the new Japanese Constitution of 1889; the first Sino-Japanese War (1894-95); Anglo-Japanese Alliance (1902); Russo-Japanese War (1905).

Unit IV

Japan’s role in World War I and presentation of 21 demands; Washington Conference (1921); Causes and growth of Japanese militarism; Japan from Manchurian Crisis to the Second World War; monetary and banking systems in post-war Japan; the role of Zaibatsu in post-war economy.

Essential Readings


Objective: An introductory course focusing on the main developments in politics, economy and society of Canada from its inception to recent times. The major changes and its impact on the people is highlighted to understand the kind of transformation taking place in time and the making of a multi-cultural society.

Pedagogy: As the course is being introduced for the first time, basic standard reading would be utilized along with maps and perspectives to help study the country in some detail.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Inuit; First Nations; Runners of the woods; Skraelings; seigneurs; New France; Quebec Act 1774; Canada Bill 1791; Reciprocity Treaty 1854; Dominion Day; Halifax Award 1877; Alien Question; Gold Rush; NEP; Bits and Pieces Programme; "Rep by Pop"; Staples Theory; baby boom; Dirty Thirties; Parti Canadien; GATT; Parti Quebecois; Two Nationalisms; cultural genocide; referendum; October Crisis; bilingualism; Hyde Park Agreement; "ethnic ghetto"; Multiculturism; White Paper; Meech Lake Conference; Gang of Eight; Bill 22/101; CANDU model;

Unit I

First nations and their contact with early European settlers; French and English in Canada in 17th century; Anglo-French activity in 18th century; Canada c.1800.

Unit II

Transformation 1815-40; The Dominion of Canada 1867; Expansion 1867-96; Economic boom 1896-1914; Impact of World War I, Relations with Britain
Unit III
Politics and Economics of the 1920’s; Developments in 1930’s; Canada and World War II; Post War developments upto 1963, Relations with USA.

Unit IV
Economic Developments 1960-80; Changing Canada; Problems for Government. in 1970s-80s; Multi culturalism.

Essential Readings

Reference Readings

PAPER–II OPT. (IV) (A) AMERICAN IMPERIALISM IN THE NINETEENTH AND TWENTIETH CENTURIES(IN ABEYANCE TILL FURTHER ORDERS)

COURSE CODE: HIS 811

Objective: From an Indian perspective, this course examines the nature of American imperialism and its spread in the nineteenth and twentieth centuries. It presumes a prior knowledge of the broad trends in the history of America, India and the world.

Pedagogy: The course is based on class room discussions.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Imperialism; altruistic-moral; Monroe Doctrine; industrialization; Mahan Doctrine; Americanization; Louisiana Purchase; great powers; League of Nations; 14 points; Cold War; NAM; McCarthy Era; Cultural imperialism; brain drain; American Independence; French and Indian War 1754-1763; Colonial Grievences in America; Spanish Empire in the America; Spanish American Wars; State Power and Industrialization; US expansion in 19th Century; American Intraventions outside the Western Sphere; US and Russia; US and Great Britain; First World War; Anticommunism in the US; US and the Muslim World; US and Israel; Brain Drain to the US; Indo-US relations before 1947.
Unit I

Introduction to the Nature of Imperialism: The economic bases of imperialism; the strategic bases of imperialism; the altruistic-moral bases of imperialism; The empires of the eighteenth and nineteenth century: the British Empire in India; the Partition of Africa; the various European imperial interests in the Americas; American independence: the French and Indian War 1754-1763; The British empire in America and colonial grievances; the economic and moral bases for claiming independence for America as expressed in its culture, polity and society during the eighteenth and nineteenth centuries.

Unit II

The Monroe Doctrine: The United States replaces the Spanish Empire in the Americas and the Pacific; various Spanish American wars and their consequences; evolution of a moral basis for imperial expansion in the foreign policy; The American civil war: the link between state power and industrialisation; the use of moral positions for war like aggression. US expansion in the nineteenth and early twentieth century: Purchasing territories in America and the Pacific; the Mahan Doctrine and military strength; American interventions outside the western hemisphere in the nineteenth and early twentieth century.

Unit III

“Americanisation of the world” in the early twentieth century: The relative industrial and economic strength of the great powers; President Wilson’s interventions before joining the First World War; American role in establishing peace after the First World War and the League of Nations. The growth of American power between the Two Wars: Economic interventions in Europe; the US and Russia; the US and Great Britain. The Cold War and American foreign policy: anti-communism in the US and the McCarthy Era; influence of internal concerns on US foreign policy; economic and human costs of American interventions within the US and outside.

Unit IV:


Essential Readings


Reference Readings


Dutt, R.P., India Today, PPH, Bombay, 1949, multiple reprints.


Lenin, V.I., Imperialism, the Highest Stage of Capitalism: a popular outline, various editions, 1916.


Objective: The emergence of America as a world leader was substantially based on the transformations taking place in that country as it tries to adjust itself to the post-Napoleonic world order of the nineteenth century. This course traces the main currents in American history to find an understanding of that transformation.

Pedagogy: Class room discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Nation state; freedom; big business; scientific temper; industrial revolution; imperialism; communism; foreign policy based on neutrality; carpet baggers; scallywags; populism; slavery; League of Nations; Free trade; Peace of Paris; progressive movement; Hooverville; New Deal; Economic depression; balance of trade; feminism; social justice; civil rights; foreign policy of appeasement.

Unit I

The new territories in the west: Expansion in Texas, the war with Mexico; Moral and ideological tensions: Growth of sectionalism, causes and consequences of the Civil War, Reconstruction of the South; The new economy: growth of industrialisation and new technologies, Big Business, 1875-1900; Growth of cities.

Unit II

Emergence as a World Power: War with Spain; causes and results; decision for economic imperialism; Overseas Expansion: The Carribean and the Pacific, 1896-1915; World Involvement: Unnatural neutrality; the U.S.A. at World War-I; The Treaty and the League.

Unit III

Populist and Progressive Movements: Leaders and achievements, 1890-1917; The onset of Great Depression: Causes and impact; the Hoover Program; The New Deal: New Deal Legislation; foreign policy during the New Deal period.

Unit IV

The Second World War: Issue of neutrality; the U.S.A. at war, planning a new World order; balance of terror; Colder war: Origins; diplomacy of Cold war; containment of communism; Détente; Social Movements: Movements for Social Justice: The Feminist Movement; Temperance; Suffrage; Civil Rights.

Essential Readings


Reference Readings

PAPER – IV OPT. (II) WORLD IN THE TWENTIETH CENTURY

Objectives: Structures of international systems in the early twentieth century were drawn on the plank of imperialism, colonialism, nationalism leading to emergence of a bipolar world, organised into military blocks with non military organisations such as United Nations acting as arbiters of international peace. The impact of a bipolar world and its political dynamics were visible, especially in the middle east. New trends in human and civil rights marked contemporary foreign policies while feminism, working class and students movements, gained momentum in the international landscape.

Pedagogy: The methodology will include lectures, discussions, review, seminars and power point presentations.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Imperialism; Neo-imperialism; colonialism; Neo-colonialism; Socialism; Nationalism; Communism; Capitalism; revolution; human rights; feminism; working class; Commonwealth; NAM; United Nations; student movement; Middle East; Military Blocs; Civil rights; foreign policy; Third World; Non-alignment; NATO; Warsaw Pact; Glasnost; Perestroika; Menshevik; Bolshevik; Arab Politics.

Unit I

Unit II
Human and Civil Rights and New Trends: The idea of Civil and Human rights in the Third World; Role of Civil and Human rights in contemporary foreign policy Strategies; Trends within the growth of feminism, working class, and students movement.

Unit III
Military Blocs and Non-Military Organizations: Non-military organizations; U.N. as an arbiter of international peace; Changing facets of Commonwealth and its irrelevance; growth of NAM as a critic of Imperialism and Neo-Colonialism.
Unit IV

Political Dynamics in the Middle East: Regional Arab politics and the conflict with Israel; U.S.S.R. and the Middle East; U.S.A.’s policy towards the Middle East with special reference to Iraq, Israel and Iran.

Essential Readings


Reference Readings


Chesneaux, Jean et. al. (eds.)., *China*, Vols. 1 and 2 Delhi: Khosla, 1978.


<table>
<thead>
<tr>
<th>Semester III</th>
<th>Group-I Paper I:</th>
<th>HIS 123</th>
<th>Punjab in the Nineteenth Century (Compulsory)</th>
<th>6 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group-II Paper II: Any one of the following</td>
<td>HIS 431</td>
<td>Opt. (i)Evolution of Ancient Societies</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 421</td>
<td>Opt. (ii)Feudal Society in Western Europe</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 411</td>
<td>Opt. (iii)History of Capitalism</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 412</td>
<td>Opt. (iv)Rise and Growth of Colonialism in India</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 602</td>
<td>Opt. (v)History of Secularism in Modern India (In abeyance till further orders)</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td>Group-III Paper III: Any one of the following</td>
<td>HIS 432</td>
<td>Opt. (i)Cultural History of Ancient India</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 604</td>
<td>Opt. (ii)Sacred Centres in Indian Civilization</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 424</td>
<td>Opt. (iii)Medieval Indian Art and Monuments</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 601</td>
<td>Opt. (iv)Gender Relations in Modern India</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 455</td>
<td>Opt. (v)Diaspora in Colonial India (In abeyance till further orders)</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 603</td>
<td>Opt. (vi)Science, Technology &amp; Medicine in Colonial India (In abeyance till further orders)</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td>Group-IV Paper IV: Any one of the following</td>
<td>HIS 213</td>
<td>Opt. (i)Constitutional Development in Modern India, 1773-1947</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 212</td>
<td>Opt. (ii)National Movement in India 1858-1947</td>
<td>6 credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIS 214</td>
<td>Opt. (iii)British Policy and Princely States (In abeyance till further orders)</td>
<td>6 credits</td>
<td></td>
</tr>
</tbody>
</table>

PAPER I PUNJAB IN THE NINETEENTH CENTURY (COMPULSORY)

COURSE CODE: HIS 123

Objective: The aim of the present course is to make an assessment of British policy and programme in Punjab and study the construction of State. It critically examines and evaluates administrative, social, cultural, economic developments as well as socio-religious resurgence in the province between 1849-1901.

Pedagogy: The present course is taught on the basis of lectures, seminars, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.
Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Suba; Pargana; Kardar; Nazim; Batai; Kankut; Banwazeree; Suzerain; Vassalage; Dharmarth; Jagir; Ijara; Army panches; Treaty of Amritsar 1809; Treaty of Bhairowal 1846; Agricultural loans; Commercialization of agriculture; Canalization; Board of Administration; Punjab Frontier Force; Shuddhi; Nirankar; Kukas; Chief Khalsa Diwan; Mahdi; Socio-religious movement; Christian Missionaries; Aims of Anjumans; Agri-Horticultural Society; Modern technology in agriculture.

Unit I
Formation of the Kingdom of Lahore; land revenue administration, distribution of land revenue; agricultural production and development; trade, industry and urbanization.

Unit II
Nature of state under Ranjit Singh; political developments 1839-1849; role of the ruling classes in the decline of the kingdom of Lahore; annexation of the Punjab.

Unit III
The early British administration 1849-59; British agrarian policies; application of modern science and technology in agriculture; canal colonies.

Unit IV
Christian missionaries and their activities; Arya Samaj and Dev Samaj; Muslim Anjumans and Ahmediyas; Nirankaris, Namdharis and Singh Sabhas.

Essential Readings:

Reference Readings
Lafont, S., The French Officers at the Court of Ranjit.
Objective: This course provides an introduction to the form of existence of the earliest human societies and their relationship with the study of history.

Pedagogy: The course depends on class room discussions and visits to the various museums of history.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Hunters-gatherers; Neolithic; tribal society; chieftain; shamanism; urban revolution; urbanization; Bronze age; Democracy; slavery; reciprocity; market exchange; gift giving; primitive valuables; domestic mode of production; State; Process of urbanization;

Unit –I
Hunting-gathering Societies in Asia; Characteristics of Neolithic societies in Western Asia; Stone culture of European societies with reference to Paleolithic and Mesolithic culture; shamanism in western Asia

Unit –II
The urban revolution and the processes of urbanization in Mesopotamia; features of Persian culture and the Zoroastrian religion; Religion and art in Egypt; Socio-economic life in Egypt

Unit –III
The study of Shang period in Chinese civilization and its features; Neolithic culture of China; Cultural and religious progress under the Chou; the political and ethical philosophy of Confucius

Unit –IV
The evolution of the city state with reference to Greek idea of democracy; slavery and religion in Greek; Roman society and Economy; Decline of Roman Civilization

Essential Readings

Reference Readings

PAPER –II OPT. (II) FEUDAL SOCIETY IN WESTERN EUROPE

COURSE CODE: HIS 421

Objectives: This paper is essentially devoted to the social history of medieval western Europe. It traces the transformation of the slave-owning society into the feudal society, besides exploring the institution of vassalage, with reference to the fief and manor. These structural changes are examined in the context of improvements in agricultural and industrial production, besides the expansion of trade and urbanization. This paper aims at understanding the methods of historical analysis that were developed by Marc Bloch, Henri Pirenne and Parry Anderson. It also enables us to sharpen our understanding of parallel developments in medieval India, as it opens the avenues of comparative analysis.

Pedagogy: The teacher is required to exercise considerable patience and diligence, so as to clarify key concepts like modes of production, kinship ties, vassalage, fief and manor. Equal attention is paid to material aspects of human life like agriculture, industry and trade. The study of historical maps, particularly relating to trade routes and urban centres, promises to benefit the young learners.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.
(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.
(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.
(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Latifundium; Roman Proletarii; Clan Optimates; Vendetta; Solidarity of kindred group; Vassal; Allod; Benificium; Precaria, fief de reprise, fiefs de dignité; Liege Homage; Ceremony of investiture; Demesne; Manor; banalities, Three field rotation in agriculture; Heavy Plough; weaving loom, Gothic
Unit I
Political structure and social classes in the Roman empire; the slave mode of production; consequences of the Germanic invasions; the role of kinship ties; practice of vendetta and ownership of property; structure of the family.

Unit II
Origin, development and symbolism of the feudal ties; mutual obligations of lords and vassals; plurality of homage; evolution and types of fiefs; inheritance and sale of fiefs; nature and working of the manorial system.

Unit III
Methods of agricultural production; changes in the agricultural technology and cropping pattern; salient features of textile production; building and mining industries; military and navigational technology.

Unit IV
Emergence of the mercantile class; features of internal trade; international trade and the role of Hanse; emergence of urban centres; the organisation of guilds; the hierarchy of artisans; peasant and artisan revolts.

Essential Readings
Concepts and Terms:
Feudalism; Capitalism; Socialism; Marxism; Liberalism; Dialectical Materialism; Scientific Temper; Protestantism; Reformation; Banking system; Equality; Brotherhood; Liberty; Imperialism; Trade Unions; Spinning Jenny; Enclosures; agricultural revolution; industrial revolution; Feminism; Stalinism; Absolutist State; Totalitarianism; Welfare State.

Unit I
Transition from feudalism to capitalism: The role of colonial pillage in the emergence of capitalism 1500-1850; Mercantilism and its various forms, various chartered companies and their political and economic activities, the rise of the bourgeoisie, colonial expansion and critics of mercantilism; the emerging link between the generation of wealth and science; the scientific revolution and its relationship with war and the growth of trade in the 16th and 17th centuries.

Unit II
The rise of industrial capital, 1750-1914 with specific reference to Cotton Textile, Coal, Steam, Iron and Steel; the contribution of agriculture to capitalism: the various agricultural revolutions in the 17th, 18th and 19th centuries with special reference to enclosures, animal husbandry, food adequacy and population growth; creation of an infrastructure for economic growth; the factory system, the transport revolution, credit systems, banks, insurance, joint stock companies.

Unit III
Working Class: The Chartist Movement, trade unions, their role and growth, controversies over living conditions; social unrest and the revolutions of the 1840s in England, France, Germany and Italy; the middle classes: spread of education, growth of socialist and liberal ideas; women and public affairs, organization of local government.

Unit IV
Imperialism in the industrial era: great power rivalry in Europe, Asia and Africa; Debates on the nature and origins of 19th century imperialism; the various economic depresses of the 19th and early 20th centuries and their social and political impact; national responses to the crises: the growth of totalitarian and liberal politics in the form of Fascism, Nazism, Stalinism and the liberal welfare state.

Essential Readings

Reference Readings
Marx, Karl, The Capital, Vol. I, especially the following 6 chapters:
‘Bloody Legislation against the Expropriated, from the end of the 15th Century.
‘Forcing down of Wages by Act of Parliament’
‘Genesis of the Capitalist Farmer’
‘Genesis of the Industrial Capitalist’
‘Historical Tendency of Capitalist Accumulation’
‘The Modern Theory of Colonisation’
Objective: This course aims to introduce the student to the broad trends in the rise and growth of colonialism and its specific form in India in modern times.

Pedagogy: The course is based on classroom lectures and tutorial discussions.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Colonialism; Colonial Structure; Imperialism; Colonial state; Imperial historiography; Nationalist historiography; subaltern historiography; economics of colonialism; mercantilist; commercialization of agriculture; de-industrialization; labour; Balance of trade; Charter Act of 1813; Finance imperialism; economic drain; old guarantee system; new guarantee system; rural indebtedness; ethnic identities; neo colonialism; unequal development; capitalist class; National Planning Committee; political economy;

Unit I
Introduction to Colonialism: Colonial Structure & State; Stages of Colonialism; Economics of Colonialism; Historiography of Colonialism; Patterns of Colonialism in Africa, Asia, Latin America.

Unit II
Colonialism in India: East-India Company and Mercantilist Colonialism 1751-1813; ‘Free Trade’ 1813-1858, Impact on Agriculture; Trade and Industry; Labour Colonialism.

Unit III
Modern India and Imperialism: Theory of Imperialism; Finance Imperialism 1858-1947; The Indian Capitalist Class; The Nationalist Economic Agitation.

Unit IV
Colonialism and Modernization in India; Debates on impact of Colonialism on India; Colonialism and Ethnic Identities in India; British and Indian Ideas on Indian Economic development, 1858-1905; Danger of Neo-Colonialism after 1947.

Essential Readings
2. Amin, Samir, Accumulation on a World Scale, New York, 1974

Reference Readings

Bose, Arun, *Modes of Production and Civil Societies in Colonial India*, Delhi (n.d.)

PAPER –II  OPT. (V):HISTORY OF SECULARISM IN MODERN INDIA(IN ABEYANCE TILL FURTHER ORDERS)

COURSE CODE: HIS 602

Objective: Here we examine the idea of secularism, its origins in the west and the dilemmas in implementing this idea in India.

Pedagogy: Class room lectures and discussions form the bases of instruction.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours..

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Unit 1
Scope, concepts and method:
Secularisation and secularism: Social Science perspectives;
The emergence of the nation state and its relationship with secularism and religion.;
Secularism in the Enlightenment tradition and thereafter in Europe.

Unit II
Efforts to engage diverse traditions and interests:
The Sikh traditions and the idea of a secular state: Ranjit Singh;
Maulana Mohamed Ali, Maulana Abul Kalam Azad, the idea of a secular state and the conflict between pluralism and fundamentalism within the Islamic traditions;
Reform and revivalism in the nineteenth century Hindu tradition, Vivekananda, Arya Samaj and the RSS.

Unit III
Secularism in the formation of an Indian identity
The Gandhian perspective;
The Nehruvian perspective;
The Constitution of India and legislating for secularism;

Unit IV
The struggle for ideological space in recent times
The majority-minority conundrum.
Communalism and communal riots since independence.
The conflicting perspectives of Fundamentalism and Pluralism.

Essential Readings:
Chandra, Bipan, Communalism in modern India, Vikas, New Delhi, 1984.
Smith, Donald Eugene, India as a secular state, Oxford University Press, Oxford, 1968.

Reference Readings:
Baxi, Upendra and Bhiku Parekh eds., Crisis and change in contemporary India, Sage, New Delhi, 1995.
CAD., Constituent Assembly debates: 1948-49, Loksabha Secretariat, New Delhi [also available for download on the website of the Parliament of India].
PAPER –III OPT. (I) CULTURAL HISTORY OF ANCIENT INDIA

COURSE CODE: HIS 432

Objective: To examine the cultural history of Ancient India

Pedagogy: Class room lectures, discussions, visits to museums and places of cultural importance.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms, given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

- Vedas; Aranyakas; Upanishads; Vedangas; Pitikas; Dhammasutras; Manusmriti; Arthashastra; Nayanar and Alavar Saints; Puranas; Jatakas; Sangam Literature; Stupa; Nataraja-Shiva; Chaitya; Vihara; Mathura Sculptural Art; Gandhara Sculptural Art; Sanchi; Nagar Style Temple Architecture; Dravida style Temple architecture; Chola Bronze Sculptural Art; Mauryan Art; Ajanta paintings; Sittanavasal paintings; Raga; Rasa; Bhava; Chitralakshana; Types of Abhinaya; Regional Theatre.

Unit I: Sanskrit, Pali and Tamil Literature: Vedic Corpus (Vedas, Aranyakas, Brahmana Texts, Upanishads and Vedangas), Shastras (Manusmriti, Arthashastra and Kamasutra), Puranas and the Critical study of original texts (Shakuntala and Ramayana); Buddhist Canonical Texts (Vinayapitaka, Suttapitaka and Abhidhammapitaka), Sri Lankan Histories (Dipavamsa and Mahavamsa), and Non Canonical Literature (Milindapanha, Jatakas); Sangam Poetry, Tamil Epics (Silpadikaram and Manimekalai), and Devotional Poetry of Nayanar and Alavar Saints.

Unit II: Art and Architecture: Mauryan Art (Royal and Popular Art); Buddhist Architecture (Buddhist Stupa, Chaitya and Vihara- Sanchi, Bharhut, Karle, Bhaja and Ajanta) and Hindu Temple Architecture (Rock Cut Cave Temples, Nagar and Dravida Temples); Buddhist and Hindu Sculptures (Mathura, Gandhara, Chola Bronze, and Buddhist-Hindu Iconography).
Unit III: Paintings, Drama and Dance: Buddhist Rock-Cut Cave (Ajanta, Bagh and Pithalkhora) and Temple Paintings (Ellora, Kanchipuram, Sittanavasal and Pannamalai); Study of the Vishnudharmottara Purana-Chitralakshana; Study of the Natyashastra (Natyam, Nritya, Rasa, Bhava, Types of Abhinaya, Regional Theatre).

Unit IV: Theory of Indian Art: a Spiritual Interpretation of Indian Art; a Materialistic interpretation of Indian Art; and a Feminist Interpretation of Indian Art.

**Essential Readings**


**Reference Readings**


PAP ERS - III: OPT. (II) SACRED CENTRES IN INDIAN CIVILIZATION

COURSE CODE: HIS 604

Objective: The aim of this paper is to acquaint the students with the evolutionary, functional and financial aspects of the sacred places of major systems of religious beliefs which served as important centres of pilgrimage. One national level centre of each major religious systems like Vaishnavism, Shaivism, Shaktism, Sufism and Sikhism has been taken as a case study to reflect the multi-cultural character of Indian subcontinent.

Pedagogy: The classroom teaching is supplemented by showing the slides of each sacred centre and power point presentation for greater effectiveness. The continuous evaluation is based on internal assessment which comprises of unit tests, presentation of seminar and classroom participation of the students.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.
(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Devadasi; Kannata Pandit; Trishuli; Nilkantha Syndrome; Nabakalebra; Muktimandapa; Pandas; Tilkayat; Arjitha Seva; Birat System; Baris; Jajmani System; Panchkosi Parikarma; Chhatis Nijoga; Tabarruk; Degh; Chishti Silsila; Sama; Khuddam; Sajjada-i-Nishin; Granthi; Dastur-al-Amal; Mutwalli; Ghusal.

Unit I
Notion of Sacred and spread of centres; social, cultural and economic functions; resources and patronage; temple functionaries: Priestly class, non-priestly and managerial class; Devadasis.

Unit II
The temple at Tirumala-Tirupati: its resources and patronage; the temple of Jagannath at Puri and its administration; emergence of temple towns in Gokul and Nathdwara; its mode of worship.

Unit III
Emergence of Varanasi as a Shaiva Centre: continuity of its traditions; Shakta centres in Himachal; rituals and practice of religious suicide in Prayag; the Kumbha fair at Prayag.

Unit IV
Emergence of Dargahs in India; Ajmer Sharif - the functionaries and the Urs festival; history and control of the Golden Temple; its mode of worship.

Essential Readings

Reference Readings

PAPER III: OPT. (III) MEDIEVAL INDIAN ART AND MONUMENTS

COURSE CODE: HIS 424

**Objective:** The aim of this paper is to acquaint the students with architectural monuments constructed during the medieval period. In fact, each of the Muslim dynasties which established itself in the Indian subcontinent created its own architectural style and bequeathed a wealth of outstanding secular and religious buildings, this paper studies the main features of these buildings. It also discusses the developments in painting, dance & music.

**Pedagogy:** Lectures, visits to museums and monuments, discussions.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**
Quwat-ul-Islam; Mibber; Mehrab; Alai Minar; Iron Pillar in Qutb Complex; Sher Shah Suri’s Tomb; Gagan Mahal; Char Minar; Mecca Masjid; Lotus Mahal; Elephants Stable; Gol Gumbad; Humayun’s Tomb; Sher Mandal; Ibadat Khana; Buland Darwaza; Anoop Talab; Panch Mahal; Moti Masjid; Bibi ka Makbara; Pietra Dura; Hamza Namah; Kitab Khana; Shahi Qalam; Ramznamah

**Unit I**
Forms of Architecture of the Sultanate period; detailed study of Qutb Complex; the Tughlaq Monuments; Sayyid, Lodhi and Sur Architecture.

**Unit II**
Deccan Style of Architecture: Bidar; Golconda; Bijapur; Vijaynagar.

**Unit III**
Early phases of Mughal Architecture; Akbar’s buildings at Fatehpur Sikri; elements of change under Jahangir; crystallisation of Mughal style under Shah Jahan; Islamization of architecture under Aurangzeb.

**Unit IV**
Establishment of Shahi Qalam; emergence of new traditions under Jahangir; response to European techniques and themes; paintings at the courts of Rajput rulers of the Punjab hills.
**Essential Readings**


**Reference Readings**


**PAPER – III OPT (IV). GENDER RELATIONS IN MODERN INDIA**

---

**Objective:** The subject of Gender in our era has become a focus of thought and study. There is concern for and discussion of women’s roles, rights, economics and womens’ studies.

Gender relations in Indian history is a critical understanding of Social reality from the Gender perspective. The crucial insight that while sex is biologically given, gender is socially constructed is the basic premise on which the paper is based. In virtually every area of social change, gender has become a category of analysis, which is to say that political, economic and development issues are thought of in terms of women’s participation and their consequences for society.

The aim of the paper is to give an overview of Gender Relations in 19th & 20th Century India. To understand the subject and its structure, the first unit deal with the different perspectives on writings of the subject. A background is given of the position of women in ancient and Medieval India. A unit is devoted to the Colonial period. Two units demarcate the Initiatives and strategies employed post-independence to better the condition of women in every sphere.

**Pedagogy:** The course is based on class room lectures and tutorial discussions.
The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Feminism; liberal feminism; radical feminism; socialist feminism; patriarchy; polygamy; stridhan; Wood’s Despatch; Pratiloma/Anuloma; sati; jauhar; infanticide; concubinage; age of consent; re-socialization; patrilineal; matrilineal; joint family; nuclear family; infant mortality; sexual harassment; dowry death; devadasi; Naribahini; Zenana; Andarmahal; custodial rape; domestic violence; female foeticide; gender

Unit I
Introduction: Historiography of Gender Relations, Different Perspective of women in Ancient India; Socio-cultural practices in Medieval India; Women in major religious traditions; structures of Patriarchy.

Unit II
Colonial Period: Impact of Social Reforms, education, personal and customary law, Impact of education; economic position Formation of women’s organisation; Women’s struggle and participation in the national Movement.

Unit III
Post-Independence Initiative: Role of the state in Empowering Women; Political Participation; Legal Provisions; Development of Women’s Movement; Women’s struggle for rights; Peasant and Dalit Women’s Movement.

Unit IV
Post-Colonial Status: Education and change; Role of women in economy; Social Position; Violence against Women; Images of Women in the Media; Continuity and Change.

Essential Readings
Reference Readings
Haksar, Nandita, Demystification of Law for Women, New Delhi, 1986.
Jacobson and Wadlkey S., Women in India: Two Persepctives, New Delhi, Manohar, 1986

COURSE CODE: HIS 455

Objectives: The course aims to familiarize the students to the concept of ‘Diaspora’ and trace the different categories of Indian Diaspora. The different stages of colonial migrations to British plantation colonies are discussed with reference to the nineteenth and twentieth centuries. The course highlights the social and economic position vis-à-vis other ethnic communities and India’s policy towards her diaspora.

Pedagogy: The course is taught on the basis of lectures, seminars, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Diaspora, Origin Of Indian Diaspora, NRI, People Of Indian Origin, Diasporic Identities, Caste Divisions Of Indian Diaspora, Reginal Divisions Of Diaspora, Linguistic Differences Of Indian Diaspora, Categories Of Indian Diaspora, Emigrations, British Plantation Colonies, Migrations, Colonial Migrations, Social Status Of Migrants, Kangani System, Economic Conditions Of Migrants, Ethnic Communities, Cultural Activities, India’s Policy Towards Its Diaspora, Race, Ethnicity, Migrations, Guef Countries, Professional Classes In USA And Canada, Migrations To United Kingdom, Migrations Towards Australia, Economic Positions Of Indian’s In South Africa.

Unit I
Diaspora: the concept; origin; evolution and contemporary usage; Diasporic identities and their nature; categories of Indian Diaspora; People of Indian Origin and NRIs; Regional, linguistic, religious and caste divisions.

Unit II
Different Stages of Colonial Migrations: Emigration to British Plantation colonies Fiji; Surinam; Guyana; Mauritius; Malaysia; Trinidad & South Africa; their economic position and social status.

Unit III
Migrations in the 20th century: Indian Diaspora in Western Countries (USA, UK and Canada); Migration to Canada & the USA in late 19th and 20th centuries; Migration between 1920s to 1947; Migrations of professionals to USA, Canada, Australia and other developed nations; Migrations to Gulf Countries.
Unit IV

**Indian Diaspora, Social and Economic Position:** Indian Diaspora with reference to their social status (Race and Ethnicity); Economic position vis-à-vis other ethnic communities; participation and cultural activities; India’s policy towards her Diaspora.

**Essential Readings:**


**Reference Readings**


14. Mukherjee, Miridula, *Peasant rebellion*


PAPER –III OPT. (VI): SCIENCE, TECHNOLOGY AND MEDICINE IN COLONIAL INDIA (IN ABYANCE TILL FURTHER ORDERS)

---

COURSE CODE: HIS 603

---

**Objective:** The course examines a new theme in Indian history and looks at the introduction of science, technology and medicine by the colonial power. The objectives of colonial authorities, the organizational structure and the responses of the people are studied to understand the social impact of these new elements in Indian society.

**Pedagogy:** The course builds on the basic information of the colonial time and introduces the student to recent works on the theme to understand the larger context of colonial rule.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**

Science and Technology; Transfer of technology; colonial science; technical education; Diffusionist model of Basalla; wootz; arogyavihara; jurzail burdar; gate keepers; scientific soldiers; ‘nationalist’ scientists; pinjarapole; Persian wheel; Blue Terror; GTSI; Tata Scheme; BSA; variolation; cordone sanitaire; experimental farms; Unani system of medicine; Samrat Yantra; Colonizing the Body; Basant rog; Shitla mata; variolation; Ola Candi; Bombay Plan; Pilgrim Theory; apartheid in science.
Unit I
Science in pre-colonial times; development of colonial scientific policy; exploration and surveys- Rennel, Mackenzie, Lambton, Buchanan; administration of science; science in education and research.

Unit II
Technology and the Raj: Transfer of technology and British perspective; technology and agriculture; technology and railways; introduction of the telegraph; technology and shipping; technical education.

Unit III
Indigenous medicine and folk practices; early initiatives for health and medicine; colonial state and epidemics-smallpox, cholera, plague; nature of British medical policy; health and hegemony.

Unit IV
Response and Resistance to colonial science, technology and medicine; nationalist views; emergence of Indian scientific community; role of scientific leaders; science, state and nation.

Essential Readings
5. Roy Macleod and Deepak Kumar, Technology and the Raj, Delhi, Sage.

Reference Reading

Papers IV
OPT. (I) CONSTITUTIONAL DEVELOPMENT IN MODERN INDIA, 1773-1947
COURSE CODE: HIS 213
Objective: To examine the various aspects of constitutional development in India.
Pedagogy: Lectures, tutorials and discussions.
Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.
**Concepts and Terms:**

Constitution; Charter Act; Queen’s Declaration 1858; significance of Council’s Act 1867; Dyarchy; Separate Electorate; Simon Commission; Nehru Committee; Provincial Autonomy; Cripp’s Proposals; Wavell Plan; Cabinet Mission; Mountbatten Plan; Nationalism; Constitutionalism; Constituent Assembly; Shimla Conference; Muddiman Committee; Swaraj; Poona Pact; Reserved Subjects; Transferred subjects; Emergency Powers; Communal Award; August Offer; Dominial Status; Common Wealth, Lucknow Pact; Constituent Assembly; Draft Committee.

**Unit I**

Constitutional Development during East India Company’s rule; Government of India Act 1858, Significance of Queen Victoria’s Declaration; Indian Councils Act.

**Unit II**

A new constitutional experiment- Act of 1909 (Morley – Minto Act); Significance of Montague- Chelmsford Report; The Act of 1919 and Dyarchy System in provinces.

**Unit III**

Nehru Committee Report; Simon Commission Proposals; the Act of 1935; Provincial Autonomy in operation.

**Unit IV**

Political Movements and Reform Proposals- Cripps Proposals and Indian reaction; the Wavell Plan; the Cabinet Mission; the constituent Assembly; the Indian Independence Act; the constitution of 1949.

**Essential Readings**


**Reference Readings**


---

**OPT. (V) NATIONAL MOVEMENT IN INDIA 1858-1947**

---

**COURSE CODE: HIS 212**

---

**Objective:** The course aims to trace the Indian National Movement from 1858 to 1947 focusing on how different historiographic schools view Indian Nationalism. Emphasis of the course is on the role played by INC from 1885 to 1947 and Gandhi in leading the country to freedom in 1947. The other strands of the National Movement particularly the Revolutionary and Left wing and youth organizations along with the communal strands are highlighted.

**Pedagogy:** The course is taught on the basis of lectures, seminars, discussions and tutorials.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Imperialism; Nationalism; Colonialism; Secularism; Nation in the making; Militant Nationalism; Communalism; Non-cooperation; Civil-disobedience; Satyagraha; Home-Rule; Subaltern; Swadeshi; Praja Mandal; Gadhar; Khudai Khidmatgars; Trade Unionism; Indian National Army; Partition; Independence; Drain of Wealth; Swarajists; Moppila; Eka Movement; Khilafat Movement; Non-violence; Secretary of State; Minto Morley Reforms; Montague Chelmsford Reforms.

Unit I
Indian Nationalism 1859 – 1885: Different historiographic schools of Indian Nationalism: early associations and peasant uprisings 1859-1880s; Theories of origin and foundation of the Indian National Congress; Social basis of the Indian National Congress.

Unit II
National awakening in India in its early phase; National Awakening and Socio-Religious Social Reforms; the Moderate phase of the Indian National Congress; Partition of Bengal and Swadeshi; Growth of Extremism; Home-Rule Movement.

Unit III
Nationalism under Gandhi’s leadership: Emergence of Gandhi and his ideology of mass participation; critical assessment of Non-cooperation and Khilafat Movement, civil disobedience movement; 1940 Satyagraha and Quit India Movement; Freedom Struggle in the princely states.

Unit IV
Other strands of the National Movement: Revolutionary Movement since 1905; Left wing Politics and Youth Organizations; the Indian National Army; Communal strands: Muslim League and Hindu Mahasabha; last phase of the struggle; Freedom and Partition why Congress and Gandhi accept partition.

Essential Readings
Chandra, Bipan, Communalism in Modern India, Vikas, New Delhi, 1984.
Guha, Ranjit, Subaltern Studies, I – IX, Delhi: Oxford University Press, 1982-86.
Low, D.A. Britain and Indian Nationalism: The imprint of Antiquity, 1997

**Reference Readings**


**OPT. (III) BRITISH POLICIES AND PRINCELY STATES (IN ABEYANCE TILL FURTHER ORDERS)**

**COURSE CODE: HIS 214**

**Objective**: This paper aims to understand and study the multiple patterns of British policy towards the Princely States of India. It seeks to examine the various facets of British paramountcy in different matters of the Native States and point out the variations and peculiarities thus found. Also the objective of the paper is to evaluate the Princely Chiefs’ responses, their sensitiveness and changes in their attitude towards the British policy during the colonial period.

**Pedagogy**: The course is taught on the basis of lectures, seminars, discussions and tutorials.

**Note**: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

- The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.
  - (i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.
  - (ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each.. Each short question carries 2 marks.
  - (iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.
  - (iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms**:

- Ring Fence Policy
- Policy of Subordinate Isolation
- Policy of Subordinate Union
- Subsidiary Alliance System
- Doctrine of Lapse
- Queen’s Proclamation
- Adoption Sanads
- Canning’s Dispatch
- Minority Administration
- British Paramountcy
- Theory of One Charge
- Universal British Policy of Coinage
- Native Coinage Act
- Imperial Sevice Troops
- British Policy towards Railways
- New Salt Policy
- New Opium Policy
- International Postal Union
- Aims of Chamber of Princes
- Indian States Committee
- Instrument of Accession
- Integration of States
- Change In British Policy in 1905
- Annexation Of Oudh
- Annexation Of Punjab
- Reason for Rendition of Mysore
- Justification of
Deposition of Gaekwar (Baroda); Assertion of Paramountcy by Curzon; Dereliction of Duty of Native Chief; Constitution of Chamber of Princes.

Unit I
Policy of ‘Ring Fence’ under Clive, Warren Hastings and Cornwallis; Departure from the policy and Wellesley’s Subsidiary Alliance System; Extension of Wellesley’s policy under Marquis of Hastings; Dalhousie’s policy of annexation of States by the application of ‘doctrine of lapse’ and other means.

Unit II
Adoption of new policy under the Crown after the revolt of 1857-58 – Queen’s Proclamation, Canning’s Despatch of April 1860 and Adoption Sanads; Succession matters w.r.t. minority administration; Deposition of Gaekwar of Baroda (1875), Rendition of Mysore (1881), the Manipur Case; Growth of Paramountcy under Curzon (1898-1905).

Unit III
The theory of ‘one charge’ – economic matters w.r.t. coinage and currency, salt and opium; means of communications- railways, post and telegraph; military establishment in the States and Organisation of Imperial Service Troops.

Unit IV
Change in the British policy after 1905 under Minto and Hardinge; Organisation of Chamber of Princes (1921) – its constitution and role; Indian States Committee (1927); Independence and integration of States.

Essential Readings
1. Arora, A.C., British Policy towards the Punjab States 1858-1905, Jalandhar: Export India Publications, 1982

Reference Readings
1. Aitchison, Sir Charles, Lord Lawrence (Rulers of India Series), Oxford, 1892.

**OPT. (IV) CONTEMPORARY INDIA 1947-1992**

**COURSE CODE: HIS 263**

**Objective:** This course provides an introduction to the major strands in the history of contemporary India.

**Pedagogy:** The course involves the student in class lectures, discussions and term papers.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**
Contemporary History; Modern History; Nationism; Freedom; Nation State; Socialism; Spiritualism; Five Year Plans; Running Plan; Demographic Dividend; Private Public Partnership; Public Sector; Green Revolution; Land Consolidation; Equitable distribution of land; Khalistan; Nagalim; Naxalism; Casteism; Civil Rights; Duties of Citizen; Secularism; Communalism; NAM; SAARC.

**Unit I**
Historiographic survey for Contemporary India including the emergence of the sub-discipline of Contemporary Indian History; Various ideological streams with special reference to Ambedkar, Gandhi, Nehru and Vivekananda.

Setting up an institutional structure for a new country: the making of the constitution, debates on its nature and changes made to it. The structure of the bureaucracy and the police and changes over time in their relationship with the legislative arm of the state and with civil society.

Rehabilitation after partition: settling the people, creating new towns and agricultural settlements, creating new opportunities for the displaced.

**Unit II**
Economic growth: Demographic trends; the Planning Process and Five Year Plans.

Industrial growth: Debates on the nature and value of the public and the private sector; Labour relations.

Land Reforms and agrarian changes: Green Revolution with special reference to the Punjab Peasant unrest and its changing forms, especially in Punjab, Bihar, Andhra Pradesh and Maharashtra.
Unit III
The States: The continuous reorganization of States since the 1950s. Changing nature of Centre-State relations.
The Emergency of 1975: its causes and consequences. Various political responses to the emergency. Emergence of a
civil democratic rights movement and the varied responses of the state.
Political and economic relations with the World. Changing Patterns of friendship and enmity with neighbouring
countries. Relations, political, social and economic with the so-called Great Powers.

Unit IV
Depressed classes, tribals, and women.
Political and social assertions by different regions: the Northeast, Tamilnadu and Punjab.
The emergence and articulation of an Indian identity: The problem of national integration versus adjusting
conflicting claims in a democratic space.
Social change: changing patterns of assertion by marginalized groups:

Essential Readings
Consisting of books which give a broad, but essential, overview of various themes in the course and/or set the
paradigm for understanding the history of Contemporary India. It is highly recommended that candidates browse
through the collection of the AC Joshi Library, Panjab University for more detailed information about various
topics.


Candidates are also requested to consult various titles from the series New Cambridge History of India, (often listed
in libraries and catalogues under the heading New Cambridge History of India) published by the Cambridge
University Press and available in Indian editions.

Reference Readings

<table>
<thead>
<tr>
<th>Group-I Paper I:</th>
<th>HIS 126</th>
<th>Punjab in the Twentieth Century (compulsory)</th>
<th>6 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group-II Paper II:</td>
<td>HIS 911</td>
<td>Opt.(i) History and Historiography</td>
<td>6 credits</td>
</tr>
<tr>
<td>Any one of the following</td>
<td>HIS 912</td>
<td>Opt.(ii) History and Historical Method</td>
<td>6 credits</td>
</tr>
<tr>
<td>Any one of the following</td>
<td>HIS 438</td>
<td>Opt. (ii) Buddhism in Ancient India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 428</td>
<td>Opt. (iii) Religious Developments in Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 426</td>
<td>Opt. (iv) Islamic Traditions of Medieval India</td>
<td>6 credits</td>
</tr>
<tr>
<td>Group-IV Paper IV:</td>
<td>HIS 471</td>
<td>Opt. (i) Dalit Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td>Any one of the following</td>
<td>HIS 731</td>
<td>Opt. (ii) Working Class Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 467</td>
<td>Opt. (iii) Peasant Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 418</td>
<td>Opt. (iv) Socio-Religious Reform Movements in Modern India</td>
<td>6 credits</td>
</tr>
<tr>
<td></td>
<td>HIS 462</td>
<td>Opt. (v) History of Caste and Caste Politics in Modern India (In abeyance till further orders)</td>
<td>6 credits</td>
</tr>
</tbody>
</table>

**PAPER I, PUNJAB IN THE TWENTIETH CENTURY (COMPULSORY)**

COURSE CODE: HIS 126

**Objective:** The course traces the history of Punjab from 1901 to 1966 focusing on how the agrarian policies and legislations passed by the British Raj in these years affected the Punjab Peasantry. How the discontentment led the Peasantry to join the National Movement which Gandhi spearheaded. Punjab’s participation in the various phases is discussed particularly the phase of partition and how the province was further bifurcated in 1966.

**Pedagogy:** The course is to be taught through class room lectures and discussions.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours..

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms, given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.
Concepts and Terms:
Jallianwala Bagh; Ghadar; Unionist Party; Rowlatt Satyagraha; Martial Law; Mahants; Babbar Akalis; Kirti Kisan Party; provincial autonomy; demand for Pakistan; Demand for Khalistan; Azad Punjab; Punjabi Suba; Shromani Prabandhak Committee; Akali Dal; Akali Party; Reorganization Act of 1966; Sarbarah; Muslim League; Central Sikh League; Keys Affair; Jaito ka morcha; Land Alienation Act; Colonization;

Unit I

Unit II
Punjab in 1920’s: The Akali Agitation or Gurdwara Reform Movement; The Babbar Akalis 1921-22; The Congress Party in Punjab 1920’s, Left wing groups of parties-1920’s; Peasants Protests -1924-29.

Unit III
Punjab in 1930’s-1940’s The Civil Disobedience and Punjab; agitations around Land revenue; Unionists under Provincial Autonomy; struggle for freedom during World War II (1939-1945);responses to the demand of Pakistan; Congress and Sikh Politics 1940-1947, partition and its effects on the Punjabis.

Unit IV

Essential Readings
8. Dayal, Ravi (ed.) We Fought Together for Freedom; Indian Council of Historical Research, Oxford University Press, Delhi, 1995
Reference Readings


Paper II: Any one from the following:

Opt. (i) History and Historiography

Objective: This paper provides an understanding of the meaning and nature of history and emphasizes on the value and interpretation in history. In a critical and comprehensive manner, it analyses the various trends in Indian historiography and underlines the changes in the stance of historians through times as well as their impact on history writing.

Pedagogy: The said paper is pursued on the basis of lectures, seminars, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Historical Fact; Reliability of Evidence; Genuineness of Evidence; Primary Sources; Secondary Sources; Accidental Causes; Rational Causes; Determinism in History; Chance in History; Objectivity in history; Group Bias; Annales School; Concept of Total History; Orientalists; Administrator historians; Nationalist historians; Marxist historians; Subaltern history; Feminism; Post Modernism; Social Dynamics in History; Historical interpretation; Cliometrics; Quantitative history; Psycho history; Elitist Historiography; Non-elite historiography; Imaginative understanding; Cleopatra’s nose; All History as Contemporary History; Colonialism and Indian Nationalism.
Unit I
Definition, historical facts; purpose and scope; value of studying history; categories of historical evidence; questions of genuineness and reliability of evidence; question of bias and objectivity; meaning of causation and handling of causes.

Unit II
History as Literature and as Science; History and Allied Disciplines of Archaeology, Geography; Sociology and Social Anthropology; Psychology and Economics; contribution of “The Annales School”.

Unit III
Orientalists with special reference to William Jones; concerns of the Administrator-Historians; Nationalist historiography- its emergence, concerns, assumptions, strength and limitations.

Unit IV
Marxist historiography- its new perspectives and strength and limitations; treatment of Colonialism and Indian Nationalism; Subaltern historiography – their critique of existing historiography; themes, sources, techniques and strength and limitations; emerging new trends with special reference to feminist history and postmodernism.

Essential Readings

16. Webster, C.B. John:, Studying History, New Delhi, 1977

Reference Readings


OPT (II) HISTORY AND HISTORICAL METHOD

Objective: This paper provides an understanding of the meaning and nature of history and emphasizes on the value of interpretation in history. In a critical and comprehensive manner, it analyses the various trends in Indian historiography and underlines the changes in the stance of historians through times as well as their impact on history writing.

Pedagogy: The said paper is pursued on the basis of lectures, seminars, discussions and tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Historical fact; social forces; scientific method; imaginative understanding; Cleopatra’s nose; determinism; objectivity; bias in history; cyclic view of history; teleological view of history; value judgement; oral history; demography; archaeology; social anthropology; geography; economics; causation; rational causes; accidental causes; great man; rebel in history; primary/secondary sources.

Unit I

The historical fact; relationship between the historian and the facts; society and historian; importance of social forces; history as science; history as literature.

Unit II

History as a study of causes; problem of determinism; problem of chance; value judgments in history; objectivity in history.
Unit III
Categories of primary sources; problems of genuineness and reliability of literary sources; oral evidence; evaluation of secondary sources; questions historians ask.

Unit IV
Widening scope of history; history and archeology; history and geography, demography and economics; history and sociology and anthropology; history and literature; the value of history.

Essential Readings:

Reference Readings:

PAPERS III

**OPT(I) RELIGIOUS AND SOCIAL PROCESSES IN ANCIENT INDIA**

**COURSE CODE: HIS 720**

**Objective:** The aim of the paper is to highlight the role of social processes in the shaping of the religious discourse and philosophical speculations in relation to Brahmanism-Hinduism, Buddhism and Jainism.

**Pedagogy:** The said paper is pursued on the basis of lectures, seminars, discussions and tutorials.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Rigveda; Upanishadas; Aranyakas; Vedanga; Dana-Dakshina; Caturaryasatyas; Aśhatantika-marga; Tirthankara; Lokayata; Ajivikas; Buddhist Tiratnas; Jain Tiratnas; Anekantavada; Mahayana; Hinayana; Vajrayana; Bodhisattvata; Svetambara; Digambara; Shankhya; Yoga; Nyaya; Vaisheshika; Mimamsa; Vedanta; Nayanar-Alavar Saints; Tantrism; Bhakti; Puranas; Gahapati; Setthi; Integrative-Processual Model.

Unit I:

Vedic Religion: Prayers, Sacrifices, and Role of Brahmans; Vedic Conceptualization of the Natural Phenomenon (Vedic Gods and Goddesses); Social and Material background of the Vedic Sacrifices (Dana-Dakshina, Varna Hierarchy).

Unit II:

Upanishads and Heterodox Sects: Philosophy of Upanishads, Buddhism, Jainism, Ajivaka and Lokayata; Material Background of Jainism and Buddhism; Position of Women and Shudras in Jainism and Buddhism.

Unit III:

Schisms and Philosophical Differences: Buddhism (Hinayana and Mahayana) and Jainism (Svetambara and Digambara); Buddhism, Urban Centres, and Trade; Hindu Philosophical Schools (Shankhya, Yoga, Nyaya, Vaisheshika, Mimamsa and Vedanta).

Unit IV:

Puranic Hinduism and Its Material Background: Emergence of Theistic Cults (Vishnavism, and Shaivism) and Bhakti Movement (Nayanar-Alavar Saints); Land Grants and Temple Institutions (Peasantization of Tribes, proliferation of Castes; A study of a regional Cult- Jaganatha Puri); Tantrism and its impact on Hinduism and Buddhism.

Essential Readings


Suggested Readings


OPT. (II) BUDDHISM IN ANCIENT INDIA

**COURSE CODE: HIS 438**

**Objective:** To trace the origins of Buddhism in India since ancient times.

**Pedagogy:** Class room lectures, discussions.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Ajivikas; lokayatas; Gahapatıś Setthis; Karshapana (puch marked coins); Pitakas/ Pali canonical literature; Jatakas; Ajanta paintings; Stupa; Chaitya; Vihara; Mathura sculptural art; Gandhara sculptural art; Janapada/Mahajanapada; Gana-Sangha; Mahayana; Hinayana; Caturaryasatyat; Ashtangikamarg; Vajrayana; Bodhisattva; Concept of Tara; Buddhist Tri-ratnas; Therigatha; Four Buddhist Councils; Chinese travelers (Fa Hsien and Xuan Zang).

Unit-I
Theravada its major schools; Origin and growth; organization and Doctrine; Buddhist notion of Ahimsa; the Agendas and significance of Byuddhist Councils

Unit-II
Hinayana and Mahayana their major school; growth and organization; Doctrines of Hinayana and Mahayana; Socio-economic foundations of early Buddhism; Women in early Buddhism

Unit-III
Emergence of Vajrayana and Tantrayana; Different aspects Tantrayana; Doctrines of Vajrayana; Prominent Siddhacarya such as Nagarjuna, Vajraghanta, Padamasambhave, Indrabhuti and Sarahapa; Socio role of Tantrayana

Unit IV
Origin and growth of Buddhist arts; architectural features of Stupas and the Chatayas; development of Sculpture arts of Gandhara. Ajanta Paintings its stylistic features; The Buddhist with reference to Dhayani Buddhás.

Essential Readings
3. Dutt, R.C, Buddhism & Buddhist Civilization in India, Seema Publication, Delhi, 1983

Reference Readings

**OPT. (III) RELIGIOUS DEVELOPMENTS IN MEDIEVAL INDIA**

**COURSE CODE: HIS 428**

**Objective:** The aim of this paper is to examine the developments in different religious systems during the medieval period of Indian history. It focuses on the continuity and change within Shaiva, Shakti and Vaishnava systems. It also deals with Krishna bhakti and its regional manifestations in Maharashtra, Bengal, Assam, Rajasthan and Gujarat. The objective of this paper is also to discuss Islam in its various forms and monotheistic movement started by kabir, Ravidas, Dadu and Guru Nanak.

**Pedagogy:** Class room teaching, evaluation based on continuous internal assessment comprising of unit tests, presentation of seminars, classroom participation and attendance.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

- The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.
  - (i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.
  - (ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.
  - (iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.
  - (iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**
- Alvars; Nayanars; Shaiv sahdam; kadambaguhadivasi ; Shakti peeth; matrikas; Panchatra agamas; Advaita ; Visihsadaita of Ramanuj; Tirtavali; Varkari; Gaudiyas; *Nama Parsanga* ; Pushtimarg; *silisa*; Shaikh; waliyat,Raushanyas, khanqah; sama; futuh ; fiqh ; wahadat al wujud, wahadat al shuhud; Mahdi, Imam; Nirguna bhakti; Guru; Adi Granth; khande ke pahul, Dasam Granth.

**Unit I**
Early Movements: Shaivism: Shaiv Siddhanta; Shaktism; Sri Vaishnavism and Rama Bhakti.

**Unit II**
The Cults of Krishna: The Varkaris in Maharashtra; Gaudhiya Vaishnavism in Bengal; Vaishnavism in Assam, the Vallabhacharya in Rajasthan and Gujarat; Mirabai.

**Unit III**
Islam in Medieval India: The Sunnis; the Shias; the Ismailies, Mahdavis and Raushanyas; Sufis orders*: Chishtis, Suhrawardis, Qadaris, Naqashbandis.
Unit IV
The Saints and the Sikhs: Kabir, his social outlook, formation and development of Kabir-Panth; Sant Ravidas; Dadu and Dadu-Panth; The Sikh Movement: Guru Nanak to Guru Gobind Singh.

Essential Readings


Reference Readings


PAP ERS III: OPT. (IV) ISLAMIC TRADITIONS OF MEDIEVAL INDIA

**COURSE CODE: HIS 426**

**Objectives:** This paper places the Islamic traditions of medieval India in the larger context of the rise of Islam in West Asia. Apart from the theological and mystical dimensions of Islam in medieval India, it highlights the emergence of the popular syncretic culture that grew around the major sufI shrines. It also seeks to study the process of Islamization in three regions viz. Punjab, Kashmir and Bengal. This paper assumes significance in the light of the crisis that seems to afflict the Islamic societies in different parts of the world, besides serving as an intellectual response to the growing misunderstanding regarding Islam and its historical role.

**Pedagogy:** The teaching of this paper is based on the pioneer works of stalwarts like Khaliq Ahmad Nizami and Saiyid Athar Abbas Rizvi. In a large measure, it relies on the contributions of Richard M. Eaton that have fundamentally changed our understanding of the subject. While discarding monolithic explanations and unscientific stereotypes, this paper opens the mind to a complex and multi-layered past.

**Note:** The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms, given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Khanqah; Jama’at Khanah; Shariah; Zakat; Classical Schools of Fiqh; Sama; Hadis; Urs; Sheikh-al-Islam; Mutwalli; Mufti; Battle of Karbala; Wilayat; Khilafat Namah; Rightly guided Caliphs; Hijri; Deg; Roshni; Khuddam; Karka; Sajjada-Nishin; Ghusl; Barakat; Bibishati Darwaza; Chach Namah; Imam; Tawiz; Ghazi Miyan; Dargah.

Unit I (Theology and Mysticism)
Rise and expansion of Islam in West Asia and its significance in the world history; political, legal and theological structure of Islam; Muslim religious life and Ulama in India during the thirteenth century; features of the mystic ideology; organization of the Chishti and Suhrawardi orders.

Unit II (Cult of Shrines)
The role of saints in Islam; rituals and management of the Ajmer shrine; the legend of Salar Masud Ghazi, structure, festivities and practices at the Bahraich shrine; the shrine of Shaikh Farid at Pakpattan, its linkages with state, society and God.

Unit III (Liberal and Revivalist Trends)
The socio-religious outlook of Abul Fazl; The mission of Shaikh Ahmad Sirhindi and its impact; the works of Dara Shukoh on mysticism, comparative religion and Hinduism.

Unit IV (Process of Islamization)
Conventional theories of religious conversion; rooting of Islam in Bengal; Islamization in south-west Punjab and the Pakpattan shrine; the role of sufi folk literature in the diffusion of Islam.

Essential Readings


Rizvi, Saiyid Athar Abbas, *Muslim Revivalist Movements in Northern India in the Sixteenth and Seventeenth...*
Reference Readings


Rizvi, Saiyid Athar Abbas, Shah Wali Allah and His Times, New Delhi: Munshiram Manoharlal, 1980.


PAPER -IV

OPT. (I) DALIT MOVEMENTS IN MODERN INDIA

COURSE CODE: HIS 471

Objective: The paper accounts for and interprets the phenomena of caste in India as a stratified social hierarchy prevalent from ancient times. Academic debates on the evolvement of caste, and the concept of jati and varna, reaction to Brahmanical strategies as arbiters of moral order and the rise of Bhakti saints, give an understanding on the emergence of the Dalit identity in the Indian context. The paper also discusses caste and gender and the movement for social justice, political participation and autonomy for dalits. Recent political parties have generated a new consciousness of equality in society among the dalits.

Pedagogy: Method would include lectures, discussions, review, seminars, powerpoint presentations.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each
The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Caste, Varna System, Dalit, Untouchables, Dalit Revolt, Bhaktimodes of legitimacy, Chokhamela, Ek Nath, Ravidas, Mahar, Non-Brahman Movement, Orientalists, Dalit Movement, Ideology of Ambedkar, Ambedkarism, Conflict between Gandhi and Ambedkar, Gender, Harijan, Scheduled Castes, Conversion Movement, Revival of Buddhism, Dalit Identity, Reservation, B.S.P, and S.P.

Unit I
Historical origins and Development of Caste; Bhakti modes of legitimacy for modern change; Chokhamela; Ek Nath; Ravidas; The context of Dalit revolt.

Unit II
Nineteenth Century background of Mahar and Non-Brahman movement in Maharashtra; Emergence of Dalit Movement 1900-1930; Nagpur; Hyderabad; Mysore and Punjab; Western ‘ Orientalists’ and the colonial perception of caste; Caste and Gender.

Unit III
Ideology of Ambedkar; The American experience of Ambedkar; ‘Ambedkarism’ the Theory of Dalit Liberation; A Study in Leadership of Gandhi: Ambedkar; Revival of Buddhism.

Unit IV
Constitutional Safeguards; Caste based reservations; Non Political activism between 1970s-1990s; Political Parties - B.S.P., S.P.; Dalit Identity in Contemporary India.

Essential Readings

Reference Readings
5. Gupta, S.K., *The Scheduled Castes in Modern Indian Politics; Their Emergence as a Political Power*, New Delhi, 1985.
Objective: The present paper traces the history of working class movement and studies the formation and working of trade unions in India. It examines the factors facilitating or retarding the growth of the trade union movement. The constitution and functioning of the AITUC and other unions are also analysed.

Pedagogy: Lectures, discussions, tutorials.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concept and Terms:


Unit I

Rise and growth of plantation industries- indigo, coffee, tea and rubber, railway and coal mining; development of modern factory industries- cotton, jute, iron and steel industries and the rise of industrial labour force; impact of Marxian Socialism w.r.t. Karl Marx in India; repercussions of the factory legislations, emergence and working of labour unions of Europe in India.
Unit II
Condition of Indian workers including women and child labour; Factory Legislations - Indian Factory Act of 1881, 1891 and 1911; Outbreak of the First World War and large industrial unrest among workers - their strikes; Russian Revolution of 1917 and its impact.

Unit III
Formation of I.L.O. (1919) and the foundation of All India Trade Union Congress (AITUC, 1920); the constitution of AITUC; the functioning of AITUC; role of communist party of India between 1925-29, organization of Workers’ and Peasants’ Parties, Split in AITUC (1929).

Unit IV
Role of Left Wing - Congress Socialist Party and CPI: reunion of 1935 and spurt in the activities of Trade Unions (1936-1939); Indian Working Class and the National Movement; Government’s attitude towards it; Second World War and its impact, resurgence in Working Class activities (1945-1947).

Essential Readings
Dutt Romesh, *The Economic History of India in the Early Age*, Delhi: Routledge, 2000

Reference Readings

OPT. (III) PEASANT MOVEMENTS IN MODERN INDIA

**COURSE CODE**: HIS 467

**Objectives**: This course introduces the student to the complex issue of peasant movements in India in the twentieth century.

**Pedagogy**: The course is based on lectures, discussions and tutorials.

**Note**: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:
Peasantry; tenants; landless labour; bonded labour; kinship group; landlordism; commercialization of agriculture; rent enhancement; peasant movement; satyagraha; Kisan Sabha; Telengana movement; Bardoli agitation; famine relief; drought; colonizing agriculture; peasant insurgency; Moplah rebellion; Agrarian society; Champaran; Kheda movement; agrarian relations; No Rent Movement; All India Kissan Sabha; Class Consciousness; Kinship ties; Land Relation; Surplus Production.

Unit I
Historiography of the Peasant Movements in India; Definition of Peasants; Class consciousness; Family and kinship ties, caste and peasantry in India

Unit II
Classification of peasants, Growth of modern landlordism- commercialisation of agriculture & its impact on land relations.

Unit III
Agrarian Conditions (1900-1947); Movements of prices, rent & revenue, british policies towards the landlords; Impact of First World War on Peasantry, Great Depression & Peasantry, The intensification after struggle for rent, relief & land; Peasant Movements- Champaran Satyagraha, Kheda Movement, Kisan Sabha, Moplah uprising.

Unit IV
Peasant Movements (1928-1947); Bardoli agitation (1928), Peasant movements during the Civil Disobedience Movement (1930-1934), Formation of the first All India Kisan Sabha (1938), Peasant investment (1946-47), Telangana uprising, The National Movement and the Indian Peasantry.

Essential Readings:
Reference Readings


OPT. (IV) SOCIO-RELIGIOUS REFORM MOVEMENTS IN MODERN INDIA

COURSE CODE: HIS 418

Objective: The course seeks to examine the variety of socio-religious reform movements in response to colonial rule in the regional context. The common links between them and their contrasts, and our understanding of the changes in the colonial times. Specific themes related to education, depressed classes, gender and identity are highlighted to study the conflict and competition in the socio-religious reform movements.

Pedagogy: The course utilizes recent research on the subject and critically examines ‘stereotypes’ on reform and debates on different issues to understand the larger context.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:

The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours..

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

(iv) The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

Concepts and Terms:

Trasitional movements; Acculturative movements; Faraiz; Dar-ul- Islam; Nava samhita; Vedanta; Bai’at; Mujaddid; Varnashramadharma; Arsha-Unarsha; Shuddhi; Niyoga; Saranam/Darshanan; Theosophists; Anjuman; Ijtihad; Sehajdhari; Keshdhari; Sanatan dharm; Paramhansa; Tariqah; Gurukul; Madhi; Hadith; Fatwa; Militant/Moderate groups in Arya Samaj; Identity; Discrimination by caste; Karewa; Chadar dalna; Sanatan Dharma.

Unit I

Society in the 18th century- traditional groups; new social categories; colonial society; the historical origins of caste; western perceptions of caste; impact of western education; critique of Indian society.
Unit II
Socio-religious reform movements in Bengal and the north east India; in Bihar and Uttar Pradesh; Punjab and north west India; central India and Maharashtra; South India.

Unit III
Agenda of social reformers; response to new education; attitudes towards the Depressed classes; debates on sati; age of consent; widow remarriage.

Unit IV
Formation of socio-religious identities- Hindu consciousness; Muslim solidarity; Sikh identity; issues of conflict and competition; agents of social change.

Essential Readings
3. Farquhar, J.N., Modern Religious Movements in India.

Reference Readings
3. Heimseth, Chailes, Indian Nationalism and Hindu Social Reform.

OPT. (V) HISTORY OF CASTE AND CASTE POLITICS IN MODERN INDIA(IN ABYANCE TILL FURTHER ORDERS)

COURSE CODE: HIS 462

Objective: To trace the evolution of caste and caste politics in modern India.

Pedagogy: Class lectures, tutorials, discussions.

Note: The candidate will be evaluated on the basis of a written examination (80 marks) and Internal Continuous Assessment (20 marks). In the written examination, the question paper will have the following format:
The maximum marks in this paper/option will be 80 and duration of written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions from the list of concepts and terms, given below. The candidate is required to attempt any 10 short questions in 25-30 words each. Each short question carries 2 marks.
Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus for each option. The paper setter will set 2 essay type questions from each unit. The candidate will attempt 4 essay type questions, selecting one from each unit. Each essay type question will carry 15 marks.

The paper setter is expected to follow the Essential Readings and set questions on the sub-themes or parts of a theme, rather than the topic as a whole.

**Concepts and Terms:**
Caste; varna system; Religious explanation of caste; occupational theory of caste; “Indian Rennaissance”; Forms of Social Discrimination; Dalit; Depressed Classes; Scheduled Castes; Harijan; Ambedkarism; Ideology of Gandhi; Non-Brahman Movement; Mahar; Reservation; Mandal Commission; Politicization of caste; Politics of inclusion; Affirmative Action; Constitutional provisions; Anti colonial movement; Upliftment.

**Unit I**
**Scope, concepts and method**
An introduction to the debates about caste; its historiography and the nature of power in society; The debate on the nature of hierarchies in society in India and the west; the caste-class conundrum; Presence of caste in the historiography of the national movement.

**Unit II**
**The period of the anti-colonial movements**
The “Indian renaissance” of the nineteenth century and the issue of caste; Manifestations of caste based exclusion; and protest against caste discrimination in the 19th and early 20th century; Efforts and inclusions based on caste during the national movement.

**Unit III**
**Creation of a formal infrastructure for social inclusion and its working**
Caste and the constitution of 1950; Antinomies in operationalising the constitutional provisions; and State sponsored social and economic welfare schemes for the upliftment of the people in a plural society; The Mandal Commission of 1979, an analysis of its recommendations; and the social and political impact on politics in modern India.

**Unit IV**
**The democratisation of India’s polity since the 1960s**
Politicisation of caste in the electoral arena, 1950-1967; the rise to power of regional parties; and their caste based successes; The politics of inclusion and its impact on national integration.

**Essential Readings**
It is recommended that the extensive collection with the A C Joshi library at Panjab University, the British Council Library, Sector 9 Chandigarh and the Central State Library, Sector 34, Chandigarh be consulted for a more extended reading list


**Recommended Readings**


PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

FACULTY OF LANGUAGES

SYLLABI

FOR

M.A. Punjabi (Semester System)
Examinations, 2015-2016

© The Registrar, Panjab University, Chandigarh.
All Rights Reserved.
APPLICABILITY OF REGULATIONS FOR THE TIME BEING IN FORCE

Notwithstanding the integrated nature of a course spread over more than one academic year, the regulations in force at the time a student joins a course shall hold good only for the examinations held during or at the end of the academic year. Nothing in these regulations shall be deemed to debar the University from amending the regulations subsequently and the amended regulations, if any, shall apply to all students whether old or new.
GUIDELINES FOR CONTINUOUS INTERNAL ASSESSMENT (20%) FOR REGULAR STUDENTS OF POST-GRADUATE COURSES of M.A. Punjabi (Semester System)
(Effective from the First Year Admissions for the Academic Session 2005-2006)

1. The Syndicate has approved the following guidelines, mode of testing and evaluation including Continuous Internal Assessment of students:
   (i) Terminal Evaluation : 80 %
   (ii) Continuous Assessment : 20 %
   (iii) Continuous Assessment may include written assignment, snap tests, participation in discussions in the class, term papers, attendance etc.
   (iv) In order to incorporate an element of Continuous Internal Assessment of students, the Colleges/Departments will conduct one written test as quantified below:
      (a) Written Test : 25 (reduced to 5)
      (b) Snap Test : 25 (reduced to 5)
      (c) Participation in Class Discussion : 15 (reduced to 3)
      (d) Term Paper : 25 (reduced to 5)
      (e) Attendance : 10 (reduced to 2)

   Total : 100 reduced to 20

2. Weightage of 2 marks for attendance component out of 20 marks for Continuous Assessment shall be available only to those students who attend 75% and more of classroom lectures/seminars/workshops.

3. It shall not be compulsory to pass in Continuous Internal Assessment. Thus, whatever marks are secured by a student out of 20% marks, will be carried forward and added to his/her score out of 80 %, i.e. the remaining marks allocated to the particular subject and, thus, he/she shall have to secure pass marks both in the University examinations as well as total of Internal Continuous Assessment and University examinations.

4. Continuous Internal Assessment awards from the affiliated Colleges/Departments must be sent to the Controller of Examinations, by name, two weeks before the commencement of the particular examination on the proforma obtainable from the Examination Branch.

SPECIAL NOTES:
(i) The theory paper will be of 80 marks and 20 marks will be for internal assessment.
(ii) For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper setter must put note (ii) in the question paper.
(iii) In the case of Postgraduate Courses in the Faculties of Arts, Science, Languages, Education, Design & Fine Arts, and Business Management & Commerce, falling under the purview of Academic Council, where such a provision of Internal Assessment/Continuous Assessment already exists, the same will continue as before.
(iv) The marks obtained by a candidate in Continuous Internal Assessment in Postgraduate Classes from the admissions of 2004 will be shown separately in the Detailed-Marks-Card (D.M.C.).
SYLLABI AND COURSES OF READING OF M.A. PART I & II (SEMESTER SYSTEM) FOR
THE EXAMINATION OF 2015-16

पाठ्यक्रम

मैथ. ई. : भाषा परिवहन

भाषा परिवहन - मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया

पाठ्यक्रमः 100

प्रश्नः 3 प्रश्नों

पाठ्यक्रमः

1. भाषा परिवहन - मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा
   (1500 श. उ. बैंगलोर)
   (i) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा
   (ii) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा

2. भाषा परिवहन (1501 श. उ. 1850 श. उ. बैंगलोर)
   (i) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा
   (ii) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा

3. मात्रवादी पाठ्यक्रम में अन्य भाषा
   (1501-1850) देश का पाठ्यक्रम

पाठ्यक्रमः

1. भाषा परिवहन - मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा
   (भारत का पाठ्यक्रम)
   (i) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा
   (ii) मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, मात्रवादी पाठ्यक्रम में अन्य भाषा

2. पाठ्यक्रमः

1. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा
2. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा
3. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा
4. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा

5. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा

6. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा

7. जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा

8. मात्रवादी पाठ्यक्रम दर्शन द्वारा दिखाया, जोधपुर में मैथ. ई. : भाषा परिवहन, मात्रवादी पाठ्यक्रम में अन्य भाषा

9. पाठ्यक्रमः

10. पाठ्यक्रमः

13. Sant Singh Sekhon & Kartar Singh Duggal, History of Punjabi Literature, Sahitya Academy, New Delhi.
पाठ 1. रामचंद्र माधव - माधव मिश्र, मराठी भाषा, माधव 30 अंक
2. रामचंद्र माधव - पंकजी आर्य, विवाद पुस्तक अध्ययन समाप्त 30 अंक
3. रामचंद्र माधव - रामचंद्र माधव पढ़ने आपात संध्या दुधार बुध 20 अंक

पुस्तिका अध्ययन
1. माधव मिश्र, मराठी भाषा-भाषा, माधव 30 अंक
(i) माधव मिश्र: पुस्तक के पृष्ठसंख्या, रामचंद्र माधव, मुंबई, यवतमाळ, जोधपुर,
(ii) रामचंद्र माधव - भाषा-भाषा, रामचंद्र माधव, भाषा-भाषा,
(iii) रामचंद्र माधव - भाषा-भाषा:-
(v) अवतरण, संस्कृत भाषा-भाषा: अवतरण वर्णालीकरण, 30 अंक
2. पंकजी आर्य: विवाद पुस्तक अध्ययन समाप्त, 30 अंक
(i) पंकजी आर्य - पंकजी आर्य, पुस्तक पृष्ठसंख्या पढ़ने विवाद पुस्तक
(ii) अवतरण, पंकजी आर्य: भाषा-भाषा, पंकजी आर्य, अवतरण, 30 अंक
3. रामचंद्र माधव - रामचंद्र माधव पढ़ने आपात संध्या 20 अंक
पीएमएटी प्रकाशन

धारण जीत: आपात (i) - भिक्षाकीण क्षणी वालिन

श्रेणी: 100
श्रेणी: 80
श्रेणी: 20

परिचय

1. भिक्षाकीण वालिन दि विवेकानन्द संपत्ति ने नियाममार्ग पाय
   (तारमण वालिन, मृदा वालिन अमि विवका वालिन दि वालिन-पानपान; विवका विवेकानन्द
   ने विवेकानन्दादि)

2. भिक्षाकीण दि जित बकी: ठूठ तरलत, मृदा गृहीत, उपास
   15X 3 = 45 भाव

3. भिक्षाकीण वालिन दि आपातम पेठ वृद्धि बृहद वृद्धि
   बृहद

बुध तरलत एक: लक्ष्मी
गय पृयत: गरीफ़ा
उपास: मृदा सुना

आपातम प्रकारः

1. आपात सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
2. आपात सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
3. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
4. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
5. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
6. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
7. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
8. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
9. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।
10. युगलशाला सिंह, युगलशाला, पुजे कुंवर युग, हुण्डारत।

उत्तर प्रदेश युद्ध अभियान, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
�ुद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश, युद्ध प्रदेश युद्ध प्रदेश,
पत्रक हेमनत निरिक्त

पत्रक ठेकर: आपका (i) - पंतप्रधान का अभियोग

बुधंप्रेम : 100
सिंहदूर : 80
निर्देश अभियंता : 20

पत्रक
1. विजयनगर में इतिहास विभाग; पंतप्रधान का अभियोग : निर्माण, रितिविधान आदि पुलिसविभाग 15 अंक
2. पंतप्रधान ने दिखाई पूर्व तहसीलदर (1960 तक पत्रक) 15 x 3 = 45 अंक
3. ना.हाँ पत्रक के आधार पर संपादक ने उठाया बांध का प्रकाश

बेंक
1. राजनीति मिश्र : परमेश्वर बापु, मिश्र अध्यक्ष, अभियोग।
2. निवेदन मिश्र मीठु, सुब्रमण्य सिद्धंत, मीठु मुख्य अध्यक्ष, सुप्रीमो।
3. संवेदन मिश्र वेष्टलः विदेशभाषा, राजनीति युद्ध, सुप्रीमो।

संपादक : पुलिसविभाग
1. लिबरेटर निमित्त, पंतप्रधान क्षेत्र, राजनीति मिश्र अभियंता, अभियोग।
2. लिबरेटर मिश्र, ने.से. मुख्य, राजनीति मिश्र अभियंता, अभियोग।
3. लिबरेटर मिश्र, आम अधिकार, तहसीलदर, राजनीति मिश्र अभियंता, अभियोग।
4. राज. क.निएट, पंतप्रधान क्षेत्र : तेजस्वी, राजनीति युद्ध, सुप्रीमो।
5. राज. क.निएट, पंतप्रधान क्षेत्र लाने अभियंता, राजनीति युद्ध, सुप्रीमो।
6. राज. क.निएट, पंतप्रधान क्षेत्र लाने पुलिसविभाग अभियंता, संवेदन युद्ध, सुप्रीमो।
7. पु. विजय मिश्र, तुलियाबाद मिश्र दी बाज़-बेंक, संवेदन युद्ध, चेन्नाइ।
8. निवेदन जयसिंह (संप.), अभियंता पुलिसविभाग अंतर पंतप्रधान क्षेत्र, राजनीति मिश्र अभियंता, 2005.
9. बवाल मिश्र विबंध (मिन.), पंतप्रधान क्षेत्र : तेजस्वी, दूर पत्रक एस.पी.डी. वर्मा, राजनीति मिश्र अभियंता, अभियोग।
10. वालदीव मिश्र ने.से. राज. बिलाई (मिन.), तुलियाबाद मिश्र अभियंता गोबिंद, तब्जज्जव।
11. निवेदन मिश्र संगु, (संप.), तेजस्वी दी बेंक, संवेदन युद्ध, चेन्नाइ।
12. निवेदन मिश्र संगु, तुलियाबाद में पंतप्रधान क्षेत्र, राजनीति मिश्र अभियंता, 1986.
13. निवेदन मुख्य विचारधारा (मिन.) तेजस्वी दी तहसीलदर, तब्जज्जव, चेन्नाइ, 2002.
14. तुलियाबाद मिश्र मुं, पंतप्रधान क्षेत्र लाने तेजस्वी तहसीलदर अभियंता, संवेदन युद्ध, सुप्रीमो।
15. निवेदन मिश्र बेंक, (संप.), तेजस्वी दी बेंक, संवेदन युद्ध, राजनीति मिश्र अभियंता, 1987.
16. निवेदन मिश्र, पंतप्रधान क्षेत्र विवरण दी बेंक, पंतप्रधान क्षेत्र विवरण निर्माण निर्माण, सुप्रीमो, 1973.
17. वालदीव मिश्र (संप.), तेजस्वी दी तहसीलदर, राजनीति मिश्र अभियंता, अभियोग।
18. वालदीव मिश्र, निताल मिश्र दी तहसीलदर दी तहसीलदर अभियंता, संवेदन युद्ध, चेन्नाइ, 2006.
19. ब. तेजस्वी मिश्र (संप.), अभियंता विद्युत परियोजना, राजनीति वाघरो, संवेदन रिहाई, 1975.
20. ब. तेजस्वी मिश्र, पंतप्रधान क्षेत्र विवरण क्षेत्र, राजनीति मिश्र अभियंता, 2009.

उपविन्यास रैटे/उत्तराधिकारी कार्यालयः

सिद्ध राजप्रेम ने दिखाए बैंक के रूप में दुकान भंडारण को 5 माह पूर्व समर्पित किया। दुकान राजप्रेम ने दिखाए बैंक को 5 माह पूर्व समर्पित किया। ज्ञान 20 माह बंद करने विकृत की की दुकान भंडारण के लिए 12 माह के लिए दुकान भंडारण के लिए दुकान भंडारण के लिए पहुंचा।

पुलिसविभाग में पहुँचे बंद किया विवरण, दुकान बंद किया विवरण, दुकान बंद किया विवरण कार्यक्रम के लिए 50 माह पूर्व दुकान भंडारण के लिए 50 माह पूर्व दुकान भंडारण के लिए 50 माह पूर्व दुकान भंडारण के लिए.
प्रमुख पृष्ठ

पत्र चैत्र: आप्रवास (ii) - पैदली बागड़ी का अधिवेशन
बुध गर्दन: 100
स्थिति: 80
मात्र: 3 पुस्ते

प्रत्यय

1. बागड़ी: विविधता दे विविधता, पैदली बागड़ी दे निर्माण, निर्माण दे पूर्वीति 15 अंक
2. जितित पूर्वी बागड़ीवर्ती दे अधिवेशन 15 × 3 = 45 अंक
3. मूले प्रत्यय मुंडे आप्रवास संबंध हुंडवां बाके पूर्व बेवान
बेवान
1. मूल मिश मेंडे, 'माधव', राहुल कुमार, आर्यन्त
2. सुल्तान मिश विविध, 'दुधालें', आयामी प्रवक्तासेन, मिंनी, 1987
3. विविध मिश, 'बैद्य बुद्ध', चौराट पूर्वसर, विविधाता

पुस्तकों (प्रत्यय)

1. उद्धवत्ति मिश, सरकारिय मिश (बोस्टन), पैदली बागड़ी: शहीद पूर्वीतिक, बुध राहुल रेवा पूर्वीतिक, आर्यन्त
2. तुलसीदास मिश कोव, विदिती बागड़ी अनि पैदली विदिती बागड्डी, मी अवलोक धुंडवाट, आर्यन्त
3. दी. आ. वितेश, पैदली बागड्डी अप्रवास, भाप बीमा पूर्वसर, मनिन्दर।
4. सर्वोच्च स्तर गुलाब, बागड्डी दी फिक, 'संयुक्त पूर्वसर, चेन्नाई', 2006
5. सुल्तान मिश ऑटो, 'दुधालें पैदली बागड्डी: विविधता- Harold अप्रवास, आयामी प्रवक्तासेन, मिंनी।
6. विविध मिश, अंगेती दे साहित्य, पैदली पूर्वेन्द्रिक, परिभाषः।
7. विविध मिश, फिल्म से प्रवक्तासेन, राहुल पूर्वेन्द्रिक, मिंनी।
8. आर्यन्त मिश, विविधतिक, सरकारियबंध पूर्वसर, चेन्नाई।
9. विविध मिश भौस स्वामी (बोस्टन), पैदली बागड्डी फिक, 'संयुक्त' दे विविध, विविध प्रवक्ता, अवलोक, आर्यन्त。
10. सर्वोच्च मिश भुजस, पैदली बागड्डी: निर्माण, निर्माण दे विविध, पैदली पूर्वेन्द्रिक, परिभाषः।
11. दी. आ. वितेश, सुल्तान मिश विविध: राहुल दे विविध, पैदली पूर्वेन्द्रिक, परिभाषः।
12. सुल्तान मिश भौस स्वामी, 'पौराणिक मिश दो बागड्डी: गुप्त दे विविध, संयुक्त पूर्वसर, चेन्नाई', 2007
13. सुल्तान मिश भौस स्वामी, विविधतिक अनि पैदली बागड्डी, संयुक्त पूर्वसर, चेन्नाई, 2007
14. सर्वोच्च मिश विध, पैदली बागड्डी का पूर्व से भाग, मिश विविध, आर्यन्त।
15. सर्वोच्च मिश विध, पैदली बागड्डी का पूर्व से भाग, मिश विविध, आर्यन्त।

पेपर मैट्रिक/पॉलिभास दृष्टि ग्राफिकः

प्रमाण पत्र के दिम दिवंग एंटर्स आउट 9 माइल उंदे मार्गो। पैरिस एंटर्स आउट राहूं राहूं दिवंग इंने दे, पुनः 45 अंकं बारे दिवंग इंने दे माइल उंदे मार्गो। दोन्ह 20 अंकं बारे दिवंग इंने दे, 12 अंकं दिवंग इंने दे माइल उंदेमार्गो।

पौराणिक अनि पैराफिस्ट दिवंग इंने, पुनः दिवंग इंने दिम प्रकाश बारे उंदे डोयनो। दोन्ह दिवंग दे माइल उंदे इंने दे माइल उंदे मार्गो। दोन्हें दिवंग प्रकाश दे दिवंग 50 माइल इंने दे बारे उंदे डोयनो।
भाषाज्ञान – आधुनिक पंजीकृत वाच्य प्रकार अवधी विचारक एवं गृहि

श्रेणी: 3 पट्टे

पन्तपना
1. भ्रमण परिभाषा - आधुनिक पंजीकृत वाच्य प्रकार अवधी विचारक एवं गृहि 45 अंक
   (i) सुवाची मार्गदर्शन
   (ii) तुम्ही लूकाच : भूल संवेदन
   (iii) तुम्ही उमेद : पुतूल संवेदन
2. विचारविश्वास - 15 अंक
   (i) भ्रमणीय वाच्य 'सिंग' सिंग बाबुर
   (ii) आधुनिक वाच्य 'सिंग' सिंग बाबुर
   (iii) वाच्य लेख बण वण
3. मुर्दे परमाणु ड्राइंग्ड ड्राइंग्ड अवधी ज्योत्तिर्लेखा 20 अंक
   (i) अस्ति निकुंद, निकुंद निकुंद निकुंद निकुंद
   (ii) अनुभवाची मार्गदर्शन नंदा देवा, राजीव नंदा देवा, जयशंकर, शंकर
   (iii) भाषासम्बन्धी मार्गदर्शन वाच्य नंदा देवा, राजीव नंदा देवा, जयशंकर, शंकर

श्रेणी: 5 पट्टे

पन्तपना
1. भ्रमण परिभाषा - 45 अंक
   (i) सुवाची मार्गदर्शन
   (ii) तुम्ही लूकाच : भूल संवेदन
   (iii) तुम्ही उमेद : पुतूल संवेदन
2. विचारविश्वास - 15 अंक
   (i) भ्रमणीय वाच्य 'सिंग' सिंग बाबुर
   (ii) आधुनिक वाच्य 'सिंग' सिंग बाबुर
   (iii) वाच्य लेख बण वण
3. मुर्दे परमाणु ड्राइंग्ड ड्राइंग्ड अवधी ज्योत्तिर्लेखा 20 अंक
   (i) अस्ति निकुंद, निकुंद निकुंद निकुंद निकुंद
   (ii) अनुभवाची मार्गदर्शन नंदा देवा, राजीव नंदा देवा, जयशंकर, शंकर
   (iii) भाषासम्बन्धी मार्गदर्शन वाच्य नंदा देवा, राजीव नंदा देवा, जयशंकर, शंकर

येथे मैत्री/लिखिता लिहिला काही निर्देशित?

लिखत ज्ञान दरम्यान उच्च 9 चिन्ह 'नंदा देवा' अतिरिक्त 12 चिन्ह 'पंजीकृत' अतिरिक्त 50 चिन्ह 'उच्च तालिका' देखील.
प्रभाव धृति: 

प्रभाव (i) - मप्यवर्ती पंथारी वर्ष-II

संख्या: 3 पृष्ठ

पाठभाषा

1. मप्यवर्ती, संकल्पना रुद्रि पूर्वतीजीय

(प्रभाव वर्ष-वर्ष-रजि, मप्यवर्ती धृति रुद्रि विवर्तन बिधि दे पुरष धृति अन्ये
पूर्वतीजीय)

2. नववर्ष दे दिन पुरुष वर्ष: ठुँड अनन्त रंग, कूलू दांब, स्रोत देखि सिद्ध

3. मप्यवर्ती पाठक हुई अपनाई बिधि हुईं राहु प्राप्त

विषय

1. ठुँड अनन्त: संविधानी
2. कूलू माप: वादिमां
3. ठुँड देखि सिद्ध: केंद्री डी जान

संग्रहित प्रमाण

1. अनुद विधि, नियुक्तिविधि, सर्वोस्तम माप, तुम्फितरा।
2. अनुद विधि, संकल्पना, संबंधी रूपान्तर धृति, धृति वर्ष।
3. संबंधी विधि, धृति वर्ष भ्रमणी किडी, साभें बुम माप, तुम्फितरा।
4. उल्लिखित विधि, असंबंधी अन्ये अग्रिमाल, वापसपुला धर्मभावना, किन्ही।
5. तुलनात्मक विधि, मुक्त वर्ष दे भ्रमण, हुई राजन सेव शुद्धिकारक, संबंधी।
6. संबंधी विधि (संबंध.) पंथारी गुढ़ी वर्ष धृति धृति, धृति फलनर धृति, संबंध।
7. धर्म विधि, संबंधी वर्ष भ्रमणी अग्रिमाल, धृति काँगड़ धर्मभावना, तुम्फितरा।
8. उल्लिखित विधि, थूड़ दे भ्रमण, ठुँड राजन असंबंधी शुद्धिकारक, संबंधी।
9. भ्रमण विधि, थूड़ दे भ्रमण, पंथारी घुड़ी वर्षी (अघ्रांश) अ. संबंधी विधि, धर्मभावना धृति, धृति फलनर।
10. जन्म धृति धृति, हुई राजन सेव शुद्धिकारक, संबंधी विधि, धृति फलनर।
11. नीम धृति धृति, हुई राजन सेव शुद्धिकारक, संबंधी विधि, पंथारी घुड़ी, धर्मभावना।
12. नीम धृति, हुई राजन सेव शुद्धिकारक, धर्मभावना धृति, धृति फलनर।
13. उल्लिखित विधि दीवें, हुई राजन सेव शुद्धिकारक, संबंधी विधि, पंथारी घुड़ी, धर्मभावना।
14. जन्म धृति धृति (संबंध.), पंथारी घुड़ी वर्ष शुद्धिकारक, पंथारी धर्मभावना, तुम्फितरा।

प्रभाव कीमत/परीक्षेप रोज पश्चिमवर्ती:

एक पृष्ठ दे भिंत क्रम उद्धार अदल 9 मात्रक रुपये साठा। परचेद पृष्ठ अंदर बाहर क्रम क्रम विळें दे, दुसे 45 अंदर बाहर क्रम क्रम विळें दे मात्रक उद्धार रुपये युक्त। के 20 अंदर बाहर क्रम क्रम विळें दे अदल 12 मेहम पुरुष रुपये मात्रक उद्धार युक्ती साठा।

परीक्षेप रोज़न से परचेद क्रम क्रम विळें दे, दुसे क्रम क्रम विळें दिन मात्रक बाहर रुपये युक्त। दुसे क्रम क्रम मात्रक बाहर क्रम क्रम विळें दे मेहम पुरुष रुपये मात्रक 50 मात्रक दे रूप रुपी अन्वेषन।
प्रश्न मेंवर्ग (iii) - मुद्रा, विशेष अन्देश दीया वार्षिक
बजट मंडळ : आयकता

मात्रा : 3 पीएम

पाठथर
1. विकास, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15 अंक
2. प्रवर्तक नाम, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15×3=45 अंक
3. सहायक पाठथर वर्षीय आयकता मंडळ वर्षीय प्रवेश पत्र के प्रारंभ

वेळा
1. सूर्यवती वार्षिक - श्री-उदयनाथ
2. पाठशाला वार्षिक - विद्याके क्यों-आपणे
3. व्यापार भूमिगत : संस्था वित्तीय वंश वंशीय वंशीय वंशीय वंशीय

मार्गशीर्ष पुस्तक
1. वित्तशास्त्र विभाग वर्ष, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15 अंक
2. वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15×3=45 अंक
3. सहायक पाठथर वर्षीय आयकता मंडळ वर्षीय प्रवेश पत्र के प्रारंभ

वेळा
1. सूर्यवती वार्षिक - श्री-उदयनाथ
2. पाठशाला वार्षिक - विद्याके क्यों-आपणे
3. व्यापार भूमिगत : संस्था वित्तीय वंश वंशीय वंशीय वंशीय वंशीय

हाउस मैंटेनेंस/वातावरण कार्यक्रम

रूपरेखा
1. फिल्म प्रदर्शन, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15 अंक
2. प्रवर्तक नाम, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15×3=45 अंक
3. सहायक पाठथर वर्षीय आयकता मंडळ वर्षीय प्रवेश पत्र के प्रारंभ

वेळा
1. सूर्यवती वार्षिक - श्री-उदयनाथ
2. पाठशाला वार्षिक - विद्याके क्यों-आपणे
3. व्यापार भूमिगत : संस्था वित्तीय वंश वंशीय वंशीय वंशीय वंशीय

हाउस मैंटेनेंस/वातावरण कार्यक्रम

रूपरेखा
1. फिल्म प्रदर्शन, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15 अंक
2. प्रवर्तक नाम, विभाग वेश्या पुस्तकीय प्रसार (अंतरिक्ष, सूरज, वायु, मानव, जीवन, वर्षा, वादन) 15×3=45 अंक
3. सहायक पाठथर वर्षीय आयकता मंडळ वर्षीय प्रवेश पत्र के प्रारंभ

वेळा
1. सूर्यवती वार्षिक - श्री-उदयनाथ
2. पाठशाला वार्षिक - विद्याके क्यों-आपणे
3. व्यापार भूमिगत : संस्था वित्तीय वंश वंशीय वंशीय वंशीय वंशीय
समर्थन सूत्र :
पद 4 अंक

1. 
2. 
3. 

वचन

पद 15 अंक

सभी पृष्ठ कट्टर भाग

पेपर मेड एवं पीयरिज्मर कोड रजस्तान : 

सुनते हैं दित रजस्तान की हालत के लिए पूरी जानकारी और सुनाई डालते हैं।
प्रमेयत दुनार्थ
प्रमेय अंक (ii) – पंथपीयी अंदे पंथपाईयी पंथपीयी बढ़ाती दे अर्पितक

उद्देश्य : 100
शब्दांश : 80
हेतु अंकमात्र : 20

1. बढ़ाती: विवरण अंदे विवरणस्वती, बढ़ाती: मिसाल, पंथपीयी अंदे पंथपाईयी पंथपीयी 15 अंब

2. दे पंथपीयी अंदे दिवस पंथपाईयी पंथपीयी बढ़ाती दे बढ़ाती मंदव्य

3. मार्च पाठांक दे अर्पित, संपेध मंदव्य दे बढ़ाती दे पंथपाईयी पटक

वेळा

1. मंत्रां और भाषा, अंदोगुं एवं वाटरी अवस्था, दर्शन पद्धतिका, हिंदी।

2. पंथ पुस्तक, पुस्तक, संवादित पुस्तक, चैतिङ्ग

3. संवादित शिक्षा, राहत, संवादित पुस्तक, संवादित पुस्तक

महाराज पुस्तक

1. पुस्तक नाम, संवादित शिक्षा (मं.), पंथपीयी बढ़ाती: तपाइ। पुस्तक भरत, 30 सत्र यंद पूरीपालित, अधिकार

2. संजीवनीय पुस्तक बैठे, लेखक पंथपीयी भाषा बैठे, बैठे मार्च पुस्तक, अधिकार।

3. टी. मंत्रां और संवादित, पंथपीयी बढ़ाती अर्पितके, संवादित पुस्तक, मंदव्य।

4. संवादित शिक्षा दिखाय, पंथपीयी बढ़ाती विवरण दिखाय, लेखक दे संवादित, बैठे मार्च पुस्तक, अधिकार।

5. पुस्तक बैठे, अर्पितके पंथपीयी बढ़ाती: विवरण-पायदाचरण अर्पितके, अर्पितके प्रभावित, हिंदी।

6. विवरण नाम, रामेश दे स्वातन्त्र, पंथपीयी पूर्वबन्धित, पूर्वबन्धित।

7. विवरण नाम, भाषा दे पुस्तक, दर्शन पद्धतिका, हिंदी।

8. अंदेश नाम, विवरण देवी, राहत पुस्तक, चैतिङ्ग।

9. संवादित नाम देवी, राहत पुस्तक, पुस्तक अंदेश, अधिकार।

10. संवादित नाम देवी, पंथपीयी बढ़ाती दे पुस्तक, राहत नाम पुस्तक, पुस्तक अंदेश, अधिकार।

11. अन्यसंसाद बैठे (मं.), पंथपीयी बढ़ाती नाम, मुद्रा दे नाम, चैतिङ्ग भरत पूर्वबन्धित, अधिकार।

12. संवादित नाम देवी, पुस्तक पुस्तक, पुस्तक पुस्तक बैठे, संवादित पुस्तक, चैतिङ्ग, 2007

13. न. भव्यक संबंधित नाम (मं.), राहत पुस्तक, दे मंदव्य, संवादित पुस्तक, चैतिङ्ग, 2003

14. न. भव्यक मार्च संबंधित नाम (मं.), राहत पुस्तक दे मंदव्य, संवादित पुस्तक, चैतिङ्ग, 2004

15. न. भव्यक मार्च संबंधित नाम (मं.), राहत मार्च संबंधित नाम (मं.), राहत का मार्च, भाषा अंदे पुस्तक, गिरिंद्र, 2006

16. न. भव्यक संबंधित नाम, भाषा दे पुस्तक, बढ़ाती पंथपीयी बढ़ाती, राहत पुस्तक पुस्तक पुरुषार्थी, अधिकार, 1998

17. न. भव्यक संबंधित नाम, भाषा दे पंथपीयी पुस्तक, राहत पुस्तक पुस्तक पुरुषार्थी, अधिकार, 2005

18. न. भव्यक संबंधित नाम, पंथपीयी मार्च दे पंथपीयी पुस्तक, राहत पुस्तक पुस्तक पुरुषार्थी, अधिकार, 2007

19. न. भव्यक मार्च संबंधित नाम, पंथपीयी बढ़ाती, संवादित पुस्तक, संवादित पुस्तक, चैतिङ्ग, 2012

20. न. भव्यक मार्च संबंधित नाम (मं.), मंत्रां नाम दी है, मंत्रां नाम दी है, दी, पंथपीयी पुस्तक, अर्पितके।

21. न. संवादित नाम संवादित, भाषा विवरण (मं.), संवादित नाम संवादित, संवादित पुस्तक, चैतिङ्ग, 2012

22. मंत्रां चार, मंत्रां दे मार्च, दी, मार्च पुस्तक, अधिकार, 1987

23. संवादित नाम दी, मार्च अंदे पंथपीयी मार्च, संवादित पुस्तक, चैतिङ्ग, 1998

24. मार्च मार्च दी, पंथपीयी मार्च, पंथपीयी मार्च, पुस्तक पुस्तक पुरुषार्थी, अधिकार।

प्रमेय अंक/प्रमेयका अंदे मंदव्य:

मंत्रां दे देवता दृष्टि अंक देवता अंक 9 मंदव्य दृष्टि मंदव्य। प्रश्न पंथपीयी मार्च बढ़ाती दे अंक 45 मंदव्य बढ़ाती दे मंदव्य 9 मंदव्य। उद्देश्य 20 अंक बढ़ाती दे अंक 60 मंदव्य 12 मंदव्य 9 मंदव्य मंदव्य।

पुस्तक प्रमेयका दे पुस्तक विवरण दी, पुस्तक पुस्तक विवरण पुस्तक बढ़ाती दे पुस्तक प्रमेयका दे मंदव्य पुस्तक देवता दृष्टि प्रमेय के पुस्तक प्रमेय। उद्देश्य 20 अंक दृष्टि दृष्टि 50 मंदव्य 60 मंदव्य दृष्टि प्रमेय।
SYLLABI AND COURSES OF READING OF M.A. PART I & II (SEMESTER SYSTEM) FOR THE EXAMINATION OF 2015-16

पंजाबी

भौत. दे. भाग भूषण

संबंधित जीवन

1. भाषा परिवर्तन - भाषा अंग्रेजी भाषा विभाजन 30 अंक
2. भाषा हस्ताक्षर - पंजाबी भाषा की संरचना : पंजाबी विभाजन अंग वृत्त विभाजन 30 अंक
3. भाषा जीवन - सामान्य पठानयुक्त उपयुक्त संघीय रूपांतर बहू भाषा 20 अंक

पठानयुक्त

1. भाषा अंग्रेजी भाषा विभाजन 30 अंक
   (i) संवर्तक-अवस्था: भाषा विभाजन : भाषा देश, उच्च-वृत्तीय देश, भाषा के दृष्टि: स्थिति, स्थिरता देने विभाजन; विभाजन पूर्ववर्ती अंग वृत्तीय भाषा;
   (ii) पंजाबी विभाजन-वृत्तीय संरचना अंग वृत्तीय, भूपृथ्वी: यात्रा संघीय अंग नवरथी करणों की उपयुक्तता संरचना;
   (iii) पंजाबी परिवर्तन - भाषा राय संघीय रूपांतर; भाषा, संवर्तक अंग वृत्तीय
2. पंजाबी भाषा की संरचना : पंजाबी विभाजन अंग वृत्त विभाजन 30 अंक
   (i) पंजाबी-विभाजन (phonetics): विभाजन अंग अवयवेश में, पंजाबी-वृत्तीय, संवर्तक-अवस्था अंग जीवन, विभाजन;
   (ii) पंजाबी पृथ्वी-विभाजन (phonology) : पृथ्वीमध्ये राय संघीय, पंजाबी भाषा की पृथ्वी-विभाजन: पृथ्वी पीढ़ी भाषा; अंग वृत्तीय भाषा: निर्वृत्तीय (tonal system), वृत्तीय (intonation), अंग मुद्रण अंग संरचना; पंजाबी भाषा की उपयुक्तता अंग अंग नवरथी (syllabic) संरचना;
   (iii) पंजाबी वृत्तीय विभाजन (morphology) : पृथ्वीमध्ये राय संघीय अंग वृत्तीय; पंजाबी संघीय रूपांतर अंग वृत्तीय अवयवेश रूपयुक्त, विभाजन अंग उपयुक्त (derivation and inflection)
3. भाषा जीवन - सामान्य पठानयुक्त उपयुक्त संघीय रूपांतर बहू भाषा 20 अंक

सामान्य रूपांतर

1. उपन्यास संभाषण, पूर्वार्थी विभाजन, पूर्वार्थी अवयवेश, टेक्स्ट हैंटेक्स्ट बेंच, बेंचबाइल।
2. उपन्यास संभाषण अंग अवयवेश, भाषा विभाजन अंग वृत्तीय भाषा, पर्याय चरण संघीय, स्वयंपाक।
3. संचित संभाषण पूर्वार्थी (स्वयं), भाषा विभाजन: तत्त्वार्थ में उपयोगण, पंजाबी भाषा अभावी, सहायक।
4. भूषण भाषा संभाषण, उपन्यास भाषा विभाजन, साहित्य वाच्याभास, संसाधन।
5. पंजाबी संभाषण संभाषण, भाषा विभाजन भाषा विभाजन, पंजाबी जुटाविभाजन, उपाख्यान।
6. पंजाबी संभाषण दीक्षात, भाषा: संभाषण देने संघीय, द्विवरीय उपयोग, साहित्यासन।
7. सार्थक भाषापत्र, भाषा भाषा विभाजन, पंजाबी जुटाविभाजन, उपाख्यान।
8. संचित संभाषण, पंजाबी, भूषण पूर्वार्थी: निष्क्रिय विभाषण, संघीय पूर्वार्थी, स्वयंपाक।
9. उमेद आन्तरिक, देवनागरी, उर्दू वाच्याभास, सहायक।
प्रमुखता दीना

पत्र 20: मार्गावधान, वेदनाथ भाग ये मार्गावधान

| संख्या | 3 पृष्ठ उत्तर | पत्र
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>राजा पिता - मार्गावधान आई संग्रह : मिश्रांत पढ़ा</td>
<td>30 अंक</td>
</tr>
<tr>
<td>2.</td>
<td>राजा चुना - पेंचारी मार्गावधान रान अवेदित</td>
<td>30 अंक</td>
</tr>
<tr>
<td>3.</td>
<td>मार्चे पत्र 20 उत्तर आपात संयोजन पुंजांग बनाम पुनक</td>
<td>20 अंक</td>
</tr>
</tbody>
</table>

प्रश्न 20 अंकों वाले जीवः

1. मार्गावधान आई संग्रह : मिश्रांत पढ़ा
   (i) मार्गावधान दी पुवुली आई जिला महाराष्ट्र; मार्गावधान दी पुवुली आई पढ़ा; मार्गावधान-निर्गमाधान; मार्गावधान-निर्गमाधान दी मुख संबंध; मार्गावधान निर्गमाधान दी मुख संबंध आई रेड |
   (ii) संग्रह दी पुवुली आई जिला महाराष्ट्र; संग्रह दी रेड मुख पढ़ा; निर्गमाधान निर्गमाधान; संग्रह दी मुख संबंध (संग्रह मत, संग्रह बड़ी, संग्रह निर्गमाधान, संग्रह निर्गमाधान)
   (iii) मार्गावधान आई मार्चे; संग्रह आई मार्चे इंडर संयोजन 
2. पेंचारी मार्गावधान रान अवेदित
   (i) पेंचारी मार्गावधान दी तिलाम आई बिलाम पढ़ा; विवास विशेष तंत्र; (ii) कुंडली विवास दी संग्रह आई पेंचारी मार्गावधान दी मध्य; पेंचारी मार्गावधान दी पुवुली संबंध आई रेड लोगों दी संग्रह (iii) पेंचारी मार्गावधान दी संग्रह; पेंचारी दी रेड संवदी मध्य; मार्गावधान दी मुख संबंध; मार्गावधान दी मुख संबंध; मार्गावधान दी मुख संबंध;
3. मार्चे पत्र 20 उत्तर आपात संयोजन पुंजांग बनाम पुनक

समय प्रश्न 20 अंकों

1. राजा राम मिश्रांत, मार्गावधान दी पेंचारी मार्गावधान - युगली नागा-पुंजांग, पेंचारी तरीका बेंगला तिंडर-एडर, जैमिनकर।
2. श्री. म.वं. नेहरू, पेंचारी मिश्रांत, मिश्रांत ने विवास, पेंचारी बिलाम, चेंजीतांद।
3. राजा मिश्रांत, जै मुंगडाट पाठ संदर, पेंचारी पटीबावाटी, पवित्राधार।
4. राजा मिश्रांत, पेंचारी बेंगला तिंडर-एडर, पेंचारी पटीबावाटी, पवित्राधार।
5. बेंगला देवी, पेंचारी बिलाम पवित्र बिलाम (मिश्रांत पटीबावाटी दी मध्य उंच, गृहमत सफार, तृण दिन)।
6. जैमिनकर मिश्रांत पवित्र, पेंचारी तिंडर-एडर दी दिन लुहार, बेंगला कुंड दिन, पवित्राधार।
7. मार्गावधान मिश्रांत, पवित्र विवास दी मार्गावधान, गृहमत कुंड बेंगला नाग, मध्यमाधान
8. साविकलिश मिश्रांत, पेंचारी मार्गावधान पुंजांग बिंदु, पृष्ठ पुनक, पवित्राधार।
9. जैमिनकर मिश्रांत मिश्रांत, पेंचारी पवित्र, मार्गावधान संदर, चेंजीतांद।

पंक्ति फ्रैट/पूर्वबादर भाग उपरंतूँ:

सिद्ध प्रचार दे विद्या राजा मिश्रांत आई मुख 20 मार्गावधान पुंजांग संदर। विषय में दे प्रकाशिकें संग्रह मुख बाग मीडिया मध्यम मार्गावधान पुंजांग संदर। आई मार्गावधान दी पवित्राधार संदर: मार्गावधान पुंजांग संदर। विषय में दे प्रकाशिकें संग्रह मुख बाग मीडिया मार्गावधान पुंजांग संदर।
प्रभाव विधानक: आपमा: (i) आपूर्तिक वाणिज्यी विविधता - I

वर्ण अंक:  100

श्रेणी:  80

निर्देश:  अमिटेंट 20

पाठभाग

1. बजरा परिषद: मिलांड, शिकारिया तथा वर्षा वाष्प आदि व्यापारी कर्ता आदि (आपूर्तिक वाणिज्यी विविधता, वहाँ भरि-पावता)
   30 अंक

2. निर्देश आपूर्तिक वाणिज्यी विविधता (निर्देश वर्षा-संगठन द्वारा उद्योगी प्राप्त)
   30 अंक

3. पाठभाग दुरुस्त आपूर्तिक में सुविधा सहायता और प्राप्ति
   20 अंक

वेशम

1. आदि मेला, पूरा मध्य निधि, राजस्थान तथा हिमालय
   30 अंक

2. अन्य बैंकरों वाणिज्यी विविधता, भारत मध्य निधि, आदि प्रदेश, तथा विभाग
   30 अंक

3. सूचियाँ वित्तीय, वाणिज्यी विविधता, निधि विभाग
   20 अंक

सारणिक पूर्ज्यां

1. सारणिक मध्य निधि, आपूर्तिक वाणिज्यी विविधता आदि व्यापारी कर्ता आदि व्यापारी
   30 अंक

2. सारणिक मध्य निधि, वाणिज्यी विविधता आदि व्यापारी कर्ता आदि व्यापारी
   30 अंक

3. वाणिज्यी विविधता, वाणिज्यी विविधता, निधि विभाग
   20 अंक

पेक्षा मैत्री/पूर्वायोजन रुप रचातितः

संपादित विभाग (ii)
मैमसागर जीवन

पद्धति विशेषज्ञता: आयुर्वेद (ii) : आयुर्विज्ञानी विश्लेषण लिखित - 1

चुक अंश : 100

सिघड़ी : 80

हिट : अग्रसिंह 20

संभावित लिखित

पद्धति

1. मिनाकर, अरुणदेव, पुनर्विषेषण/वार्षिक-पाठमूल पुस्तक (आयुर्विज्ञानी विश्लेषण, मात्स्यजी तमाशा-उत्तर आयुर्वेद)
   15 अंश

2. इन पुनर्विषेषण पुस्तकों दी डिग्री-डिग्री विश्लेषण उपलब्ध
   15×3=45 अंश

3. मात्रें पत्रलेखा संकेत आयुर्वेद में कई उत्तम बाह्य इशारण
   20 अंश

बैठक

1. पुनर्विषेषण सिद्ध : पुनर्विषेषण सैनिक
2. सिद्ध हस्ताक्षर: सूत्र

विशेषाधि पुस्तक

1. लेखनीय सिद्ध, आयुर्विज्ञानी वर्षि पत्रकारों से विवरण प्राप्त करने आयुर्वेद, तुम तत्त्व एवं पुनर्विषेषण, अधिराज
2. लेखनीय सिद्ध लेखन, दर्शन-विश्लेषण I भाग II, समाचार वेबसाइट (मैयर..), दंवली दुर्घटना, चंडीगढ़।
3. आयुर सिद्ध, मर्मित वचनस्तंब, अध्ययन तत्त्व ध्वस्त, चंडीगढ़।
4. उद्धरण सिद्ध, मंत्रवाङ्ग, तुम तत्त्व एवं पुनर्विषेषण, अधिराज
5. मुद्दत बिज्ञ सिद्ध, आयुर्विज्ञानी वर्षि मन्त्रवाङ्ग मार्गश्री, अध्ययन पद्धति, हिंदी।
6. मुद्दत बिज्ञ, पैसा प्रवेश: पुस्तक उपाधि, दंवली दुर्घटना, चंडीगढ़।
7. मुद्दत बिज्ञ आयुर्वेद (मैयर..), ज्योतिष: अनुशासन-मिश्रित भूमिका मिश्रित-विश्लेषण, पुनर्विषेषण आयुर्वेद, हिंदी।
8. उद्धरण सिद्ध, मुद्दत बिज्ञ: तत्त्व विश्लेषण, तुम तत्त्व एवं पुनर्विषेषण, अधिराज
9. मुद्दत बिज्ञ, दर्शन-अनुशासन, दंवली दुर्घटना, चंडीगढ़।
10. अन्तर्दर्शन सिद्ध वेबसाइट (मैयर..), पुस्तक सिद्ध, तुम तत्त्व एवं तत्त्व, मर्मित आयुर्वेद, हिंदी।
11. समाचारी, पुस्तक सिद्ध, किसान अंश, पुस्तक आयुर्वेद, हिंदी। (पुस्तक योग्य दिन है)

पेंटर फ़ैटर/प्रतिभाशाली दृष्टिकोणः

यदि पेंटर द्वारा दित क्रम शोधकों आए दुक 9 तत्त्व गुणे स्टेटों। पणि पेंटर ओवर बाह्य ब्रह्म विशिष्ट दुक, दुस्ते 45 अंश बाह्य तत्त्व विशिष्टें जें आयुर्वेद 9 तत्त्व गुणे स्टाटों। आयुर्वेद 20 अंश बाह्य तत्त्व विशिष्टें जें आयुर्वेद 12 तत्त्व गुणे स्टाटों।

प्रतिभाशाली दृष्टिकोणः पणि पेंटर ब्रह्म विशिष्ट विश, दुस्ते रंग विशिष्ट विश तत्त्व बाह्य एवं पेंटरों। ब्रह्म तत्त्व एवं तत्त्व विश एवं तत्त्व गुणे स्टाटों। तत्त्व ब्रह्म तत्त्व विश एवं तत्त्व गुणे स्टाटों। जें आयुर्वेद तत्त्व गुणे स्टाटों। एवं आयुर्वेद 50 अंश तून 30 भाग जेम्स।
प्रमेयक दीर्घा

प्रमेय वापरतः: आपके (i) : पंक्तियाँ तत्त्व अथ विवेचन द अभिमुख__

बुध अंश : 10
शिक्षाः 8
संख्या : 3 पीते

पाठभूमि

1. पंक्तियाँ तत्त्व आ विवेचन द नियम, विद्यागार दे पुश्तिवेदः
2. तिन तत्त्व तत्त्वकार द नियम, नियम तत्त्व
3. मुख्य पाठभूमि हें आपकु द नियम दे शृंखला बने दुःख

वैज्ञानिक उपलब्धि

1. सदी साली : प्रत्य प्रत्य, साबितपुरा पाबंधित, डिंडी, 1976
2. धृत मिश्र बंध, रत्नी वैदिक, तिनी दुःख बंध, साहित्य
3. आमनेर मिश्र अभिश : दह दे धही, केरली दुःख, वेंडीवाड़

पूर्वार्थ उपलब्धि

1. वनस्पति मिश्र, तत्त्व बने दे वेद केः, पूजय दुःख दिव्य, पुरातता
2. मुक्ति हरिर में, तत्त्व बने, पंक्तियाँ तत्त्व अभिमुख, पुरातता
3. सबसे तरुणी, राजसम, रचनाका कविता, डिंडी
4. जैन लघु साहित्य आ आनुबंध मिश्र कुंज, अनुवाद पंक्तियाँ तत्त्व, जैन लघु बने, साहित्य
5. महिलाविद्या मिश्र संग्रह, पंक्तियाँ तत्त्व द विद्यागार, वाक्य प्रचार, हरिर में, कविता, 1998
8. गुडिद सिद्धकर, ग्रंथ सिद्ध (गीता.), बनसेन प्रसा: प्रत्य प्रत्यक, श्रेष्ठि विवेचन, विद्यागार, 2005
9. शूरविश्वास मिश्र कुंज, पंक्तियाँ तत्त्व द विद्यागार, वाक्य प्रचार, हरिर में, कविता, 1998
10. डर. मुक्ति मिश्र (गीता.), आपकु द अभिश दो तत्त्व-लम्बी, वेंडीवाड़, दुःख, साहित्य, 2002
11. राजसंती बंध, पंक्तियाँ विवेचन लगे महिलाविद्या दे विद्यागार, सोध वापर, साहित्य

पेघा मैदान/विवेचन लगे गर्भाधिने:

किस संघे दे चित्र ग्राहे उद्देश अथौ बुध 9 अंक मूल शतांत्रो भिक्षु 10 अंक मूल शतांत्रो। पक्ष रेखें अंके अंके दर्शक शाला बिन्दुं दे, ऐसे 15 अंक मूल दर्शक शाला बिन्दुं दे। आपके 20 अंक मूल दर्शक शाला बिन्दुं दे। आपके 12 मिश्र दर्शक शाला बिन्दुं दे।

पूर्वार्थ रेखें लें दर्शक बिन्दुं दे, ऐसे बिन्दुं दर्शक शाला बिन्दुं दे। आपके 20 अंक मूल दर्शक शाला बिन्दुं दे। आपके 15 अंक मूल दर्शक शाला बिन्दुं दे। आपके 12 मिश्र दर्शक शाला बिन्दुं दे।
मेमोरियल जीवन
पाठमय यात्राओं: आयाम (ii) : पंजाबी बिंच अनुवादित बिचँच राबव-1

वस्तु अंक : 100
हितपत्र : 80
टिट्स : अभिमौत 20

पाठमय
1. स्वाभाविक एवं समाज सत्ताओं में अन्तरंग इंते पाथिवेंड 15 अंक
2. पुस्तकों, अंतर्द्वेष के समावेश विचार, सिद्ध अनुवादपत्र सत्ताओं 15×3=45 अंक
3. गद्धे पाठमय हुए आयाम पथ किथे राट बाम 20 अंक

केिन
1. तत्त्वज्ञानीय, नाटक शीतोष्ण, अल्ला. यु. अंतर्द्वेष सिद्ध, तपाइ संविधान, तवी रितिः।
2. शैक्षिकीय, मैथव, अल्ला. यु. अंतर्द्वेष सिद्ध, बहुत न्यू मेटल, तवी रितिः।
3. वर्तिभ, मैथव, अल्ला. निदर्शन सिद्ध कम, बामा विचँचा, भेंसाम, पारिमुद्रा।

मार्गदर्श पुस्तकांक
1. ब्र. तत्त्वज्ञानीय, नाटक पर भार्तीय पस्तक (पंजाबी भार्तीय: ब्र. नितिसन सिद्ध), अम. चांच अंतर्द्वेष, तवी, रितिः।
2. नितिसन सिद्ध, ब्र.माती, विश्वसन पुस्तक, अंतर्द्वेष ब्राह्मी।
3. तत्त्विभेदन पुस्तक, तवी नाटक, पवित्र सिद्ध विचँचे, पंजाबी पुस्तकसंगठन, पारिमुद्रा, 1991
4. ब्र. काांस इंटेल, बीडेबट दे भेंसा, चेतुर पुस्तक, तुःविभाषा, 2000
5. ब्र. तावशव रूपट, तुःविभाषा दे अपूर्व, चेतुर पुस्तक, तुःविभाषा, 2000
8. Auerbach, Mimesis, Princeton University Press, N.J.

पेपर मैटर/वीरियाल दही गुडबोर्डः

* पिंठ धरणूँ में दिल्ली राजा नेहव आठ वर्ष 9 मात्रक एकें समाजः। दिल्ली गुडबोर्डः अंतर्द्वेष ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्ह ब्राम्म ब्राम्म ब्राम्म ब्राम्म}
पृष्ठ ३५

भारत सेना

खंड देखिए - रंग की विवादन, उपयोग की रंग अच्छे गुणवत्ता किये

ब्रह्मण: 100

सिंहा: 80

सिंह, अधिनियम 20

पाठ १.

(१) ब्रह्मण विद्वत्ता - उपयोगि रंग की मैंसहायता: ब्रह्मण विवादन दे अधिन विवादन

(२) ब्रह्मण पुनरुपयोग - उपयोगि रंग दे विवादन, विवादन अच्छे गुणवत्ता किये

(३) ब्रह्मण टीना - उपयोगि पतल से अपने मैंसहायता पुल से काला पुल से

कुछ पतल अन्य बीमा

पाठ २.

(१) उपयोगि रंग की विवादन, विवादन अच्छे गुणवत्ता किये

(२) काला रंग, उपयोगि रंग दे विवादन, विवादन अच्छे गुणवत्ता किये

(३) काला रंग, उपयोगि पतल से अपने मैंसहायता पुल से काला पुल से

पाठ ३.

(१) उपयोगि शिका से विवादन, विवादन अच्छे गुणवत्ता किये

(२) काला रंग, उपयोगि रंग दे विवादन, विवादन अच्छे गुणवत्ता किये

(३) काला रंग, उपयोगि पतल से अपने मैंसहायता पुल से काला पुल से

अधिकतम पुमेरंगः

(१) आधुनिक शिका, सम्पूर्ण रंग की विवादन, उपयोगि गुणवत्ता किये

(२) मैंसहाय शिका, उपयोगि रंग दे विवादन, उपयोगि गुणवत्ता किये

(३) उपयोगि रंग अंग बंद्रो, रंग की विवादन अंग उपयोगि रंग, रंग का दो ढांचा, पुनरुपयोग

(४) विवादन शिका लाइन, उपयोगि रंग दे विवादन, उपयोगि गुणवत्ता किये

(५) सीमित विवादन, उपयोगि रंग (सैनिक), उपयोगि रंग दे विवादन, उपयोगि रंग अंग बंद्रो, पुनरुपयोग, संबंध

(६) विवादन मैंसहाय, उपयोगि रंग दे विवादन, उपयोगि गुणवत्ता किये, सहयोग, संबंध

(७) सीमित विवादन, उपयोगि विवादन शिका दे विवादन, विवादन अंग बंद्रो, संबंध

(८) नीं. ची. शिका, उपयोगि गुणवत्ता शिका दे विवादन, उपयोगि गुणवत्ता किये, चौँटाड़

(९) पुत्री चौंटा, उपयोगि रंग दे विवादन, उपयोगि गुणवत्ता किये, चौँटाड़

(१०) पुत्री चौंटा, उपयोगि रंग दे विवादन, उपयोगि गुणवत्ता किये, चौँटाड़

(११) पुत्री शिका लाइन, उपयोगि रंग की विवादन, उपयोगि गुणवत्ता किये, सहयोग, संबंध

(१२) रंग शिका दे उपयोगि शिका, पुत्री उपयोगि रंग की विवादन, उपयोगि गुणवत्ता किये, सहयोग, संबंध

(१३) पुत्री शिका लाइन, उपयोगि रंग की विवादन, उपयोगि गुणवत्ता किये, सहयोग, संबंध

(१४) रंग शिका लाइन, उपयोगि रंग दे पुनरुपयोग, विवादन अंग बंद्रो, सहयोग, संबंध


(१६) Gill and Gleason, A Reference Grammar of Punjabi, Punjabi University, Patiala.
पहला खण्डः पंक्ति प्रारंभ में अध्ययन करना और अभिलेख

संख्या : 3 पृष्ठ

पाठकार

1.
2.
3.

प्रदर्शन

1. पंक्ति प्रारंभ में अभिलेख
   (i) पंक्ति प्रारंभ में विभाग के लिए बचावक उपभोक्ता; पंक्ति प्रारंभ में विभाग अधिक भारतीय
   (ii) पंक्ति प्रारंभ में विभाग (संस्थान, विभाग, मंडल)
   (iii) पंक्ति प्रारंभ में विभाग देखें, तान राहु भर भरा राहू

2. पंक्ति प्रारंभ में अभिलेख
   (i) विभाग अभिलेख की प्रश्न, विभाग में अधिक मजबूत भारत; पंक्ति प्रारंभ में विभाग अधिक भारतीय विभाग भारत; पंक्ति प्रारंभ में विभाग अधिक भारतीय विभाग भारत
   (ii) पंक्ति प्रारंभ में विभाग अधिक भारत; पंक्ति प्रारंभ में विभाग अधिक भारत
   (iii) पंक्ति प्रारंभ में विभाग अधिक भारत; पंक्ति प्रारंभ में विभाग अधिक भारत

3. मार्च पाठकृत पुस्तक अध्ययन विभाग अध्यात्म बच्चों का प्रभाव

राम विल्लियम्स, Culture, Fontana Publication.

राम विल्लियम्स, Culture, Fontana Publication.
प्रत्येक प्रश्न : अंक (i) : आरुतिच पतंगी तत्वाचार - II

संख्या : 3 पृष्ठ

प्रश्नमाला

1. निर्माण, निर्माण पुरुषों/वाली-पतंग भोजन के पुरुषों
   (पालकों पतंगों वाली-संरक्षण, वाली-पुरुषों भोजन के तुकाराम)
   15 अंक

2. दिति सम्बन्धित पतंगी कवी
   (सिंह-सिंह तत्व के उत्तरें रचना)
   15×3=45 अंक

3. मूँटे प्रश्न पूर्ण उत्तर आपातक केंद्र विचार केंद्र बाह्य पाठ
   20 अंक

लेख

1. पोश द्रुपण, भ. सनातन
2. प्रत्येक सम्बन्धित बिंदु, भन्न, सम्बन्ध बूढ़ भन्न, तुकाराम।
3. तत्वाचार ही दक्षिण, सनातन भाव, वंतीव पुरुष, चंद्रीजुज।

समालौक वक्तव्य

1. भ. वेंसन मिस्ट्री भाव, वाली-विचार-1, भ. वाली-विचार 11, वंतीव पुरुष, चंद्रीजुज।
2. बनंतीव मिस्ट्री, अपरिहार पतंगी वाली-पतंग भोजन के विश्वव्याप्त भाव, बूढ़ तत्व के पुरुषों भोजन, भोजन।
3. उन्मलित मिस्ट्री निष्ठ, भाव : सीखें वेंत, पन्नारी पुरुषीकरण, भहराम।
4. उन्मलित मिस्ट्री निष्ठ, वंतीव पुरुष, वेंसन भाव कुछ भी परिवार, भोजन।
5. देवा भाव, भावी पतंगों भावी: स्मारकों भुकंड, चंद्रीजुज भवन, चंद्रीजुज।
6. देवा भाव, पतंगी भवन: छूटे पतंग मेंक, चंद्रीजुज भवन, चंद्रीजुज।
7. देवा भाव, वंतीव विचार: पुरुष भवन, चंद्रीजुज भवन, चंद्रीजुज।
8. देवा भाव, वंतीव भवन: पुरुष भवन, चंद्रीजुज भवन, चंद्रीजुज।
9. देवा भाव, वंतीव भवन, वंतीव पुरुष, चंद्रीजुज।
10. देवा भाव, वंतीव भवन, चंद्रीजुज।
11. प्रविधः मिस्ट्री दु:स अतीत तत्व (मैंप्र.), वंतीव पुरुष ही विचार एक बैठने, पतंगी अंकाभाव, दिन्दा।
12. सनातन मिस्ट्री (संपार.), भ. सनातन मेंक, वंतीव बैठकांग, सम्भव।

प्रश्न शेत/वायुधित तद्देश गोविंदियाँ:

शिंग पार्श्वे दे तितक घर्म उद्धेक अंकां वें उव 5 तरह पूर्ण सत्त्वों। उपनिषद पार्श्वे अंकां बाहेर घर्म बिंदु दृश्ये दृश्ये, दृश्ये 45 अंकां बाहेर घर्म बिंदु दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये 25 अंकां बाहेर घर्म बिंदु दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये दृश्ये 50 अंकां वें उव 5 तरह पूर्ण शेत के बौद्ध शेत के बौद्ध शेत।
पत्रक गतिविधियाँ: अप्रैल (ii) : अपूर्व क्षणिक गतिविधि पंजीकरण - II

प्रमेयता संवेद

पत्रकार

1. भिन्न लेख निबंध, 1947 ई. बारे में लिखने की लघु गतिविधि देने का अधिकार अद्यावधि: 15 अंक

2. दे अपूर्वक वर्तमान की लघु-क्रिया गतिविधि वापस देना 15×3=45 अंक

3. साधने पत्रकार ध्यान अपनाएँगे-संकेत दिखाएँगे बहुत कुछ 20 अंक

बैग्स

1. निर्देश दे विषय जी अपवाद: समर्थ निदेश संबंधी

2. निर्देश दे विषय, उत्तराधिकारिक निदेश, तथ्य परिस्थितियों, दिनों

मार्गस्थल प्रमाण

1. डा. वेंकट सिंह वेंकट, वर्ग-विभाग-1, अड्डे वर्ग-विभाग II, ठेंदवाडु पुलिस, चेन्नई।

2. भिन्न लेख निबंध, निलस्मी विवरण गतिविधि निदेश, तथ्य परिस्थितियों, दिनों।

3. साधने निदेश, पत्र प्राप्त कार्य, प्रत्यक्ष पुलिस, वहींलागें।

4. स्थानीय निदेश, निलस्मी विवरण: निश्चित निदेश, ठेंदवाडु पुलिस, चेन्नई।

5. निर्देश निदेश, वर्ग विवरण, ठेंदवाडु पुलिस, चेन्नई।

6. भिन्न लेख निबंध, वनग्रंथी समर्थ निदेश देवी, तथ्य परिस्थितियों, दिनों।

7. समर्थ निदेश संबंधी, वर्गीय प्राप्त कार्य मौलिक, पंजीकरण करीबस, पारिपार्श्व।

8. समाप्ति निदेश मौलिक (संग्रह.), उत्तराधिकारिक निदेश, ठेंदवाडु पुलिस, चेन्नई।

प्रमाण पत्र/पूर्वाधिकार दरों उपाधि:

दिन बारे में दे दिनक्रिया वेस्टों अद्यावधि कुछ 9 गतिविधि पहुँच देने। पहिले पेमेंट अंकों बांटे गर्दा विचित्र दे, इन्हें 45 अंकों बांटे गर्दा विचित्र दे दें आंकों दे 12 में पहिले डिल्ली बांटे मार्ग पहुँच देने।

पूर्वाधिकारी दे पहिले गर्दा विचित्र दिन, इन्हें बांटे शिखर संकेत बांटे वेस्टों। जीते बांटे मार्ग विचित्र सम गतिविधि के में पहिले डिल्ली बांटे वेस्टों। दिन बांटे विचित्र ध्यानचुनावी बंधे मार्ग बांटे वेस्टों। जीते में पहिले पहुँच लांड डिल्ली 50 मार्ग बांटे बंध तयों उपयोग।
ਸਬੰਧਤ ਦੇਵਾਤ

ਪੁਸ਼ਤਾ ਮੇਧਾਂ : ਅਗਾਧਾ (i) : ਪੁਸ਼ਤਾ ਤਰੰਗ ਅਨੇ ਇਤਕੇਤਾ ਦਾ ਅਧਿਕਾਰ-II

ਵਰਤਨ ਅੰਗਾ : 100
ਸਿਖਿਆਂਤ : 80
ਸਹਨ ਅੰਗਾ : 3 ਪੇਟਿਂਗ

ਪੰਥਮੁੰਡ

1. ਪੁਸ਼ਤਾ ਤਰੰਗ ਅਨੇ ਇਤਕੇਤਾ ਦਾ ਸਿਧਾਂਤ, ਸਿਧਾਂਤਾਂ ਤੇ ਪੁਸ਼ਤਾ ਤਰੰਗ
2. ਸਿਧਾਂਤਾਂ ਦੀ ਹਲਕਾ (ਹਲਕਾ ਸਿਧਾਂਤ-ਸਧਨਾ ਦੇ ਸਿਧਾਂਤ ਤਰਨਗ)
3. ਪੁਸ਼ਤਾ ਪੰਥਮੁੰਡ ਤੇ ਅਧਿਕਾਰ ਮੇਧਾਂ ਹੁਣਵਾਂ ਵਾਲਾ ਪੰਥ

ਵਿਦਵਾਨ

1. ਸਿਧਾਂਤਸ਼ਾਸਤਰੀ ਸਿੰਘ, ਸਿੰਘ ਬਰੱਤ, ਸੰਸਥਾਣ ਦੁਆਰਾ ਪੰਥ, ਦਿੱਨੀ।
2. ਆਤਮਨੀਮਾ, ਵੈਦਿਕ ਉਸਤਾ ਮੁਦੀਨ, ਹੰਸ ਤੀਜਾ ਪੁਰਾਣਾ ਪੰਥ, ਹੰਸ ਤੀਜਾਂ।
3. ਅਧਿਕਾਰ ਮੇਧਾਂ, ਸਾਰਿਸ਼ਿ, ਸ਼ਾਨਾ ਪੰਥ, ਲੁਕਾਸ਼ਟਾ।

ਅਧਿਕਾਰ ਪੰਥਮੁੰਡ

1. ਕੁ. ਦਰਿਸ਼ਤ ਸਿੰਘ, ਸਿਧਾਂਤਸ਼ਾਸਤਰੀ ਸਿੰਘ ਦੇ ਸਧਨਾ ਦਾ ਅਧਿਕਾਰ ਮੇਧਾਂ ਦਾ ਅਧਿਕਾਰ, ਹਿੰਦੂਵ ਪੰਥ, ਦਿੱਨੀ, 2003
2. ਕੁ. ਮੰਨੀਚ ਸਿੰਘ (ਐਚਐੱਚ.), ਵੈਦਿਕ ਉਸਤਾ ਮੁਦੀਨ, ਸੰਸਥਾਣ ਦੇ ਅਧਿਕਾਰ ਮੇਧਾਂ, ਹੰਸ ਤੀਜਾ ਪੰਥ, ਹੰਸ ਤੀਜਾਂ।
3. ਕੁ. ਸਿਰੀਸ਼ਤ ਸਿੰਘ (ਐਚਐੱਚ.), ਸਿਧਾਂਤਸ਼ਾਸਤਰੀ ਸਿੰਘ ਦੇ ਅਧਿਕਾਰ ਮੇਧਾਂ, ਹੰਸ ਤੀਜਾ ਪੰਥ, ਹੰਸ ਤੀਜਾਂ।

ਪ੍ਰਾਪਤ ਮੀਟਾ/ਵੋਨਿਕ ਪ੍ਰਚੁੱਲਣ ਕਿਸੀ ਵਾਦੀਆਂਤ:

ਸਿਧ ਪੰਜਾਂ ਦੇ ਸਿਧਾਂਤ ਤਰੰਗ ਦੇ ਵਧੀਆਂ ਵੇਂ ਵਧੀਆਂ ਤਰੰਗ ਸੇਵਾ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਹੁਣਵਾਂ ਵਾਲੇ ਵੀ ਹੁਣਵਾਂ ਵਾਲੇ ਵੀ ਹੁਣਵਾਂ ਵਾਲੇ 

ਪ੍ਰਚੁੱਲਣਕਤਵ ਤੇ ਪੰਜਾਂ ਦੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ 

ਦੋਹਾਂ ਦੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ 

ਦੋਹਾਂ ਦੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ ਵਾਲੇ 

ਦੋਹਾਂ ਦੇ ਵਧੀਆਂ ਵਾਲੇ ਵਧੀਆਂ 

ਦੋਹਾਂ ਦੇ ਵਧੀਆਂ 

26
प्रकाशित द्वारा: अथवा (ii): ऐतिहासिक अनुवादित विषय वर्ग-II

<table>
<thead>
<tr>
<th>संख्या:</th>
<th>3 पृष्ठ</th>
<th>पृष्ठभूमि</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>तराख से सिपाह नहीं सिकाए और सुपारी का बदला</td>
<td>15 अंक</td>
</tr>
<tr>
<td>2.</td>
<td>थिएटर महाकाव्य का रूपकण (विशेष रूप से स्वागत दिन)</td>
<td>15×3=45 अंक</td>
</tr>
<tr>
<td>3.</td>
<td>मायूर प्रतिभा की आपातकाल में उपन्यास का पृष्ठभूत</td>
<td>20 अंक</td>
</tr>
</tbody>
</table>

वेबसाइट

3. Eric Bentley (ed.), The Playright as Thinker, Medidian Books, 1965

प्रकाशित द्वारा: अथवा (iii): ऐतिहासिक वाक्य एवं अनुवाद

<table>
<thead>
<tr>
<th>संख्या:</th>
<th>3 पृष्ठ</th>
<th>पृष्ठभूमि</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>पंतप्रधान बाबू: मिसाल, विश्वास के पुरुष सत्य</td>
<td>15 अंक</td>
</tr>
<tr>
<td>2.</td>
<td>मिसाल भावना बाबू वचन (विशेष रूप से स्वागत दिन)</td>
<td>15×3=45 अंक</td>
</tr>
<tr>
<td>3.</td>
<td>मायूर प्रतिभा की आपातकाल में उपन्यास का पृष्ठभूत</td>
<td>20 अंक</td>
</tr>
</tbody>
</table>

वेबसाइट

1. सतत-साहित्य पत्रिका, पंतप्रधान पुरस्कारपत्रिका, पत्रनाटक।
2. सतत-साहित्य पत्रिका, (संपादक) बाबू बाबू: मिसाल के पुरुष सत्य, भारतीय सत्य, शहीद भारतीय।
3. पुरस्कार पंतप्रधान पुरस्कार, पुरस्कार मिसाल के पुरुष सत्य, पंतप्रधान पुरस्कार, भारतीय सत्य।
4. सीएम मिसाल: बाबू, बाबू वेख, पंतप्रधान पुरस्कारपत्रिका, पुरस्कार पुरस्कारपत्रिका, भारतीय सत्य।
5. पंतप्रधान पुरस्कार पुरस्कार, पंतप्रधान पुरस्कार, भारतीय सत्य, शहीद भारतीय।
6. बाबू वेख, पंत पुरस्कार, पंतप्रधान पुरस्कारपत्रिका, पत्रनाटक।

प्रकाशित द्वारा: अथवा (iii): ऐतिहासिक वाक्य एवं अनुवाद

<table>
<thead>
<tr>
<th>संख्या:</th>
<th>3 पृष्ठ</th>
<th>पृष्ठभूमि</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>पंतप्रधान बाबू: मिसाल, विश्वास के पुरुष सत्य</td>
<td>15 अंक</td>
</tr>
<tr>
<td>2.</td>
<td>मिसाल भावना बाबू वचन (विशेष रूप से स्वागत दिन)</td>
<td>15×3=45 अंक</td>
</tr>
<tr>
<td>3.</td>
<td>मायूर प्रतिभा की आपातकाल में उपन्यास का पृष्ठभूत</td>
<td>20 अंक</td>
</tr>
</tbody>
</table>

वेबसाइट

1. सतत-साहित्य पत्रिका, पंतप्रधान पुरस्कारपत्रिका, पत्रनाटक।
2. सतत-साहित्य पत्रिका, (संपादक) बाबू बाबू: मिसाल के पुरुष सत्य, भारतीय सत्य, शहीद भारतीय।
3. पुरस्कार पंतप्रधान पुरस्कार, पुरस्कार मिसाल के पुरुष सत्य, पंतप्रधान पुरस्कार, भारतीय सत्य।
4. सीएम मिसाल: बाबू, बाबू वेख, पंतप्रधान पुरस्कारपत्रिका, पुरस्कार पुरस्कारपत्रिका, भारतीय सत्य।
5. पंतप्रधान पुरस्कार पुरस्कार, पंतप्रधान पुरस्कार, भारतीय सत्य, शहीद भारतीय।
6. बाबू वेख, पंत पुरस्कार, पंतप्रधान पुरस्कारपत्रिका, पत्रनाटक।

Published by: Col. G.S. Chadha (Retd.), Registrar, Panjab University, Chandigarh.
PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. Under the Panjab University Act VII of 1947—enacted by the Govt. of India)

FACULTY OF LANGUAGES

SYLLABI

FOR

M.A. English
(Semester System)
Examinations, 2017-18

© The Registrar, Panjab University, Chandigarh.

All Rights Reserved.
APPLICABILITY OF REGULATIONS FOR THE TIME
BEING IN FORCE

Notwithstanding the integrated nature of a course spread over more than one academic year, the regulations in force at the time a student joins a course shall hold good only for the examinations held during or at the end of the academic year. Nothing in these regulations shall be deemed to debar the University from amending the regulations subsequently and the amended regulations, if any, shall apply to all students whether old or new.
GUIDELINES FOR CONTINUOUS INTERNAL ASSESSMENT (20%) FOR REGULAR STUDENTS OF POST-GRADUATE COURSES OF M.A. English/Semester System
(Effective from the First Year Admissions for the Academic Session 2005-2006)

1. The Syndicate has approved the following guidelines, mode of testing and evaluation including Continuous Internal Assessment of students:

   (i) Terminal Evaluation : 80%
   (ii) Continuous Assessment : 20%
   (iii) Continuous Assessment may include written assignment, snap tests, participation in discussions in the class, term papers, attendance etc.
   (iv) In order to incorporate an element of Continuous Internal Assessment of students, the Colleges/Departments will conduct one written test as quantified below:

   (a) Written Test : 25 (reduced to 5)
   (b) Snap Test : 25 (reduced to 5)
   (c) Participation in Class Discussion : 15 (reduced to 3)
   (d) Term Paper : 25 (reduced to 5)
   (e) Attendance : 10 (reduced to 2)

   Total: 100 reduced to 20

2. Weightage of 2 marks for attendance component out of 20 marks for Continuous Assessment shall be available only to those students who attend 75% and more of classroom lectures/seminars/workshops. The break-up of marks for attendance component for theory papers shall be as under:

   Attendance Component
   (a) 75% and above upto 85% : 1
   (b) Above 85% : 2

3. It shall not be compulsory to pass in Continuous Internal Assessment. Thus, whatever marks are secured by a student out of 20% marks, will be carried forward and added to his/her score out of 80%, i.e. the remaining marks allocated to the particular subject and, thus, he/she shall have to secure pass marks both in the University examinations as well as total of Internal Continuous Assessment and University examinations.

4. Continuous Internal Assessment awards from the affiliated Colleges/Departments must be sent to the Controller of Examinations, by name, two weeks before the commencement of the particular examination on the proforma obtainable from the Examination Branch.

SPECIAL NOTES:
   (i) The theory paper will be of 80 marks and 20 marks will be for internal assessment.

   (ii) For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

   The paper setter must put note (ii) in the question paper.

   (iii) In the case of Postgraduate Courses in the Faculties of Arts, Science, Languages, Education, Design & Fine Arts, and Business Management & Commerce, falling under the purview of Academic Council, where such a provision of Internal Assessment/Continuous Assessment already exists, the same will continue as before.

   (iv) The marks obtained by a candidate in Continuous Internal Assessment in Postgraduate Classes from the admissions of 2004 will be shown separately in the Detailed-Marks-Card (D.M.C.).

--------------
1
Objectives:

To help the students develop literary sensibility, critical thinking, and sharp, penetrating understanding of a wide range of literary texts, literary history, literary criticism/theory, and English Language/ELT.

General Notes:

1. There will be two semesters in a year with four compulsory papers in each semester.

2. Each paper shall carry 100 marks (80 marks for end-term written examination, 20 for internal assessment). The end term exam. shall be of 3 hours duration.

3. There shall be one question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes shall be context based. Though the nature of notes shall vary from course to course, efforts shall be made to cover a range of terms/concepts/trends/movements specific to the course.

4. There shall be four essay-type questions of 15 marks each (to be answered in about 600 words each), one question with internal choice will be set from each of the four prescribed texts/units.
M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

OUTLINES OF TESTS, SALLABI AND COURSES OF READING FOR M.A. ENGLISH
SEMESTER I AND II FOR THE SESSION 2017-18

Total Marks = 100
Theory = 80
Int. Assessment = 20
Time Allowed = 3hrs

M.A. PART-I

SEMESTER-I

PAPER-I: LITERARY CRITICISM - I

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:


In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1. Aristotle : Poetics (Chapters i-xvi)
Unit 2. William Wordsworth : Preface to the Lyrical Ballads (1800)

The essays of Wordsworth, Arnold, and Eliot are available in English Critical Texts edited by Enright and Chickera.

Suggested Reading:

PAPER-II: BRITISH POETRY- I

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:

- Neo-classicism
- Metaphysical Poetry
- Victorian Temper
- Victorian Compromise
- Mock Epic
- Heroic Couplet
- Negative Capability
- Supernaturalism in Romantic Poetry
- The French Revolution
- The Pre-Raphaelites
- Humanism
- Romantic Revival
- Dramatic Monologue
- Dissociation of Sensibility
- Pathetic Fallacy

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1. John Donne:
- “Satyre: Of Religion”
- “The Good-Morrow”
- “The Canonization”
- “At the Round Earth’s Imagin’d Corners”
- Batter My Heart, Three-Person’d God”

Unit 2. Alexander Pope:
- “The Rape of the Lock”

Unit 3. John Keats:
- “Ode to a Nightingale”
- “Ode on a Grecian Urn”
- “Ode on Melancholy”
- “To Autumn”
- “Ode to Psyche”

Unit 4. Robert Browning:
- “My Last Duchess”
- “Andrea del Sarto”
- “The Last Ride Together”
- “Rabbi Ben Ezra”
- “The Grammarian’s Funeral”

Suggested Reading:

PAPER III: BRITISH DRAMA-I

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:

- Liturgical Plays, Mystery and Miracle Plays, Morality Play, Chester Play, Interludes, Shakespearean Tragedy, Tragic Hero, University Wits, Shakespearean Comedy, Blank Verse, Marlowean Hero, Restoration Comedy, Comedy of Humours, Comedy of Manners, Heroic Tragedy.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1. Christopher Marlowe : Doctor Faustus
Unit 2. William Shakespeare : King Lear
Unit 3. Richard Sheridan : The School for Scandal
Unit 4. George Bernard Shaw : Pygmalion

Suggested Reading:

PAPER-IV: BRITISH FICTION-I

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:


In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1. Henry Fielding : Joseph Andrews
Unit 2. Charles Dickens : Hard Times
Unit 3. Charlotte Bronte : Jane Eyre
Unit 4. Thomas Hardy : Jude, the Obscure

Suggested Reading:

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:

Ontological Criticism, Chicago Critics, Irony and Paradox in New Criticism, Tension, Texture, Point of View, Id/Ego/Superego, Oedipus Complex, Archetypal Motifs, Shadow/Anima/Persona, Collective Unconscious, New Historicism, Ideology, Base and Superstructure, Hegemony.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

**Prescribed Texts:**

Unit 1. Formalist Approach

Unit 2. Psychological Approach

Unit 3. Mythological and Archetypal Approach

Unit 4. “Literature and History” (First Chapter of Terry Eagleton’s *Marxism & Literary Criticism*)

Units 1, 2 and 3 are based on corresponding sections from Wilfred Guerin et al., ed., *A Handbook of Critical Approaches to Literature*

**Suggested Reading:**


Total Marks = 100
Theory = 80
Int. Assessment = 20
Time Allowed = 3hrs

PAPER-II: BRITISH POETRY-II

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:


In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1  W. B. Yeats : “Adam’s Curse”
“Easter 1916”
“The Second Coming”
“A Prayer for My Daughter”
“Sailing to Byzantium”
“The Circus Animals’ Desertion”

Unit 2  T. S. Eliot : “The Love Song of J. Alfred Prufrock”
“The Hollowmen”

Unit 3  W. H. Auden : “In Memory of W. B. Yeats”
“Musée des Beaux Arts”
“September 1, 1939”
“Shield of Achilles”
“Funeral Blues”

Unit 4  Ted Hughes : “The Jaguar”
“Hawk Roosting”
“Thrushes”
“Crow Alights’”
“Crow’s Last Stand”

Suggested Reading:

M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

Total Marks = 100
Theory = 80
Int. Assessment = 20
Time Allowed = 3hrs

PAPER-III: BRITISH DRAMA-II

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:

The Drama of Absurd, The Great Depression, Realism in Drama, Drama of Ideas, Impressionism, Poetic Drama, Pastiche, Problem Plays, Thesis Play, Romanticism in Modern Drama, Symbolism in Drama, Theatre of Cruelty, Alienation Effect, Kitchen Sink Drama, Irish Movement.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Unit 1. T. S. Eliot : Murder in the Cathedral
Unit 2. Samuel Beckett : Waiting for Godot
Unit 3. John Osborne : Look Back in Anger
Unit 4. Tom Stoppard : Rosencrantz and Guildenstern are Dead

Suggested Reading:
PAPER-IV: BRITISH FICTION-II

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The short notes will be based on the following literary terms:

Stream of Consciousness, Modernism, the Bloomsbury Group, Psychological Realism, Anti Hero, Naturalism, Autobiographical Novel, Psychological Novel, Development of evolutionary Sciences, Bildungsroman, Lyrical Novel, Transitional Novel, Metafiction, Twentieth Century Realism, Colonial Consciousness in Twentieth Century Novel.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the four prescribed texts:

Unit 1. D. H. Lawrence : Sons and Lovers
Unit 2. Virginia Woolf : Mrs. Dalloway
Unit 3. Joseph Conrad : Heart of Darkness
Unit 4. William Golding : Lord of the Flies

Suggested Reading:

M.A. PART-II

SEMESTER-III

PAPER-I: LITERARY THEORY-I

Objectives:

The paper provides an important study of literary theory as an intellectual and critical activity 1960 onwards. Central to this course is the analysis of some of the major critical contributions to this area which form a benchmark in understanding the dynamics of literary/critical methods. The course takes up major strands of modern literary theory and provides a conceptual context for an understanding of the function and practice of modern literary and cultural criticism.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will test the candidate’s awareness of the history of literary theory 1960 onwards, and will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:


Suggested Reading:
M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

PAPER-II: INDIAN WRITING IN ENGLISH

Objectives:

The focus of this paper is the study of Indian contribution to literature in English, from the early advent of English in India to contemporary writing in English. The history and development of Indian Writing in English is scrutinized with reference to the Indian Nationalist Movement, the philosophical thinking of political and social leaders/activists like Mahatma Gandhi, Pandit Jawahar Lal Nehru, Raja Rammohan Roy and others. The issues raised by diasporic movements across the globe, post coloniality and the emergence of modern India is also a part of the study of this paper.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will test the candidate’s awareness of the history of Indian writing in English, and will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit I: Raja Rao : Kanthapura
Unit II: This unit will have three poets and there will be three poems by each :

Suggested Reading:

PAPER- III (Opt. i): POST-COLONIAL STUDIES I (ECS II PCS I)

Objectives: To familiarize the students with theoretical concepts related to the literatures of the 'new' world - Asian, African, Australian, Caribbean, Latin American, Canadian - which have long remained ignored; to foreground issues such as history, class, race, gender, nation, culture, marginality, diasporic consciousness, etc., emphasizing the emergent nature of literary productions from decolonized communities.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt four out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed units:

Prescribed Texts:

Unit-I. ENGLISH LITERARY STUDIES (with reference to English in India)

Unit-II. CULTURAL IDENTITY AND THE NATION

Unit-III. DEFINING FORCES: GENDER AND RACE
2. Introducing Gayatri Spivak: Woman as subaltern, subject-positions, postcolonial feminism.
3. Race: Background, classification of races, Social Darwinism and imperial practice, social construction of race; race and ethnicity.

Unit IV. CULTURAL IDENTITY AND DIASPORA
2. Introducing HomiBhabha: Concepts of ambivalence and hybridity.

Suggested Reading:
M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

PAPER-III (Opt. ii): LINGUISTICS-I (ECS II LIN I)

Objectives :
This paper is aimed to provide an introduction to the studies of language in modern times. Students are made to be aware of developments in the field of Linguistics in the 20th Century, and develop an understanding of the nature of language study through a scientific and analytical approach. An understanding of the concepts in modern Linguistics is an essential objective and the approach to be adopted is that of clear explication of linguistic thought and of the levels of linguistic analysis.

Pattern of examination
There shall be one compulsory question of 20 marks, comprising of short notes from all the units in which the candidate shall attempt four out of six short notes in 200 words each.

In addition, there will be four questions of 15 marks each i.e. one question with internal choice will be set from each of the four units. The questions from Units 1 & 2 would be Essay Type. The questions from Units 3 & 4 would be exercises (Phonetic Transcription of words with primary stress, and morphological analysis) and short notes.

Content
Unit 1. Language - nature and functions (arbitrariness of sign, speech and writing, animal and human language, conventionality, system of systems). The earlier study of language – historical, comparative approaches, a brief history of linguistics.


Unit 3. Levels of linguistic analysis I - Phonetics (speech organs, description and classification of sounds, IPA system, phonemes, allophones, minimal pairs); Morphology (free and bound morphemes, allomorphs, zero morphemes, morphophonemics).


Word formation in English; derivation, affixation, compounds.

Suggested Reading:
5. Sethi, J. and Dhamija, P.V., Course in Phonetics and Spoken English, New Delhi.
Objective:

The course examines changes in the American narrative from 1800 to the present and considers what might be distinctly "American" about American literature. It focuses on the historical and cultural influences, literary movements, the short story and novel as distinct genres and on major literary figures. It explores literature that reveals and emerges from multiple perspectives such as those of race, gender, ethnicity, socio-economic class and historical period.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will test the candidate’s awareness of the history of American fiction, and will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit I : (19th Century Short Fiction)
(b) Nathaniel Hawthorne, “Rappaccini's Daughter” (Norton)
(c) Stephen Crane, “The Open Boat” (Doubleday Press)

Unit II : (Twentieth Century Short Fiction)
(a) Ernest Hemingway, “The Snows of Kilimanjaro” (Norton)
(b) William Faulkner, “A Rose for Emily” (Random House)
(c) Joyce Carol Oates, “Scenes of Passion and Despair” (Oxford)

Unit III : Toni Morrison, The Bluest Eye (Vintage)

Unit IV : Don DeLillo, White Noise (Penguin)

Suggested Reading:

PAPER III (Opt. iv): INDIAN LITERARY CRITICISM AND THEORY I

Objective:

This paper shall focus singularly on Indian Poetics - its various schools and theories so as to provide an alternative perspective of Literary Theory from an indigenous perch. The corpus of Indian Poetics is very rich and multivalent; the paper shall however deal with basic concepts and would therefore be introductory in nature and scope. The prescribed texts are available in English translation and there is no dearth of secondary material also. The students would be encouraged to take a critical view of our own ‘poetics’ and its relevance in the postcolonial contexts.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Text

Unit I


Unit II


Unit III


Unit IV


Suggested Reading:


_______ and Dallmayr Fred, Between Traditions and Modernity: India’s Search for Identity, Delhi; Sage, 1998.


__________, *Text and Sub-text* (Delhi, Arnold Heinemann, 1989).


PAPER IV (Opt.i): CULTURAL STUDIES-I

Objectives:

The course combines a thorough training in critical and cultural studies with a diverse range of advanced options offering you scope to configure and appropriate programme of study that meets your needs. At a historical juncture of incessant theoretical discourse when English Departments are being structurally reconstituted, cultural studies becomes significant as a course that focuses on criticism as a social and cultural practice in the 20th Century. An English education is now less a concern of familiar Western Course and more a confrontation with the diversity of transnational cultural schemes and texts. Such a task sets out to situate literature in relation to culture and within larger cultural formations. The main aim of this course is to examine literary studies as a self-conscious pursuit of a ‘critical’ definition of culture.

The programme is designed to provide grounding in the theoretical debates that inform contemporary investigations in a number of areas, such as society, subjectivity, ethnicity, aesthetics, postmodern experience and cultural history. The insights and analyses of late twentieth-century forms of critique – psychoanalysis, deconstruction, and ideological and political thought – are employed to assess some key concepts of interdisciplinary study. Working within multiple contextual formations in a globalized world, the course explains the need for ongoing contest and struggle to understand ideology of mass culture and hegemony with the necessity of achieving cultural knowledge of ordinary people vs. the elites, thus drawing the student closer to a bewildering variety of local and trans-cultural politics.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit I: What is Culture?


Unit II: Culture Studies


Unit III: Culture as Discourse


Unit IV: Representation and Ideology


Suggested Reading:


PAPER IV (Opt. ii): APPLIED LINGUISTICS I

Note: There shall be one compulsory question of 20 marks comprising of short notes from all 4 Units in which the candidate shall attempt four out of six short notes in 200 words each.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the four prescribed units.

Prescribed Content:

Unit 1: Linguistics and Language Teaching- Behaviourist, mentalist and cognitivist views of language learning. The difference between learning the first and the second language. Second language acquisition. The Monitor model.


Unit 3: The notion of communicative competence. Varieties of language - social and regional dialects, pidgins and creoles, register. The significance of language variation in teaching and learning language.

Unit 4: Application of linguistics to the study of literary style: A few literary texts to be taken as examples to illustrate features of literary language-deviation, foregrounding, parallelism and poetic diction.

Suggested Reading:

PAPER IV (Opt. iii): WORLD POETRY /NOVEL IN TRANSLATION

Objectives:

The paper provides an interesting study of world poetry and novel with a view to help students develop perspective on world literature. This course is designed around canonical texts, and offers an opportunity to develop sense of what a ‘classic’ is, apart from helping students develop ways of approaching, understanding and interpreting classics.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit-1. Dante’s Inferno (Penguin)
Unit-2. Cervantes’ Don Quixote (Penguin)
Unit-3. Maxim Gorky’s Mother (Moscow: Popular Publications)

Suggested Reading:

PAPER-IV (Opt. iv) SHAKESPEARE-I

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the four prescribed texts/units.

The following topics related to Social and Literary aspects of the age of Shakespeare: The English Renaissance, The Reformation, The Rise of Regular Comedy and Tragedy, Neo-classical Comedy, Shakespearean Comedy, Shakespearean Tragedy, the Sonnets, Globe Theatre, Shakespearean Stage, the Groundlings.

The following texts for detailed study:

1. Sonnet nos.: 12 – “When I do count the clock that tells the time”
19 – “Devouring Time, blunt thou the lion’s paws”
29 – “When in Disgrace with Fortune and men’s eyes”
32 – “If thou survive my well-contented day”
46 – “Mine eye and heart are at a mortal War”
55 – “Not marble nor the gilded monuments”
65 – “Since brass, nor stone, nor earth, nor boundless sea”
71 – “No longer mourn for me when I am dead”
147 – “My love is as a fever, longing still”
152 – “In loving thee thou knowest I am forsworn”
2. Henry IV- Part I
3. Twelfth Night
4. The Taming of The Shrew

Suggested Reading:


<table>
<thead>
<tr>
<th></th>
<th>Author</th>
<th>Title and Publication Details</th>
</tr>
</thead>
</table>
SEMESTER-IV

PAPER-I: LITERARY THEORY-II

Objectives:

The paper, which is a continuation of Paper I of semester III, introduces students to some more aspects of Literary Theory. In this semester, students will be introduced to new theorists in the field of New Historicism Postcolonial Theory and Feminist Criticism.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:


Unit 2. The following three excerpts from The Postcolonial Studies Reader edited by Ashcroft, Griffiths, and Tiffin (Routledge 1995)
   ii) Homi Bhabha: “Signs Taken for Wonders”, 29-35.


Suggested Reading:

PAPER II: INDIAN WRITING IN TRANSLATION

Objectives:

There is a wealth of literature in various regional languages of India, which of late has been translated into English. The main purpose of the course would be to introduce students to the native varieties of literature. The range of texts, taken from different language-literatures, is enormous, foreclosing the possibilities of forging any essentialized idea of India. The Indianness of Indian writings, more often mapped through Indian English writings, stands questioned and challenged by the emerging corpus of the translated works. Each language-literature has its own specific forms, genres and literary style to which students would be exposed through a select list of texts/books.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit I: Novel


Unit II: Short Stories


Unit III: Drama


Unit IV: Poetry

Suggested Reading:


PAPER-III (opt. i): POSTCOLONIAL STUDIES-II

Objectives: The course concerns New Literatures in English which will introduce students to some major issues and problems common to such literatures. After centuries of colonial rule and British Literature, we find that decolonization has shown that there are simply too many writers and writing, new nations and old hegemonies to be scrutinized. This course attempts to familiarize students to literatures of the ‘new’ world – African, Asian, Caribbean and Canadian – which have remained outside discourse making for a long time. The course is introduced as a revisionary discipline which primarily focuses on interrogating the Western canon.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit-4 Margaret Atwood, Surfacing (Canada: McClelland and Stewart, 1972).

Suggested Reading:

3. Diana Brydon and Helen Tiffin, Decolonising Fictions (Sydney: Dangaroo, 1993).
PAPER-III (opt. ii): LINGUISTICS-II

Objectives:

This course is aimed at an understanding of the development of the English language and structure of modern English. Many of the Latin-based rules and prescriptive approaches to English language have given way to a descriptive account of the language at all levels. The course is expected to familiarize students with the developments in the English language up to the present.

Pattern of examination

One compulsory question of 20 marks comprising of short notes from all units, in which the candidate shall attempt four out of six short notes in 200 words each.

In addition, there will be four questions of 15 marks each i.e. one question each with internal choice will be set from each of the four units.

Content:

Unit 1. Levels of Linguistics Analysis II: The study of grammar-traditional (the latinate fallacy, the semantic fallacy) structural (IC analysis, NP and VP, phrase structure rules, practice of the diagram for analyzing sentence structure) transformational generative grammar with reference to Chomsky’s distinction between deep and surface structures, kernel sentences and transformations and familiarity with some important transformational rules, lexical restrictions.


Unit 3. Levels of Linguistic Analysis III: Theories of semantics, Synonymy hyponymy, entailment, polysemy, ambiguity (with examples from the semantics of English).

Unit 4. Diachronic changes in English- sound and spelling change and the influence of other languages on English. The development of English grammars and dictionaries. English as global language- varieties of English in Britain and around the world with special reference to Indian English.

Suggested Reading:

M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

PAPER III (opt. iii): AMERICAN LITERATURE-II

Objectives: The course explores the genres of poetry and drama focusing on major American texts that have left their mark on the culture. The works selected engage with class structures, racial, ethnic, sexual and gender relations as well as questions of national identity. They represent major developments in style, content, focus and language of American Poetry and Drama.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Texts for Study:

Unit I: Walt Whitman : "Song of Myself"
"Crossing Brooklyn Ferry"
"Out of the Cradle Endlessly Rocking"
"Song of the Open Road" (Norton)

Unit II: Robert Frost : "Birches"
"Mending Wall"
"After Apple Picking"
"Stopping by Woods on a Snowy Evening"
"Design"
"Directive" (Norton)

Unit III: Eugene O'Neill : The Hairy Ape (East West Press)


Suggested Reading:


Philip L. Gerber, Robert Frost (Twayne, 1982).


Normand Berlin, Eugene O’Neill (Grove Press, 1982).


C.W.E. Bigsby, A Critical Introduction to Twentieth Century Drama (Cambridge University Press, 1982).
PAPER III (Opt. iv): INDIAN LITERARY CRITICISM AND THEORY II

Objective:

This paper is an extension of the paper on Indian Literary Criticism introduced in Semester III. Here the focus would be on Twentieth Century texts and Literary Interventions. Right from the days of the Freedom Movement, Indian Literary Criticism has increasingly taken political turns and twists. At one level attempts were made to de-colonize literary theory by way of excavating schools and theories of the ancient past, at another level, the endeavour was to search for critical alternatives from within the historical past. While in the previous paper, the thrust is on well-evolved and taxonomically rich critical frames of rasa, dhvani and vakroki. Here the emphasis is on theoretical debate about the possibilities of multiple critical authorizes that exist in Indian Culture.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

The paper consists of four Units:

Unit I:

Unit II:

Unit III:

Unit IV:

Suggested Reading:

Rajan, P.K., Indian Literary Criticism in English; Critics, Texts, Issues (Delhi & Jaipur, Rawat, 2004).
Devi, G.N., In Another Tongue (Delhi, MacMillan, 1993).
_______ and Dallamayr Fred, Between Traditions and Modernity (Delhi: Sage, 1998).
Chari, V.K., Sanskrit Criticism (Delhi, Motilal Banrasidas, 1993).

Mukherjee, Meenakshi, *The Perishable Empire* (Delhi, OUP, 2000)

__________, Reality and Realism (Delhi, OUP, 1983)


_________, *Text and Sub-Text* (Delhi; Arnold Heinemann, 1989).

_________. *Sahitya; A Theory* (Delhi; Arnold Heinemann, 1991).

Paranjape, Makarand, Ed., *Nativism; Essays in Criticism* (Delhi; Sahitya Akademi, 1998).

Krishna, Daya, *Indian Philosophy: A Counter-Perspective* (Delhi; OUP, 1991).


Kane, P.B., *History of Sanskrit Poetics* (Delhi, Motilal Banarasi Das, 1971, 4th ed.).
PAPER-IV (Opt. i) CULTURAL STUDIES-II

Objectives:

The multiple nuances of culture would be unfolded through a conceptual study of its emerging configurations. The paper enables us to appreciate the processes of culture as it enters new mediums of films, computer, internet and cybernetics. There would be a pedagogical shift as the students would be taught the prescribed essays through every-day examples. The pedagogic practice would nudge the students towards interdisciplinary studies viewing other subject areas in relation to literature, and for that matter, any text.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit I: Mass Culture


Unit II: Culture Industry


2. Habermas, “From a Culture-Debating to a Culture-Consuming Public”, in The Structural Transformation of the Public Sphere, Polity Press, 1989, 159-175.

Unit III: Virtual Culture


Unit IV: Popular Culture/Subculture


Suggested Reading:


PAPER-IV (Opt. ii): APPLIED LINGUISTICS-II

Note: There shall be one compulsory question of 20 marks comprising of short notes from all 4 Units, in which the candidate shall attempt four out of six short notes in 200 words each.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the four prescribed units.

Contents:


Unit 2: Approaches to teaching Skills: LSR W, vocabulary and grammar at primary, secondary and tertiary/advanced levels. Practical exercises in each of the skill areas. Making a language syllabus: needs analysis. Teaching of English for specific purposes.

Unit 3: Testing Language - Principles, relationship between teaching and testing, wash back effect, purposes and types of tests. Evaluation: Criteria, grading and determining levels of proficiency.

Unit 4: Materials for Teaching: Principles of selection, gradation and presentation; course books, work books, teachers’ manuals, grammar, dictionaries. The use of a language corpus. The role of literature in language teaching.

Suggested Reading:

PAPER IV (Opt. iii): WORLD DRAMA IN TRANSLATION

Objectives:

The paper provides an interesting study of world drama with a view to help students develop perspective on world literature. This course is designed around canonical texts, and offers an opportunity to develop sense of what a ‘classic’ is, apart from helping them develop ways of approaching, understanding and interpreting classics. This paper complements the other paper on World Poetry/Novel in Translation.

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the following four prescribed texts/units:

Prescribed Texts:

Unit-1 : Sophocles: King Oedipus (Penguin)
Unit-2 : Henrik Ibsen: Ghosts (Pearson)
Unit-3 : Anton Chekhov: The Cherry Orchard (Penguin)
Unit-4 : Luigi Pirandello: Six Characters in Search of an Author (Collected Works of Pirandello)

Suggested Reading:

Note: There shall be one context-based question of 20 marks in which the candidate shall have to attempt three out of six short notes, to be answered in 200 words each. The notes are likely to cover a range of terms/concepts/trends/movements specific to the course. The question will be of general nature, not author or text-based.

In addition, there will be four essay-type questions of 15 marks each (to be answered in about 600 words each). One question with internal choice will be set from each of the four prescribed texts/units.

The following topics related to Social and Literary aspects of the Age of Shakespeare:

History Plays, the Sonnet, tragi-comedies, Shakespeare’s longer poems, First Folio, Holinshed’s Chronicles, the Fool in Shakespeare’s plays, Shakespeare’s contemporaries, the University Wits, Marlowe’s Mighty Line.

Texts for detailed study:
1. Hamlet
2. Antony and Cleopatra
3. Macbeth
4. The Winter’s Tale

Suggested Reading:

Published by: Col. G. S. Chadha, Registrar, Panjab University, Chandigarh
FACULTY OF SCIENCE

SYLLABI

FOR

M.Sc. (TWO YEAR COURSE)

IN

CHEMISTRY

Semester System

EXAMINATIONS 2016-2017

--:O:--
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

First Year: There will be two Semesters in a year. Examination will be held at the end of each semester.

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course No.</th>
<th>Course</th>
<th>Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>CH-411</td>
<td>Inorganic Chemistry 1</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>II</td>
<td>CH-412</td>
<td>Organic Chemistry 1</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>III</td>
<td>CH-413</td>
<td>Physical Chemistry 1</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>IV</td>
<td>*CH-414</td>
<td>(a) Mathematics for Chemists (b) Biology for Chemists (c) Computer for Chemists</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>V</td>
<td>CH-415</td>
<td>Laboratory Course (Inorganic Chemistry)</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>CH-416</td>
<td>Laboratory Course (Organic Chemistry)</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>CH-417</td>
<td>Laboratory Course (Physical Chemistry)</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

*There are three combination in this course
1. Mathematics for Chemists (for students without Mathematics in B.Sc.) (a+c)
2. Biology for Chemists (for students without Biology in B.Sc.) (b+c)
3. Mathematics & Biology for Chemists (for students without Mathematics & Biology in B.Sc.) (a+b)

Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1
Stereochemistry And Bonding In Main Group Compounds (15 Hrs.)
VSEPR, Walsh diagrams (tri and tetra-molecules), d π-p π bonds, Bent rule and energetics of hybridization, some simple reactions of covalently bonded molecules. Isopoly.

UNIT 2
Metal Ligand Bonding (15 Hrs.)
Limitations of crystal field theory, molecular orbital theory, octahedral, tetrahedral and square planar complexes, π bonding and molecular orbital theory.

UNIT 3
Metal-Ligand Equilibria In Solution (15 Hrs.)
Stepwise and overall formation constant and their interaction, trends in stepwise constants, factors affecting the stability of metal complexes with reference to the nature of metal ion and ligand, chelate effect and its thermodynamic origin, determination of binary formation constants by pH spectrophotometry.

Reaction Mechanism of Transition Metal Complexes-I
Energy profile of a reaction, reactivity of metal complexes, inert and labile complexes, kinetic application of valence bond and crystal field theories, kinetics of octahedral substitution.

UNIT 4
Reaction Mechanism of Transition Metal Complexes –II (15Hrs.)
Acid hydrolysis, factors affecting acid hydrolysis, base hydrolysis, conjugate base mechanism, direct and indirect evidences in favour of conjugate mechanism, reactions without metal-ligand bond cleavage. Substitution reactions in square planar complexes, the trans effect, mechanism of substitution reaction, Redox reactions, electron transfer reactions, mechanism of one electron transfer reactions, outer sphere type reactions, cross reactions and Marcus Hush Theory, inner sphere type reactions.
Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:


BOOKS FOR FURTHER READING:


Subject: Organic Chemistry  
Paper: (II) CH-412  

**OBJECTIVE OF THE COURSE**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

**Time 3 hours**  
Max marks 80+20  
(4 Hrs./Week )  
(60 Hrs.)

**UNIT 1**  
Nature of Bonding in Organic Molecule  
(15 Hrs.)  
Delocalized chemical bonding, conjugation, Cross conjugation, resonance hyper conjugation, Bonding in fullerenes, Tautomerism, Aromaticity in benzenoid and non benzenoid compd. Alternant and non alternant hydrocarbons, Huckel’s rule. Energy level of $\pi$ M.O., Annulenes, anti aromaticity, aromaticity, Homo aromaticity, PMO approach.

Bonds weaker than covalent, addition compound, crown ether complexes and cryptands, Inclusion compound, cyclo dextrins, Catenanes & rotaxanes.

Effect of structure on reactivity-resonance and field effects, steric effect, quantitative treatment. The Hammett equation and linear free energy relationship, substituent and reaction constants. Taft equation.

**UNIT 2**  
Stereochemistry  
(15 Hrs.)  
Conformational analysis of cyclo alkanes, decalins, effect of confirmation on reactivity. Confirmation of sugars, Steric strain due to undesirable crowding of resolution, entatropic and diasterotropic atoms. Stereo specific and stereo selective synthesis, chirality due to helical shape. Stereochemistry of compounds containing N,S,P.

**UNIT 3**  
Aliphatic Nucleophilic Substitution  
(10 Hrs.)  
The $S_N2$, $S_N1$, mixed $S_N1$ and $S_N2$ and SET mechanisms. The neighbouring group mechanism, neighbouring group participation by $\pi$ and $\sigma$ bonds, Classical and non-classical carbocations, norbornyl system, common carbocation rearrangements. The $S_N1$ mechanism. Nucleophilic substitution at an allylic, aliphatic, trigonal and a vinylic carbon.

Reactivity effects of substrate structure, attacking nucleophile, leaving group and reaction medium, phase transfer catalysis, ambident nucleophile, regioselectivity.
Aliphatic Electrophilic Substitution (5 Hrs.)

Biomolecular mechanisms-S_{E2} and S_{E1}. The S_{E1} mechanism, electrophilic substitution accompanied by double bond shifts. Effect of substrates, leaving group and the solvent polarity on the reactivity.

UNIT 4

Aromatic Electrophilic Substitution (8 Hrs.)

The arenium ion mechanism, orientation and reactivity, energy profile diagrams. The ortho/para ratio, ipso attack, orientation in other ring systems. Quantitative treatment of reactivity in substrates and electrophiles. Diazonium coupling, Vilsmeier reaction, Gattermann-Koch reaction.

Aromatic Nucleophilic Substitution (7Hrs.)

The S_{N}Ar, S_{N}1, benzene and S_{RN}1 mechanisms, Reactivity-effect of substrate structure, leaving group and attacking nucleophile. The Von Richter, Sommelet-Hauser and smiles rearrangements.

Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:


BOOKS FOR FURTHER READING:


OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1
Quantum Chemistry (15 Hrs.)
Application of Schrodinger wave equation to particle in three dimensional box, simple harmonic oscillator and rigid rotator.
Approximate Methods: The variation theorem, Linear variation Principle, perturbation theory (first order, second order and Non degenerate), Applications of variation method and perturbation theory to the Helium atom. Self-Consistent-Field theory.

UNIT 2
Angular Momentum: (15 Hrs.)
Ordinary ang. momentum, generalized angular momentum, eigenfunctions for angular momentum, eigcuvalues of angular momentum, operator using ladder operators, addition of angular-momenta, spin, anti symmetry and Pauli exclusion principle.

Molecular Orbital Theory :
Huckel theory of conjugated systems, bond order and charge density calculations, application to ethylene, allyl, butadiene, cyclopropenyl system, cyclobutadiene etc.

UNIT 3
Thermodynamics: (15 Hrs.)
Classical Thermodynamics:
Partial molal proporties, partial molal free energy, volume & heat content and their significance, Determination of these quantities, concept of fugacity and determination of fugacity. Non ideal systems, excess functions for non ideal solutions, Activity, Activity coeff, Debye huckel theory for activity coeff. electrolyte solutions, determination of activity & activity coeff, ionic strength. Application of phase rule to 3-component system, second order phase transitions.

Statistical Thermodynamics:
Concept of distribution, thermodynamic probability & most probable distribution, ensemble averaging, postulates of ensemble averaging, canonical, grand canonical & micro canonical ensembles.
UNIT 4

Statistical Thermodynamics: (15 Hrs.)

Corresponding distribution laws (using Lagrange’s method of undetermined multipliers)
Partition functions: Translational, Rotational, Vibrational, Electronic partitions functions.
Calculation of Thermodynamic properties in terms of partition functions. Heat capacity, behaviour of solids chemical equilibria and equilibrium constant in terms of partition function, F.D. statistics, distribution law and application to metals. Bose Einsteins statistics. Distribution law & application to Helium.

Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks

ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Vectors
Vector, dot, cross and triple products etc. The gradient, divergence and curl. Vector calculus, Gauss theorem, divergence theorem etc.

Matrix Algebra
Addition and multiplication; inverse, adjoint and transpose of matrices, special matrices (Symmetric, skew-symmetric, Hermitian, unit, diagonal, unitary, etc.) and their properties. Matrix equation: Homogeneous, non-homogenous linear and conditions for the solution, lineardependence and independence. Introduction to vector spaces, matrix eigen values and eigen vectors, diagonalization, determinants (examples from Huckel theory).

Elementary Differential Equations
Variables-separable and exact, first-order differential equations, homogenous, exact andlinearequations. Applicationsto chemical kinetics, secular equilibria, quantum chemistry, etc. Solutions of differential equations by the power series method, Fourier series, spherical harmonics, second order differential equations and their solutions.

UNIT 2

Differential Calculus
Functions, continuity and differentiability, rules for differentiation, applications of differential calculus including maxima and minima (examples related to maximally populated rotational energy levels, Bohr’s radius and mostprobable velocity from Maxwell’s distribution etc), exact and inexact differentials with their applications to thermodynamic properties. Integral calculus, basic rules for integration, integration by parts, partial fraction and substitution. Reduction formulae, applications of integral calculus. Functions of several variables, partial
differentiation, co-ordinate transformations (e.g. Cartesian to spherical polar), curve sketching.

**Permutation And Probability**
Permutations and combinations, probability and probability theorems, probability curves, average, root mean square and most probable errors, examples from the kinetic theory of gases etc., curve fitting (including least squares fit etc.) with a general polynomial fit.

---

**Subject: Computers for Chemists**

**PAPER: (IV) 414 (c)**

---

**UNIT 3**

**Introduction To Computers And Computing** (15 Hrs.)
Basic structure and functioning of computers with a PC as an illustrative examples. Memory, I/O devices, secondary storage. Computer languages, operating system with DOS as an example. Introduction to UNIX and WINDOWS. Data processing, principles of programming, Algorithms and flow charts.

**Use of Computer To Programmes**
The students will learn how to operate a PC and how to run standard programmes and packages. Execution of linear regression, X-Y plot, numerical integration and differentiation as well as differential equation solution programmes. Programmes with data preferably from Physical laboratory. Further the students will operate one or two of the package such as LOTUS, FOXPRO, Word processing Software such as WORDSTAR/MS-WORD.

---

**UNIT 4**

**Programming in Chemistry** (15 Hrs.)
Development of small computer codes involving simple formulae in chemistry, such as Vander Waals equation, pH titration, kinetics, radio active decay, evaluation of lattice energy and ionic radii from experimental data. Linear simultaneous equations to solve secular equations within the Huckel theory, elementary structural features such as bond lengths, bond angles, dihedral angles etc. of molecules extracted from a data base such as Cambridge data base.

**Computer Programming in FORTRAN/C/BASIC**
Elements of the computer language. Constants and variables, operators and variable symbols, expressions. Arithmetic assignment statement. Statement Input and output. Format statements. Termination statements. Branching statement such as IF or Go to statement. Logical variable Double precision variables. Subscripted variables and DIMENSION. DO statement. Function and SUBROUTINE. COMMON and DATA statements.
Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Cell Structure and Functions: (15 Hrs.)

Carbohydrates:

UNIT 2

Lipids: (15 Hrs.)
Amino-acids, Peptides and Proteins:

Nucleic Acids:
Purines and pyrimidines bases of nucleic acids, base pairing via H-bonding. Structure of ribonucleic acids RNA and deoxyribonucleic acids DNA , double helix model of DNA and forces responsible for holding it. Chemical and enzymatic hydrolysis of nucleic acids. The chemical basis for hereditary, an overview of replication of DNA, transcription, translation and genetic code. Chemical synthesis of mono and trinucleoside.

Subject: Computers for Chemists
PAPER: (IV) 414 (c)

UNIT 3

Introduction To Computers And Computing: (15 Hrs.)
Basic structure and functioning of computers with a PC as an illustrative examples. Memory/I/O devices secondary storage. Computer languages. Operating system with DOS as an example. Introduction to UNIX and WINDOWS. Data processing, principles of programming, Algorithms and flow charts.

Use Of Computer To Programmes:
The students will learn how to operate a PC and how to run standard programmes and packages. Execution of linear regression, X-Y plot, numerical integration and differentiation as well as differential equation solution programmes. Programmes with data preferably from Physical laboratory. Further the students will operate one or two or the package such as LOTUS, FOXPRO, Word processing Software such as WORDSTAR/MS-WORD.

UNIT 4

Programming in Chemistry: (15 Hrs.)
Development of small computer codes involving simple formulae in chemistry, such as Vander Waals equation, pH titration, kinetics, radio active decay evaluation of lattice energy and ionic radii from experimental data. Linear simultaneous equations to solve secular equations within the Huckle theory elementary structural features such as bond lengths, bond angles, dihedral angles etc. of molecules extracted from a data base such as Cambridge data base.
Computer Programming In FORTRAN/C/BASIC
Elements of the computer language. Constants and variables operators and variable symbols expressions. Arithmetic assignment statement. Statement Input and output. Format statements. Termination statements. Branching statement such as IF or go to statement. Logical variable Double precision variables. Subscripted variables and DIMENSION. DO statement. Function and SUBROUTINE. COMMON and DATA statements.

Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Vectors (15 Hrs.)
Vector, dot, cross and triple products etc. The gradient, divergence and curl. Vector calculus, Gauss theorem, divergence theorem etc.

Matrix Algebra
Addition and multiplication; inverse, adjoint and transpose of matrices, special matrices (Symmetric, skew-symmetric, Hermitian, unit, diagonal, unitary, etc.) and their properties. Matrix equation: Homogeneous, non-homogenous linear and conditions for the solution, linear dependence and independence. Introduction to vector spaces, matrix eigenvalues and eigenvectors, diagonalization, determinants (examples from Huckel theory).

Elementary Differential Equations
Variables-separable and exact, first-order differential equations, homogenous, exact and linear equations. Applications to chemical kinetics, secular equilibria, quantum chemistry, etc. Solutions of differential equations by the power series method, Fourier series, spherical harmonics, second order differential equations and their solutions.

UNIT 2

Differential Calculus (15 Hrs.)
Functions, continuity and differentiability, rules for differentiation, applications of differential calculus including maxima and minima (examples related to maximally populated rotational energy levels, Bohr’s radius and most probable velocity from Maxwell’s distribution etc), exact and inexact differentials with their applications to thermodynamic properties. Integral calculus, basic rules for integration, integration by parts, partial fraction and substitution. Reduction
formulae, applications of integral calculus. Functions of several variables, partial differentiation, co-ordinate transformations (e.g. Cartesian to spherical polar), curve sketching.

Permutation And Probability
Permutations and combinations, probability and probability theorems, probability curves, average, root mean square and most probable errors, examples from the kinetic theory of gases etc., curve fitting (including least squares fit etc.) with a general polynomial fit.

Subject: Biology for Chemists (for students without Biology in B.Sc.)
PAPER: (IV) CH-414 (b)

UNIT 3

Cell Structure and Functions: (15Hrs.)

Carbohydrates:

UNIT 4

Lipids: (15 Hrs.)

Amino-acids, Peptides and Proteins:
**Nucleic Acids:**
Purines and pyrimidines bases of nucleic acids, base pairing via H-bonding.
Structure of ribonucleic acids RNA and deoxyribonucleic acids DNA, double helix model of DNA and forces responsible for holding it. Chemical and enzymatic hydrolysis of nucleic acids. The chemical basis for hereditary, an overview of replication of DNA, transcription, translation and genetic code. Chemical synthesis of mono and trinucleoside.

**Instructions for paper setters and candidates:**

I. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

II. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

III. **All questions carry equal marks.**

**ESSENTIAL BOOKS:**

LABORATORY COURSE (INORGANIC CHEMISTRY)
PAPER: (VI) CHP-415

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 33
(6 Hrs./Week )

1. Gravimetric Estimation of two constituents when present together in a given complex.
2. Analysis of two cation-system using EDTA.
3. Preparation of Tris(thiourea)cuprous (I) sulphate [Cu.(tu)₃]₂SO₄.2H₂O
   (Where tu stands for thiourea) and its physicochemical characterization including IR Study.

ESSENTIAL BOOKS:

LABORATORY COURSE (ORGANIC CHEMISTRY)
PAPER: (VII) CHP-416

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 34
(6 Hrs./Week)

1. Organic Lab. (i) Safety: Eye, Fire and Chemicals
   (ii) Glassware
   (iii) Non-glass equipment
   (iv) Heating devices
   (v) Cleaning Glassware
2. To determine corrected melting points of an unknown organic compound (calibration of thermometer).
3. Adipic acid from cyclohexanol (oxidation).
4. p-Iodonitrobenzene from p-nitroaniline.
5. Preparation of benzyl alcohol and benzoic acid (Cannizzaro’s reaction).
6. N- Bromo succinimide (Bromination).
7. Dibenzal acetone from benzaldehyde (Claisen-Schmidt reaction).
8. Cinnamic acid from benzaldehyde (Knoevenaegal reaction).
10. Diphenylmethane from benzylchloride (Friedel Craft’s reaction).
11. Benzanilide (Schotten-Baumann reaction).
12. o-Benzoylbenzoic acid (Friedel Craft’s reaction).

ESSENTIAL BOOKS:
LABORATORY COURSE (PHYSICAL CHEMISTRY)

PAPER: (VIII) CHP-417

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 33
(6 Hrs./Week )

1. **Viscosity:**
   (i) Determination of percentage composition of a liquid mixture by viscosity measurement.
   (ii) Determination of molecular weight of a high polymer (say polystyrene) by viscosity measurement.

2. **Surface Tension:**
   (i) Determination of Parachor value of >CH₂ group.
   (ii) To measure interfacial tension and to test the validity of Antonoff’s rule.
   (iii) To compare cleansing power of two detergents.
   (iv) To determine the critical micelle concentration of a soap by surface tension method.

3. **Solubility:**
   (i) Determination of solubility of an inorganic salt in water at different temperatures and hence to draw the solubility curve.
   (ii) To study the effect of addition of an electrolyte on the solubility of an organic acid.
   (iii) To study the variation of solubility of Ca (OH)₂ in NaOH solution and hence determine the solubility product.

4. **Colloidal State:**
   (i) To compare the precipitation power of Na⁺, Ba²⁺ & Al³⁺ ions for As₂S₃ sol.
   (ii) To study interaction between arsenious sulphide and ferric hydroxide sol.

5. **Density:**
   Determine the partial molar volume of ethanol in dil. aqueous solution at room temperature.

ESSENTIAL BOOKS:

OUTLINES OF TESTS, SYLLABI AND COURSES OF READING FOR M.Sc. FIRST YEAR (SEMESTER-II) EXAMINATION OF 2016

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

First Year: There will be two Semesters in a year. Examination will be held at the end of each semester.

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Course No.</th>
<th>Course</th>
<th>Hours</th>
<th>Semester 2nd Exam.</th>
<th>Internal Assessment of House Test</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>CH-421</td>
<td>Inorganic Chemistry 1</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>II</td>
<td>CH-422</td>
<td>Organic Chemistry 1</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>III</td>
<td>CH-423</td>
<td>Physical Chemistry 1</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>IV</td>
<td>CH-424</td>
<td>Group Theory, Spectroscopy and Diffraction Methods</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>V</td>
<td>CH-425</td>
<td>Laboratory Course (Inorganic Chemistry)</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>VI</td>
<td>CH-426</td>
<td>Laboratory Course (Organic Chemistry)</td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>VII</td>
<td>CH-427</td>
<td>Laboratory Course (Physical Chemistry)</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

Instructions for paper setters and candidates:

IV. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

V. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

VI. All questions carry equal marks.
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT 1

Electronic Spectra and Magnetic Properties of Transition Metal Complexes-I

Spectroscopic ground states, correlation, Orgel and Tanabe-Sugano diagrams for transition metal complexes (d$_1$-d$_9$ states), calculations of D_q, B and $\beta$ parameters, charge transfer spectra, Isopoly And Heteropoly Acids And Salts

UNIT 2

Electronic Spectra and Magnetic Properties of Transition Metal Complexes-II

Spectroscopic method of assignment of absolute configuration in optically active metal chelates and their stereochemical information, anomalous magnetic moments, magnetic exchange coupling and spin crossover.

UNIT 3

Metal $\Pi$–Complexes

Metal carbonyls, structure and bonding, vibrational spectra of metal carbonyls for bonding and structure elucidation, important reaction of metal carbonyls. Preparation, bonding structure and important reactions of transition metal nitrosyl, dinitrogen and dioxygen complexes, tertiary phosphine as ligand.

UNIT 4

Metal Cluster

Higher boranes, carboranes, metallobranes and metallocarboranes, metal carbonyl and halide clusters, compounds with metal-metal multiple bonds.
Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:


BOOKS FOR FURTHER READING:

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Reaction Mechanism, Structure and Reactivity (8 Hrs.)
Types of mechanism, types of reactions, thermodynamics and kinetic requirement. Kinetic and thermodynamics control, Hammond’s postulate, Curtin-Hammett Principle, Potential energy diagrams, transition states and intermediates, method of determining mechanisms, isotope effects.

Addition to Carbon-Carbon Multiple Bonds (7 Hrs.)

UNIT 2

Addition To Carbon-Heteroatom Multiple Bonds (15 Hrs.)
Mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds acids, esters and nitriles. Addition of grignard reagents, organozinc and organolithium reagents to carbonyl and unsaturated carbonyl compounds. Wittig reaction. Mechanism of condensation reactions involving enolates-Aldol, Knoevenagel, Claisen, Mannich, Benzoin, Perkin and Stobbe reactions. Hydrolysis of esters and amides, ammonolysis of esters.

UNIT 3

Free Radical Reactions (8 Hrs.)
Type of free radical reactions, free radical substitution mechanism at an aromatic substrate, neighbouring group assistance. Reactivity for aliphatic and aromatic substrates at a bridgehead. Reactivity in the attacking radicals. The effect of solvents on reactivity.

**Elimination Reaction**  
(7 Hrs.)
The E2, E1 and E1cB mechanisms and their spectrum, Orientation of the double bond. Reactivity effects of substrate structure, attacking base, the leaving group and the medium. Mechanism and orientation in pyrolytic elimination.

**UNIT 4**

**Pericyclic Reactions**  
(15Hrs.)
Molecular orbital symmetry, frontier orbitals of ethylene, 1,3-butadiene, 1, 3, 5-hexatriene and allyl system. Classification of pericyclic reactions. Woodward-Hoffmann correlation diagrams. FMO and PMO approach. Electrocyclic reactions conrotatory and disrotatory motions 4n, 4n +2 and allyl system. Cycloadditions-antarafacial suprafacial additions, 4n and 4n+2 systems, 2+2 addition of ketenes, 1, 3-dipolar cycloadditions and cheleotropic reactions.

Sigmatropic rearrangements-Suprafacial and antarafacial shifts of H.  

**Instructions for paper setters and candidates:**

I. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

II. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

III. **All questions carry equal marks.**

**ESSENTIAL BOOKS:**

BOOKS FOR FURTHER READING:


Subject: Physical Chemistry
Paper: (III) CH-423

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjub University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Chemical Dynamics: (15 Hrs.)

Methods of determining rate laws, ionic reactions*, kinetic salt effects, steady state kinetics, kinetic & thermodynamic control of reactions, treatments of unimolecular reactions, Dynamic chain (pyrolysis of acetaldehyde composition of ethane), photochemical (H2-cl2) reactions & oscillatory reactions (Belousov-Zhabotinsky reaction), homogeneous catalysis, kinetics of enzyme reactions, general features of fast reactions, study of fast reactions by flow method, relaxation method, flash photolysis, and NMR method, dynamics of molecular motion, probing the transition state, dynamics of barrierless chemical reactions in solution, dynamics of unimolecular reaction (Lindemann-Hinshelwood and Rice-Ramsperger-Kassel-Marcus Theories of unimolecular reactions)

UNIT 2

Non-equilibrium Thermodynamics: (15 Hrs.)

Thermodynamic criteria for non eqbm states, entropy production and entropy flow, entropy balance eqns for different irreversible processes (eg. heat flow, chemical reaction
etc.), transformation of generalized fluxes and forces, noneqbm stationary states, phenomenological equators, microscopic reversibility and onsager’s reciprocity relations, electro kinetic phenomenon, diffusion, electrical conduction, irreversible thermodynamics for biological system, coupled reactions.

**Macromolecules:**
Electrically conducting, fire resistant, liquid crystal polymers, Kinetics of polymerization, mechanism of polymerization, mol.mass determination (osmometry, viscometry, diffusion & light scattering methods), sedimentation, chain config. of macromolecules, calculation of average dimensions.

**UNIT 3**

**Surface Chemistry**

**Adsorption:** Surface tension, capillary action, pressure difference across curved surface (Laplace eqn), vapour pressure of droplets, (Kelvin eqn), Gibb’s adsorption isotherm, estimation of surface area (BET eqn), surface films on liquids (electro kinetic phenomenon), catalytic activity at surfaces.

**Micelles:** Surface active agents, classification of surface active agents, micellisation, hydrophobic interactions, critical micellar concentration, factors affecting CMC of surfactants, counter ions binding to micelles, thermodynamics of micellization-phase separation & mass action models, solubilization, microemulsion, reverse micelles.

**UNIT 4**

**Electrochemistry:**

**Electrocatalysis**:
Influence of various parameters, H-electrode, polarography, theory Ilkovic eqn, (excluding derivation), Half wave potential & its significance, electrocardiography, introduction to corrosion, homogeneous, theory, forms of corrosion, corrosion monitoring.

**Instructions for paper setters and candidates:**

I. **Examiner will set total of Nine questions comprising two questions from each unit and one compulsory question of short answer type covering whole syllabi.**

II. **The students are required to attempt five questions in all, one question from each unit and the Compulsory question.**

III. **All questions carry equal marks.**
ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Symmetry And Group Theory In Chemistry: (15 Hrs.)
Symmetry elements & symmetry operation, definitions of group, subgroup, relation between orders of a finite group & its sub groups. Point group symmetry. Representations of groups by matrices (representation for the C\text{n}, C\text{nv}, C\text{nn}, D\text{nn} etc. group) character of a representation. The great orthogonality theorem and its importance character tables and there use-in spectroscopy.

UNIT 2

Microwave Spectroscopy: (15 Hrs.)
Classification of molecules rigid rotor model, effect of isotopes; non rigid rotor Stark effect, nuclear and electron spin interaction & effect of external field.
Vibrational Spectroscopy:

UNIT 3

Molecular Spectroscopy: (15 Hrs.)
Energy levels, molecular orbital, Frank Condon’s Principles, electronic spectra of polyatomic molecules emission spectra; radiative & non radiative decay. Spectra of transition metal complexes; change transfer spectra.
Basic Principles Photoelectric Effect, Ionization Process:
Koopman’s theorem, photoelectron spectra of simple molecule. Auger electron spectroscopy.

Diffraction:
Bragg's condition, Miller indices. Debye-Scherrer method for structure analysis.
Principal and applications of neutron diffraction and electron diffraction

UNIT 4

Magnetic Resonance Spectroscopy: (15 Hrs.)
Nuclear Magnetic Resonance Spectroscopy:-
Nuclear spin, Nuclear resonance, shielding of magnetic nuclei, chemical shifts deshielding, spin-spin interactions, (ABX, AMX, ABC, A2 B2) spin decoupling.

Electron Spin resonance spectroscopy:-
Basic values factors affecting 'g' value. Measurements, techniques, applications.

Nuclear Quadrupole Resonance spectroscopy:-
Quadrupole Nuclear moments, electric field gradient complex constants applications.

Instructions for paper setters and candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:
BOOKS FOR FURTHER READING:

LABORATORY COURSE (INORGANIC CHEMISTRY)
PAPER: (VI) CHP-425

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 33
(6 Hrs./Week)

1. Preparation of Chloropentaamine cobalt (III) Chloride and its IR measurements.
2. Preparation of [Co(en)²Cl₂ ] Cl, Na₂ [Fe(CN)₅ NH₃]. H₂O, [UO₂ (NO₃)₂ Py₂ ], Cu₂ (CH₃COO)₄ (H₂O)₂.
3. Preparation of Hg[Co(CNS)₄ ] and to study its properties.
4. Preparation of cis-and trans-K [Cr (C₂O₄)₂ (H₂O)₂ and its IR study.

ESSENTIAL BOOKS:
LABORATORY COURSE (ORGANIC CHEMISTRY)
PAPER: (VII) CHP-426

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 34
(6 Hrs./Week )

Qualitative Analysis of mixtures of two organic solids:
Separation of the compounds and their identification through various steps, derivative preparation, checking the purity of components by melting point.

ESSENTIAL BOOKS:

LABORATORY COURSE (PHYSICAL CHEMISTRY)

PAPER: (VIII) CHP-427

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (1st Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 33
(6 Hrs./Week )

1. Polarimetry:
   To study the inversion of cane sugar by optical rotation measurement.

2. Potentiometry:
   (i) Determination of valence of mercurous ion.
   (ii) Determination of pH value using quinhydrone electrode.
   (iii) Determination of heat of reaction, equilibrium constant and other thermodynamic functions for:
         (a) \( \text{Zn} + \text{Cu}^{+2} \rightarrow \text{Zn}^{+2} + \text{Cu} \)
         (b) \( \text{Zn} + \text{Pb}^{+2} \rightarrow \text{Zn}^{+2} + \text{Pb} \)
   (iv) Determination of hydrolysis constant of aniline hydrochloride electrometrically.

3. Flame Photometry:
   (i) Determination of \( \text{Na}^+ \) & \( \text{K}^+ \) when present together.
   (ii) Determination of Lithium/Calcium/Barium/Strontium.

4. Transition Temperature Determination:
   Determination of transition temperature of \( \text{MnCl}_2 \) by Dielatometric method.

ESSENTIAL BOOKS:

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Second year: There will be two Semesters in a year. Examination will be held at the end of each semester.

M.Sc. (Chemistry) 2nd Year (3rd Semester) (Marks: 500)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course No.</th>
<th>Course</th>
<th>Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Annual Exam.</td>
</tr>
<tr>
<td>I</td>
<td>CH-511</td>
<td>Applications of Spectroscopy</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>II</td>
<td>CH-512</td>
<td>Organotransition Metal Chemistry</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>III</td>
<td>CH-513</td>
<td>Heterocyclic Chemistry</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>IV</td>
<td>CH-514</td>
<td>Environmental Chemistry</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>V</td>
<td>CH-515</td>
<td>Inorganic Chemistry (Laboratory Course)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>CH-516</td>
<td>Organic Chemistry (Laboratory Course)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>CH-517</td>
<td>Physical Chemistry (Laboratory Course)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instructions for Paper setters and Candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.
Subject: Applications of Spectroscopy  
PAPER: (1) CH-511

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours  
Max marks 80+20  
(4 Hrs./Week )  
(60 Hrs.)

UNIT 1

Electron Spin Resonance Spectroscopy  
(8 Hrs.)

Hyperfine coupling, spin polarization for atoms and transition metal ions , spin orbit coupling and significance of g-tensors , application of transition metal complexes (having one unpaired electron) including biological systems and to inorganic free radicals such as \( \text{PH}_4^-, \text{F}_2^- \) AND \([\text{BH}_3^-]^-\)

Nuclear Magnetic Resonence of Paramagnetic Substances in Solution  
(7Hrs.)

The contact and pseudo contact shifts , factors affecting nuclear relaxation , some applications including biochemical systems , an overview of NMR of metal nuclides with emphasis on \(^{195}\text{Pt}\) and \(^{119}\text{Sn}\) NMR.

UNIT 2

Mossbauer Spectroscopy  
(6 Hrs.)

Basic principles, spectral parameters and spectrum display. Application of the technique to the studies of (1) bonding and structures of \(\text{Fe}^{+2}\) and \(\text{Fe}^{+3}\) compounds including those of intermediate spin , (2) \(\text{Sn}^{+2}\) and \(\text{Sn}^{+4}\) compounds- nature of M-L bond, coordination number, structure and (3) detection of oxidation state and inequivalent MB atoms.

Vibrational Spectroscopy  
(5 Hrs.)

Symmetry and shapes of \(\text{AB}_2, \text{AB}_3, \text{AB}_4, \text{AB}_5\) and \(\text{AB}_6\) mode of bonding of ambidentate ligands , ethylenediamine and diketonato complexes, applications of resonance Raman spectroscopy particularly for the study of active sites of metalloproteins.

Organic Chemistry

Ultraviolet and Visible Spectroscopy  
(4 Hrs.)

Various electronic transitions (185-800nm),Beer-Lambert law, effect of solvent on electronic transition, ultraviolet bands for carbonyl compounds,unsaturated carbonyl compounds, dienes, conjugated polyenes. Fieser- Woodward rules for conjugated dienes and carbonyl , ultraviolet spectra of aromatic and heterocyclic compounds. Steric effect in biphenyles.
UNIT 3

**Infrared Spectroscopy**

(5 Hrs.)


**Nuclear Magnetic Resonance Spectroscopy**

(10 Hrs.)

General introduction and definition, chemical shift, spin-spin interaction, shielding mechanism of measurement, chemical shift values and correlation for protons bonded to carbon (aliphatic, olefinic, aldehydic and aromatic) another nuclei (alcoholic, phenols, enols, carboxylic acids, amines, amides & mercapo), chemical exchange, effect of deuteration, complex spin-spin interaction between two, three, four, five nuclei (first order spectra) virtual coupling, stereochemistry, hindered rotation, Karplus curve variation of coupling constant with dihedral angle, simplification of complex spectra - nuclear magnetic double resonance, contact shift reagents, solvent effects, Fourier transform technique, nuclear Overhauser effect (NOE) resonance of other nuclei – F, P

UNIT 4

**Carbon-13 NMR spectroscopy**

(6 Hrs.)

General consideration chemical shift (aliphatic olefinic alkyne aromatic heteroaromatic and carbonyl carbon) coupling constants. Two dimension NMR spectroscopy – COSY, NOESY, DEPT, APT and INADEQUATE technique.

**Mass Spectrometry**

(9 Hrs.)

Introduction, ion production – EI, CI, FD and FAB, factors affecting fragmentation, ion analysis, ion abundance. Mass spectral fragmentation of organic compounds, common functional group, molecular ion peak, metastable peak, McLafferty rearrangement. Nitrogen rule, high resolution mass spectrometry. Example of mass spectral fragmentation of organic compounds with respect to their structure determination.

**Instructions for Paper setters and Candidates:**

I. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

II. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

III. **All questions carry equal marks.**

**ESSENTIAL BOOKS:**


**BOOKS FOR FURTHER READINGS:**

Subject: Organotransition Metal Chemistry

PAPER: (II) CH-512

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1
Compounds of Transition Metal-Carbon Multiple Bonds (12 Hrs.)

Alkylidenes, alkylidyynes, low valent Carbenes and carbynes-Synthesis, nature of bond, structural characteristics, nucleophilic and Electrophilic reaction on the ligands, role in organic synthesis

Transition Metal Compounds with Bonds to Hydrogen (3 Hrs.)

Transition metal Compounds with bonds to hydrogen

UNIT 2
Transition Metal Complexes (15 Hrs.)

Transition Metal Complexes with unsaturated Organic molecules, alkenes, alkynes, Allyl, diene, dienyl, arene and trienyl complexes, preparations, properties, nature of bonding and structural features important reactions relating to nucleophilic and electrophilic attack on ligands and to organic synthesis.

UNIT 3
Alkyls and Aryls of Transition Metals (6 Hrs.)

Types, routes of synthesis, Stability and decomposition Pathways, organocopper in Organic Synthesis.

Fluxional organometallic compounds (9 Hrs.)

Fluxionality and dynamic equilibria in compounds such as $\eta^2$ olefin, $\eta^2$ Allyl and dienyl Complexes.
UNIT 4

Homogeneous Catalysis  (15 Hrs.)

Stoichiometric reaction for catalysis, homogeneous catalytic hydrogenation, Zeigler-Natta polymerization of olefins, catalytic reactions involving carbon monoxide such as hydrocarbonylation of olefins (oxo reaction) oxopalladation reactions, activation of C-H bond.

Instructions for Paper setters and Candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.

ESSENTIAL BOOKS:


BOOKS FOR FURTHER READING:

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1
Nomenclature of Heterocycles (4 Hrs.)
Replacement and systematic nomenclature (Hantzsch-widman System) for monocyclic fused and bridged heterocycles

Aromatic Heterocycles (5 Hrs.)
General chemical behaviour of aromatic heterocycles classification (structural type) criteria of aromaticity(bond length ring current and chemical shift in H NMR- Spectra empirical resonance energy delocalization energy and Dewar resonance energy Diamagnetic susceptibility exaltations)

Non- aromatic Heterocycles (6 Hrs.)

UNIT 2
Heterocyclic synthesis (5 Hrs.)
Principles of heterocyclic synthesis involving cyclization reactions and cycloaddition Reactions.

Small Ring Heterocycles (5 Hrs.)
Three- membered and four-membered heterocycles-synthesis and reactions of aziridines , oxiranes, thiiranes, azetidines, oxetanes and thietanes

Benzo-Fused Five-Memberd Heterocycles (5 Hrs.)
Synthesis and reaction including medicinal applications of benzopyrroles, benzofurans and benzothiophenes

UNIT 3
Meso-ionic Heterocycles (5 Hrs.)
General classification chemistry of some important meso-ionic heterocycles of type-A and B and their applications
Six-Membered Heterocycles With One Heteroatom (5 Hrs.)
One Heteroatom Synthesis and reactions of pyrylium salt and pyrones and their comparison with Pyridinium & thiopyrylium salt and Pyridones synthesis and reactions of Quinolizinium and benzopyrylium salt coumarins and chromones

Six-Membered Heterocycles with Two or More Heteroatoms (5 Hrs.)
Synthesis and reactions of diazines, triazines, tetrazines and thiazines

UNIT 4

1,2-Azoles: pyrazoles, isothiazoles and isoxazoles (7 Hrs.)
Introduction to 1,2-azoles, synthesis of 1,2-azoles. Addition on nitrogen: protonation, N-alkylation, N-acylation. Reaction with electrophilic and nucleophilic reagents. Reaction with bases: reaction of N-metallated pyrazole, reaction of C-metallated 1,2-azoles. Reaction with oxidizing and reducing agents.

1,3-Azoles: imidazoles, thiazoles and oxazoles (8 Hrs.)
Introduction to 1,3-azoles, synthesis of 1,3-azoles. Addition at nitrogen: protonation, N-alkylation, N-acylation. Reaction with electrophilic and nucleophilic reagents. Reaction with bases: reaction of N-metallated imidazole, reaction of C-metallated 1,3-azoles. Reaction with oxidizing and reducing agents. Synthesis and reaction of quaternary 1,3-azolium salt and 1,3-azole-N-oxide.

Instructions for Paper setters and Candidates:

J. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

JJ. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

JJJ. All questions carry equal marks.

ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
Subject: Environmental Chemistry  
PAPER: (IV) CH-514

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours  
Max marks 80+20  
(4 Hrs./Week )  
(60 Hrs.)

UNIT 1  
Environment  
(6 Hrs)


UNIT 2  
Environmental Toxicology  
(9 Hrs.)

Chemical solutions to environmental problems, biodegradability, principles of decomposition ,better industrial processes. Bhopal gas tragedy, Chernobyl, Three mile island, Sewozo

UNIT 3  
Industrial Pollution  
(15 Hrs.)


UNIT 3  
Soils  
Composition, micro and macro nutrients, pollution- fertilizers, pesticides, plastic and metals. Waste treatment

UNIT 4  
Hydrosphere  
(15 Hrs.)


UNIT 4  
Atmosphere  
(15 Hrs.)

Chemical composition of atmosphere – particles, ions and radicals and their formation. Chemical and photochemical reactions in atmosphere, smog formation, oxides of Chlorofluorohydrocarbons, Ozone depletion, Global warming. Green house effect, acid
rain, air pollution controls and their chemistry. Analytical methods for measuring air pollutants. Continuous monitoring instruments.

**Instructions for Paper setters and Candidates:**

I. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt **FIVE** questions in all, **ONE** question from each unit and the Compulsory question.

III. All questions carry equal marks.

**ESSENTIAL BOOKS:**


**BOOKS FOR FURTHER READINGS:**

LABORATORY COURSE (INORGANIC CHEMISTRY)
PAPER: (V) CH-515

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 3rd Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours (6 Hrs./Week)
Max marks 33

1. Colorimetric estimation of cations and anions.
2. Separation techniques
   (i) Ion exchange (ii) Solvent extraction (iii) Column and paper chromatography

ESSENTIAL BOOKS:
LABORATORY COURSE (ORGANIC CHEMISTRY)
PAPER: (VI) CH-516

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 3rd Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours (6 Hrs./Week)
Max marks 33

A. Preparation of the following organic compounds:
1. Hydroxynaphthaldehyde (Reimer tiemann Reaction )
3. Benzophenone, Benzophenone oxime, Benzanilide (Beckmann Rearrangement).
4. Trinitrophenol (picric acid) and picrate derivative.

B. Studies of TLC, column chromatography and paper chromatography for organic mixture.

ESSENTIAL BOOKS:

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 3rd Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours (6 Hrs./Week)
Max marks 33

1. Conductometric Measurements:
   (i) Determination of cell constant of a cell.
   (ii) Determination of equivalent conductance, degree of dissociation and dissociation constant of a weak acid like acetic acid.
   (iii) Verification of Debye-Huckel Onsager equation.
   (iv) Conductometric titration of a mixture of HNO₃ and H₂SO₄
   (v) Determination of degree of hydrolysis.
   (vi) To study the kinetics of saponification of ethyl acetate by NaOH conductometrically.
   (vii) To titrate conductometrically mixtures of HCl/NH₄Cl and NH₄OH/NH₄Cl.

2. Chemical Kinetics:
   (i) To compare the strengths of two acids by studying hydrolysis of an ester.
   (ii) To study the kinetics of hydrolysis of ethyl acetate by NaOH.

3. Phase Equilibrium:
   (i) To determine the equilibrium constant of KI₃ complex formation KI + I₂ - KI₃ by distribution method.
   (ii) To determine critical solution temperature of phenol-water system in the presence of (a) 1% NaCl (b) 0.5% naphthalene (c) 1% succinic acid

ESSENTIAL BOOKS:
OUTLINES OF TESTS, SYLLABI AND COURSES OF READING FOR M.Sc. SECOND YEAR (SEMESTER-IV) EXAMINATION OF 2016

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Second year: There will be two Semesters in a year. Examination will be held at the end of each semester.

M.Sc. (Chemistry) 2nd Year (4th Semester) (Marks: 500)

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course No.</th>
<th>Course</th>
<th>Hours</th>
<th>Annual Exam.</th>
<th>Internal Assessment of House Test</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>CH-521</td>
<td>Biophysical chemistry</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>II</td>
<td>CH-522</td>
<td>Organic Synthesis - I</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>III</td>
<td>CH-523</td>
<td>Chemistry of Natural Products</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>IV</td>
<td>CH-524</td>
<td>Photo Chemistry and Solid State Chemistry</td>
<td>60</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>V</td>
<td>CH-525</td>
<td>Inorganic Chemistry</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Laboratory Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>CH-526</td>
<td>Organic Chemistry</td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Laboratory Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>CH-527</td>
<td>Physical Chemistry</td>
<td></td>
<td></td>
<td></td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Laboratory Course)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instructions for Paper setters and Candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.
Subject: Biophysical Chemistry
PAPER: (I) CH-521

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1

Biological Cell and its Constituents

Biological cell, DNA and RNA in living systems. Basic consideration. Proximity effects and molecular adaptation.

Enzymes

Introduction and historical perspective, chemical and biological catalysis, Remarkable properties of enzymes like catalytic power, specificity and regulation. Nomenclature and classification, extraction and purification. Fischer’s lock and key and Koshland’s induced fit hypothesis, concept and identification of active site by the use of inhibitors, affinity labeling and enzyme modification by site-directed mutagenesis. Enzyme kinetics, Michaelis-Menten and Lineweaver-Burk plots, reversible and irreversible inhibition.

Mechanism of Enzyme Action

Transition state theory, orientation and steric effect, acid-base catalysis, covalent catalysis, strainor distortion. Examples of some typical enzyme mechanisms for Chymotrypsin, ribonuclease, lysozyme and carboxypeptidase A.

UNIT 2

Kinds of Reactions Catalysed by Enzymes

Nucleophilic displacement on a phosphorus atom, multiple displacement reactions and the coupling of ATP cleavage to endergonic processes. Transfer of sulphate, addition and elimination reaction, enolic intermediates in isomerization reactions, $\beta$-cleavage and condensation, some isomerization and rearrangement reactions. Enzyme catalyzed carboxylation and decarboxylation.

Co-Enzyme Chemistry

Cofactors as derived from vitamins, coenzymes, prosthetic groups, apoenzymes. Structure and biological function of coenzyme A, thiamine pyrophosphate, Pyridoxal phosphate, $\text{NAD}^+$,$\text{NADP}^+$,FMN, FAD, lipoic acid, vitamin B$_{12}$. Mechanism of reaction catalyzed by the above cofactors.
Biological Macromolecules

Basic features of macromolecules, their configurations and conformations.

Proteins: Amino acids, the unique protein sequence, secondary structures of proteins, helical symmetry, effect peptide bond on protein conformations, the structure of globular proteins.

UNIT 3

Biological Macromolecules

The Nucleic Acids: Nucleotide, torsion angles in poly nucleotide chains, the helical structure of polynucleic acids, high order structure in polynucleotides.

Interactions in Macromolecules:

Basic principles of interaction between molecules, water structure and its interaction with biomolecules, dipole interactions, side chain interactions, electrostatic interactions, base pairing in nucleic acids, base stacking, hydration and the hydrophobic effect.

Structural Transition in Biomacromolecules:

Coil – helix transitions in proteins, statistical methods for predicting protein secondary structures; melting and annealing of polynucleotide duplexes, helical transitions in double stranded DNA, super coil dependent DNA transitions predicting helical structures in genomic DNA.

Separation and Characterization of Macromolecules

Sedimentation, moving boundary sedimentation, zonal sedimentation, general principles of electrophoresis, electrophoresis of proteins and nucleic acids, capillary electrophoresis.

UNIT 4

Bioenergetics and ATP cycle

Standard free energy change in biochemical reaction, exergonic, endergonic reactions. Hydrolysis of ATP, synthesis of ATP from ADP, metal complexes and transition of energy, chlorophylls, photo system I and photo system II in cleavage of water.

Thermodynamics of Biopolymer Solutions

Thermodynamics of biopolymes solutions, osmotic pressure, membrane equilibrium, muscular contraction and engery generations in mechanochemical system.

Cell Membranes And Transport Of Ions


Instructions for Paper setters and Candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

III. All questions carry equal marks.
ESSENTIAL BOOKS:
8. Jolley, William *Bioinorganic Chemistry*.

BOOKS FOR FURTHER READING:

Subject: Organic Synthesis – I
PAPER: (III) CH-522

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week )
(60 Hrs.)

UNIT 1
Organometallic Reagents (15 Hrs.)

Principle, Preparations, properties and applications of the following in organic synthesis with mechanistic details.

Organolithium and organomagnesium compounds: Hg, Zn and Ce Compounds
Transition metals: Cu, Pd, Ni, Fe, Co, Rh, Cr and Ti Compounds
Other elements: Si, B and iodine (I) Compounds

UNIT 2
Organic Synthesis (15 Hrs.)

Linear & Conversion Synthesis, Reterosynthetic Approach, Umpolung, Regioselectivity, Chemoselectivity and Diastereoselectivity, Cram’s Rule, Felkin-Ahn Model (with relevant examples)
UNIT 3

Oxidation (7 Hrs.)
Introduction. Different oxidative Processes Hydrocarbon-alkenes, aromatic rings, saturated C-H groups (activated and Unactivated)
Alcohols, diols, aldehydes, ketones, ketals and carboxylic acids, amines, hydrazines, and sulphides. Oxidation with ruthenium tetaoxide, iodobenzene diacetate and Thallium(III) nitrate.

Reduction (8 Hrs.)
Introduction. Different reductive processes Hydrocarbons-alkanes, alkenes, alkynes and aromatic rings carbonyl compounds-aldehydes, ketones, acids and their derivatives. epoxides. nitro, nitroso, azo and oxime groups. Hydrogenolysis.

UNIT 4

Rearrangements (15 Hrs.)
General mechanistic considerations-nature of migration, migratory aptitude, memory effects. A detailed Study of the following rearrangements Pinacol-pinacolone, Wagner-Meerwein, Demjanov, Benzil- Benzilic Acid, Favorskii, Arndt Eistert synthesis, Neber, Beckmann, Hofman, Curtius, Schmidt, Baeyer-Villiger, Shapiro reaction.

Instructions for Paper setters and Candidates:

I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.
III. All questions carry equal marks.

ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
7 Aggarwal, O.P. Reactions and Reagents in Organic Chemistry.
Subject: Chemistry of Natural Products
PAPER: (III) CH-523

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours
Max marks 80+20
(4 Hrs./Week)
(60 Hrs.)

UNIT 1
*Terpenoids and Carotenoids (15 Hrs.)

Classification, nomenclature occurrence isolation general methods of structure Determination, isoprene rule. Structure determination stereochemistry, Biosynthesis and synthesis of the following representative molecules: citral, Terpeneol, Farnesol, santonin, phytol, Abietic Acid and Beta-Carotene

UNIT 2
Alkaloids (15 hrs.)
Definition, nomenclature and physiological action occurrence isolation general method of structure elucidation degradation classification based on nitrogen heterocyclic ring role of alkaloids in plants. Structure stereochemistry synthesis and biosynthesis of the following: Ephedrine, (+)- Conine, Nicotine, Atropine, Quinine and Morphine

UNIT 3
Steroids (15 Hrs.)
Occurrence nomenclature basic skeleton, Diel’s hydrocarbon and Stereochemistry Isolation structure determination and synthesis of cholesterol Bile acids Androsterone Testosterone, Estrone Progestrone Aldosterone Biosynthesis of Steroids

UNIT 4
* Plant Pigments (5 Hrs.)
Occurrence nomenclature and general methods of structure determinations, isolation and synthesis, Quercetin, Quercetin-3-Glucoside Vitexin, Diadzein, Cyanidin-7-arabinoside cyanidine, Hirsutidin Biosynthesis of Flavonoids: Acetate path way and shikimic acid path way.
Porphyrsins  
*(3 Hrs.)*

*Structure and synthesis of Haemoglobin and chlorophyll*

Prostaglandins  
*(5 Hrs.)*

Occurrence, nomenclature, classification, biogenesis and physiological effects Synthesis of PGE2 and PGF 2

Pyrethroids and rotenones:  
*(2 Hrs.)*

*Synthesis and reaction of Pyrethroids and rotenones*

**Note:** *Geraniol, Menthol, Zingiberene, apigenin, luteolin, myrcetin, butin, aureusin are deleted because geraniol similar to citral, Menthol similar to Alpha-Terpeneol, Zingiberene similar to farnesol, Apigenin, luteolin, myrcetin similar to quercetin, butin, aureusin similar to cyaniding*

**Instructions for Paper setters and Candidates:**

I. **Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.**

II. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

III. **All questions carry equal marks.**

**ESSENTIAL BOOKS:**


**BOOKS FOR FURTHER READING:**

Subject: Photochemistry and Solid state  
PAPER: (IV) CH-524

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, General, Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 3 hours  
Max marks 80+20  
(4 Hrs./Week )  
(60 Hrs.)

UNIT 1  
Photochemistry  
Photochemical Reactions (4 Hrs.)  
Interaction of electromagnetic radiation with matter, types of excitations, fate of excited molecule, quantum yield, transfer of excitation energy, actinometry

Determination of reaction mechanism (5 Hrs.)  
Classification, rate constants and life times of reactive energy states – determination of rate constants of reaction. Effect of light intensity on the rate of photochemical reactions. Types of photochemical reaction – photo-dissociation, gas-phase photolysis.

Photochemistry of Alkenes (6 Hrs.)  
Intermolecular reaction of the olefinic bond-geometrical isomerism, cyclisation reaction, rearrangement of 1,4- and 1,5-dienes

UNIT 2  
Photochemistry of Carbonyl compound (7Hrs.)  
Intramolecular reaction of carbonyl compounds-saturated, cyclic and acyclic $\beta\gamma$ unsaturated and $\alpha\beta$ unsaturated compounds. Cyclohexadienes. Intermolecular cycloaddition reactions—dimerisation and oxetane formation.

Photochemistry of aromatic compounds (4 Hrs.)  
Isomerisations, additions and substitutions.

Miscellaneous photochemical reactions (4 Hrs.)  
Photofries reactions of anilids, photo-fries rearrangement, Barton reaction, singlet molecular oxygen reactions, photochemical formation of smog, photodegradation of polymers, photochemistry of vision.

UNIT 3  
Solid state chemistry  
Solid state reactions (4 Hrs.)  
General principles, experimental procedures, co-precipitation as a precursor to solid state reactions, kinetics of solid state reactions.
Crystal defects and non-stoichiometry (6 Hrs.)
Perfect and imperfect crystals, intrinsic and extrinsic defects-point defect, line defects, vacancies-Schottky defects and Frenkel defects. Thermodynamics of Schottky defects and Frenkel defect formation, colour centers, non-stoichiometry and defects.

Organic solids (5 Hrs.)
Electrically conducting solids, organic charge transfer complex, organic metals, new superconductors.

UNIT 4
Electronic properties and Band Theory (15 Hrs.)

Instructions for Paper setters and Candidates:
I. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
II. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.
III. All questions carry equal marks.

ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
4. Turro, N.J.; Benjamin, W.A. Molecular Photochemistry.
OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 4th Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours
Max marks 33

(6 Hrs./Week)

1. Preparation of head Tetra-acetate, Pb(OCOCH₃)₄ and its complex, Dipyridinium Hexachloroplumbate (IV), (C₅H₅NΗ)₂PbCl₆. Estimation of lead in its complex.
2. Acetylation of ferrocene and its purification by column chromatography.
3. Amperometric determination of
   (i) Zn²⁺ with EDTA
   (ii) Thiosulphate with iodine.
4. Preparation and nitration of [Co(acac)₃].
5. Analysis of water
   (i) Hardness (ii) different type of nitrogen and oxygen removal of hardness.

ESSENTIAL BOOKS:
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 4th Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours 
Max marks 33

(6 Hrs./Week )

A. Extraction of organic compound from natural sources
1. Isolation of caffeine from Tea leaves Benzpinacol, Benzpinacolone.
2. Isolation of Casein and lactose from milk
3. Isolation of cycopene from tomatoes
4. Isolation of Hippuric acid from urine

B. Estimations
1. To estimate the strength of given glucose and sucrore solution. (Fehling’s method )
6. To determine saponification & iodine values of oils and fats.
7. Estimation of formaldehyde.
8. Estimation of glycine

ESSENTIAL BOOKS:

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 3rd Semester) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Time 4 hours (6 Hrs./Week )
Max marks 33

1 Current Potential Relationships :
   (i) To determine half wave potentials of $\text{Zn}^{2+}$ and $\text{Cd}^{+2}$ ions.
   (ii) To find formation constant of copper glycinate polarographically.
   (iii) To plot a polarogram of a mixed soln. of $\text{Cd}^{+2}$, $\text{Zn}^{+2}$, $\text{Mn}^{+2}$ ions in 0.1M HCl.

2 Colorimetry :
   (i) Determination of iron in water using a colorimeter.
   (ii) To measure concentration of $\text{KMnO}_4$ and $\text{K}_2\text{Cr}_2\text{O}_7$ present in same solution.
   (iii) To find composition of ferric ions-salicylic acid complex by Job's method.
   (iv) To determine dissociation constant of phenolphthalein colorimetrically.

3 Chromatography :
   (i) To prepare citric acid from sodium citrate and aniline from aniline hydrochloride using cation and anion exchangers.
   (ii) To differentiate common sugars by paper chromatography.

4 Computer Programming :
   Elementary exercise in computer graphics an illustrative experiment
   Solving the interactive equation. Plotting the time series: $X_n, (t)$ Versus $n$. 
   (for all experiments. Students should be encouraged to analyse data (graphics etc.) on a computer).

ESSENTIAL BOOKS:

**********
FACULTY OF SCIENCE

SYLLABUS

FOR

M.Sc. MATHEMATICS (SEMESTER SYSTEM)
EXAMINATION, 2015-2016

© The Registrar, Panjab University, Chandigarh
All Rights Reserved.
APPLICABILITY OF REGULATIONS FOR THE TIME 
BEING IN FORCE

Notwithstanding the integrated nature of a course spread over more than one academic year, the regulations in force at the time a student joins a course shall hold good only for the examinations held during or at the end of the academic year. Nothing in these regulations shall be deemed to debar the University from amending the regulations subsequently and the amended regulations, if any, shall apply to all students whether old or new.
GUIDELINES FOR CONTINUOUS INTERNAL ASSESSMENT (20%) FOR REGULAR STUDENTS OF POST GRADUATE COURSES of M. Sc. Mathematics (Semester System)
(Effective from the First Year Admissions for the Academic Session 2007-08)

1. The Syndicate has approved the following Guidelines, Mode of Testing and Evaluation including Continuous Internal Assessment of students:

   (i) Terminal Evaluation          80%
   (ii) Continuous Assessment      20%
   (iii) Continuous Assessment may include written assignment, snap tests, participation in discussions in the class, term papers, attendance etc.
   (iv) In order to incorporate an element of Continuous Internal Assessment of students, the Colleges/Departments will conduct one written test and one snap test as quantified below:

   (a) Written Test : 25 (reduced to 5)
   (b) Snap Test : 25 (reduced to 5)
   (c) Participation in Class Discussion : 15 (reduced to 3)
   (d) Term Paper : 25 (reduced to 5)
   (e) Attendance : 10 (reduced to 2)

   Total: 100 reduced to 20

2. Weightage of 2 marks for attendance component out of 20 marks for Continuous Assessment shall be available only to those students who attend 75% and more of classroom lectures /seminars/ workshops.

   The break-up of marks for attendance component for theory papers shall be as under:

<table>
<thead>
<tr>
<th>Attendance Component</th>
<th>Mark/s for Theory Papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>75% and above up to 85%</td>
<td>1</td>
</tr>
<tr>
<td>Above 85%</td>
<td>2</td>
</tr>
</tbody>
</table>

3. It shall not be compulsory to pass in Continuous Internal Assessment. Thus, whatever marks are secured by a student out of 20% marks, will be carried forward and added to his/her score out of 80% i.e. the remaining marks allocated to the particular subject and, thus, he/she shall have to secure pass marks both in the University examinations as well as total of Internal Continuous Assessment and University examinations.

4. Continuous Internal Assessment awards from the affiliated Colleges/Departments must be sent to the Controller of Examinations, by name, two weeks before the commencement of the particular examination on the proforma obtainable from the Examination Branch.

SPECIAL NOTE:

(i) The theory question paper will be out of 80 marks and 20 marks will be for internal assessment.

(ii) In the case of Postgraduate Course in the Faculties of Arts, Science, Languages, Education, Design & Fine Arts, and Business Management & Commerce (falling under the purview of Academic Council), where such a provision of Internal Assessment/Continuous Assessment already exists, the same will continue as before.
PANJAB UNIVERSITY, CHANDIGARH

OUTLINES OF TESTS, SYLLABI AND COURSES OF READING FOR M.Sc. MATHEMATICS
(Semester System) i.e., 1st and 3rd SEMESTERS NOVEMBER/DECEMBER, 2015
AND 2nd and 4th SEMESTERS APRIL/MAY, 2016 EXAMINATIONS.

Outlines of Tests

Note: Teaching hours for each paper of M.Sc. Mathematics Semester 1st to 4th be 6 hrs. per week.

M.Sc. (Pass Course) in Mathematics

SEMESTER I (November/December, 2015)

MATH-601S : Real Analysis-I
MATH-602S : Algebra -I
MATH-603S : Differential Equations
MATH-604S : Complex Analysis-I
MATH-605S : Number Theory-I

SEMESTER II (April/May, 2016)

MATH-621S : Real Analysis-II
MATH-622S : Algebra -II
MATH-623S : Vector Analysis and Mechanics
MATH-624S : Complex Analysis-II
MATH-625S : Number Theory–II

SEMESTER III (November/December, 2015)

MATH-617S : Field Theory (Compulsory Course)
MATH-618S : Topology (Compulsory Course)
MATH-661S : Probability and Mathematical Statistics-I
MATH-672S : Computational Techniques-I
MATH-673S : Differential Geometry-I
MATH-674S : Elasticity -I
MATH-675S : Special Functions
MATH-676S : Fluid Mechanics-I
MATH-678S : Linear Programming
MATH-680S : Geometry of Numbers-I
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH-637S</td>
<td>Linear Algebra (Compulsory Course)</td>
</tr>
<tr>
<td>MATH-638S</td>
<td>Functional Analysis (Compulsory Course)</td>
</tr>
<tr>
<td>MATH-681S</td>
<td>Probability and Mathematical Statistics-II</td>
</tr>
<tr>
<td>MATH-692S</td>
<td>Computational Techniques-II</td>
</tr>
<tr>
<td>MATH-693S</td>
<td>Differential Geometry-II</td>
</tr>
<tr>
<td>MATH-694S</td>
<td>Elasticity -II</td>
</tr>
<tr>
<td>MATH-695S</td>
<td>Integral Transforms and Their Applications</td>
</tr>
<tr>
<td>MATH-696S</td>
<td>Fluid Mechanics-II</td>
</tr>
<tr>
<td>MATH-698S</td>
<td>Non-Linear Programming</td>
</tr>
<tr>
<td>MATH-700S</td>
<td>Geometry of Numbers-II</td>
</tr>
</tbody>
</table>
SEMESTER-I

MATH 601S : Real Analysis-I

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No. 1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I


UNIT- II


Scope

As in relevant sections of Chapters 2,3,4,6,7 of the book at Sr. No. 6 in the list of references.
References:


Math 602S: Algebra- I

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.

2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.

3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.

4. All questions carry equal marks.

UNIT- I

UNIT-II

Survey of some finite groups, Groups of order $p^2$, $pq$ ($p$ and $q$ primes). Solvable groups, Normal and subnormal series, composition series, the theorems of Schreier and Jordan Holder [Scope as in Chapters 6 of Modern Algebra by Surjeet Singh and Qazi Zameeruddin, Eighth Edition and Chapter 7 of Algebra, Vol. I by Luther and Passi].

Review of basic concepts of rings with emphasis on exercises. Polynomial rings, formal power series rings, matrix rings, the ring of Guassian Integers. [Scope as in Chapters 7, 8 and 9 of Modern Algebra by Surjeet Singh and Qazi Zameeruddin, Eighth Edition , 2006].

References:

Math 603S:  Differential Equations

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:  1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
       2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
       3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
       4. All questions carry equal marks.

UNIT-I

Differential Equations

Existence and uniqueness of solution of first order equations. Boundary value problems and Strum-Liouville theory. ODE in more than 2-variables.


UNIT-II


References:
Math 604S : Complex Analysis-I

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

Complex plane, geometric representation of complex numbers, joint equation of circle and straight line, stereographic projection and the spherical representation of the extended complex plane. Topology on the complex plane, connected and simply connected sets. Complex valued functions and their continuity. Curves, connectivity through polygonal lines. Analytic functions, Cauchy-Riemann equations, Harmonic functions and Harmonic conjugates. Power series, exponential and trigonometric functions, $\arg z$, $\log z$, $a^z$ and their continuous branches.

(Scope as in “Foundations of Complex Analysis” by Ponnusamy S., Chapter 1, (§1.1-§ 1.5), Chapter 2 (§ 2.2, §2.3), Chapter 3, (§3.1-§3.5), Chapter 4, (§4.9).)

UNIT-II

Complex Integration, line integral, Cauchy's theorem for a rectangle, Cauchy's theorem in a disc, index of a point with respect to a closed curve, Cauchy’s integral formula, Higher derivatives, Morera’s theorem, Liouville’s theorem, fundamental theorem of Algebra. The general form of Cauchy’s theorem.

(Scope as in “Foundations of Complex Analysis” by Ponnusamy S., Chapter 4, (§4.1-§ 4.8), Chapter 6 (§ 6.4, §6.6).”Complex Analysis” by L/ V. Ahlfors, Chapter 4 (§1, 2, 4.1 to 4.5and §5.1)
References:


MATH-605S : Number Theory-1

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.
UNIT-I

Divisibility, Greatest common divisor, Euclidean Algorithm, The Fundamental Theorem of arithmetic, congruences, Special divisibility tests, Chinese remainder theorem, Fermat’s little theorem, Wilson’s theorem, residue classes and reduced residue classes, Euler’s theorem, An Application to cryptography, Arithmetic functions $\phi(n)$, $d(n)$, $\sigma(n)$, $\mu(n)$, Mobius inversion Formula, the greatest integer function, perfect numbers, Mersenne primes and Fermat numbers.

UNIT-II

Primitive roots and indices. Quadratic residues, Legendre symbol, Quadratic reciprocity law, Jacobi symbol, Binary quadratic forms and their reduction, sums of two and four squares, positive definite binary quadratic forms, Diophantine equations $ax + by = c$, $x^2 + y^2 = z^2$, $x^4 + y^4 = z^2$.


References:

4. Hardy & Wright, Number Theory (Oxford Univ. Press).

..........................
Semester-II

MATH-621S : Real Analysis-II

| Total Marks | 100 |
| Theory      | 80 Marks |
| Internal Assessment | 20 Marks |
| Time        | 3 hrs. |

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

(i) Differentiation: Differentiation of vector-valued functions.

(ii) Functions of several variables: The space of linear transformations on $\mathbb{R}^n$ to $\mathbb{R}^m$ as a metric space. Differentiation of a vector-valued function of several variables. The inverse function theorem. The implicit function theorem.


UNIT-II


Scope

(i) For items (i) & (ii) as in relevant sections of Chapters 5 & 9 of the book at Sr. No. 5 in the list of references.

(ii) For items (iii) to (v) as in relevant sections of Chapters 3 to 5 of the book at Sr. No. 4 of references.
References:


Math 622S: Algebra II

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.

2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.

3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.

4. All questions carry equal marks.

UNIT- I

Factorization Theory in Integral Domains, Divisibility, Unique Factorization Domain (UFD), Principal Ideal Domain (PID), Euclidian Domain (ED) and their relationships. Noetherian and Artinian Rings, Examples and Counter Examples, Artinian Rings without zero divisors, Nil Ideals in Artinian Rings, Hilbert Basis Theorem. [ Scope as in Chapters 10 and 15 of Modern Algebra by Surjeet Singh and Qazi Zameerudin, Eighth Edition, 2006].

UNIT-II

Modules, Difference between Modules and Vector Spaces, Module Homomorphisms, Quotient Module, Completely reducible or Semisimple Modules, Free Modules, Representation and Rank of Linear Mappings, Smith normal Form over a PID, Finitely generated modules over a PID, Rational Canonical Form, Applications to finitely generated abelian groups [ Scope as in Chapters 14, 20 and 21 (Sections 1, 2, 3, 4) of Basic Abstract Algebra by P. B. Bhattacharya, S. K. Jain, and S. R. Nagpal, Cambridge University Press, 1986].
References:


Math 623S : Vector Analysis and Mechanics

| Total Marks | 100 |
| Theory      | 80 Marks |
| Internal Assessment | 20 Marks |
| Time        | 3 hrs. |

Note:

1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.
UNIT-I

Vectors

Scalar and vector point functions, Differentiation and integration of vectors, Gradient divergence and curl operators, Green's and Stoke's theorems, Gauss' divergence theorem, Curvilinear co-ordinates.


UNIT-II

Mechanics


References:

1. Weatherburn, C.E., Advanced Vector Analysis.

MATH 624S : Complex Analysis-II

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80  Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.
UNIT-I


(Scope as in “Foundations of Complex Analysis” by Ponnusamy S., Chapter 6 (§6.1-§6.3), Chapter 4(§4.10-§4.12), Chapter 7, Chapter 8, Chapter 9.)

UNIT-II

Definitions and examples of conformal mappings. Infinite products, Weierstrass theorem, Mittagleffer’s theorem, Canonical product, Analytic Continuation through power series (basic ideas), Natural boundary, the Gamma function and Riemann Zeta function.

(Scope as in “Foundations of Complex Analysis” by Ponnusamy S., Chapter 5, Chapter 10 (§10.1, §10.4), Chapter 11.)

References:

MATH-625S : Number Theory-II

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

Farey sequences, Continued fractions, Approximation of reals by rationals, Pell’s equations, Minkowski’s theorem in Geometry of Numbers and its applications.


UNIT-II


[Scope as in Chapters 3 & 4 of ‘Introduction to Analytic Number Theory’ by T. M. Apostol.]

References:

5. Hardy & Wright, Number Theory (Oxford Univ. Press).
SEMESTER III

MATH-617S: FIELD THEORY
(COMPELLURY COURSE)

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Fields, examples, characteristic of a field, subfield and prime field of a field, field extension, the degree of a field extension, algebraic extensions and transcendental extension, Adjunction of roots, splitting fields, finite fields, existence of algebraic closure, algebraically closed fields. Separable, normal and purely inseparable extensions. Perfect fields, primitive elements. Langrange’s theorem on primitive elements.

UNIT II

Galois extensions, the fundamental theorem of Galois theory, Cyclotomic extensions, and Cyclic extensions, Applications of cyclotomic extensions and Galois theory to the constructability of regular polygons, Solvability of polynomials by radicals.

References:
2. S.Singh and Q Zameeruddin, Modern Algebra (Vikas Publisher, Delhi).
5. I. Stewart, Galois Theory, Chapman and Hall.
MATH-618S: TOPOLOGY  
(COMPELLSORY COURSE)  

Total Marks : 100  
Theory : 80 Marks  
Internal Assessment : 20 Marks  
Time : 3 hrs.

Note:  
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.  
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.  
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.  
4. All questions carry equal marks.

UNIT – I  

Topological Spaces, bases for a topology, the order topology, the product topology on $X \times Y$, the subspace topology, closed sets and limit points, continuous functions, the product topology, the metric topology, the quotient topology.  


Connected spaces, connected subspaces of the real line, components and local connectedness.

UNIT-II  

Compact spaces, compact space of the real line, limit point compactness, local compactness, nets.  

The countability axioms, the separation axioms, Normal spaces, the Urysohn Lemma, the Urysohn Metrization Theorem, the Tietze Extension Theorem, the Tychonoff Theorem.  


References  

3. John L. Kelley, General Topology (Van Nostrand)
6. W.J. Thron, Topological Structures (N.Y.Holt) (Scope as in Chapters IV to XV, Chapter XVI: def. 16.4 and Results Including Tychonoff’s theorem and Chapter XVIII of the reference 4).

MATH 661S: Probability and Mathematical Statistics-I

<table>
<thead>
<tr>
<th></th>
<th>Total Marks</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>: 100</td>
<td>: 80 Marks</td>
<td>: 20 Marks</td>
<td>: 3 hrs.</td>
</tr>
</tbody>
</table>

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT – I

Nature of Data and methods of compilation: Measurement scales, Attribute and variable, Discrete and continuous variables. Collection, Compilation and Tabulation of data.

Representation of data: Histogram, Frequency Polygon, Frequency Curve, Ogives.

Measures of central tendency: Mean, Median, Mode, Geometric Mean, Harmonic Mean and their properties.

Measuring variability of data: Range, Quartile deviation, Deciles and Percentiles. Standard deviation, Central and non-central moments, Sample and Population variance. Skewness and Kurtosis, Box and Whisker plot.

UNIT – II

Probability: Intuitive concept of Probability, Combinatorial problems, conditional probability and independence, Bayes’ theorem and its applications.


Chebyshev’s inequality, weak law of large numbers, Central limit theorems.

References:


MATH-672S: COMPUTATIONAL TECHNIQUES-I

Total Marks: 100

Computational Techniques –I (Theory)

Theory (4 hours per week)
Theory marks: 60 marks
Internal Assessment : 20 marks

Note: 1. Nine questions will be set in total - four from Unit I and five from Unit II.
2. The students will be required to attempt 5 questions, selecting at least two from each Unit.
3. Use of calculator is allowed for numerical work.
UNIT-I


Programming in FORTRAN 77: Character set, constants, variables, Arithmetic expressions, Format specification, READ, WRITE statements, unformatted I/O Statements, Unconditional GO TO, Computed GO TO, Arithmetic and Logical IF statements, IF-THEN-ELSE, Nested IF-THEN-ELSE, ELSE-IF-THEN, DO loops, Nested DO loops, CONTINUE Statement, Data statement, Double Precision, Logical Data, Complex Data, WHILE Structure, Arrays-One and multidimensional, Subscripted Variables, Implied DO loops, Sorting Problem, Function Subprograms and Subroutine subprograms, COMMON, EQUIVALENCE, Simple programs.

UNIT-II

Solution of non-linear equations: Functional iteration, Bisection, Secant, Regula-Falsi, Newton-Raphson and Bairstow’s methods, Rate of convergence of these methods, Solution of linear system of equations: Gauss elimination, Gauss Seidal and Triangularization methods, Condition of convergence of these methods.

Interpolation: Finite difference operators, Newton interpolation, Gauss Forward and backward interpolation formulae, Newton’s divided difference formula, Lagrange’s Formula, Inverse interpolation, Hermite interpolation.

Computational Techniques - I (Practical)

Practical (3 hours per week): 20 marks
Internal Assessment: No Marks

Writing programs in FORTRAN for the problems based on the methods studied in theory paper and to run the program of PC.

Practical examination shall be conducted by the department/college concerned as per the following distribution of marks:

Writing one Program of FORTRAN and running it on PC = 10 marks
Practical Record = 5 marks
Viva Voce = 5 marks

References:
4. C. Xavier: FORTRAN 77 and Numerical Methods, New Age Int. Ltd.
MATH-673S: DIFFERENTIAL GEOMETRY-I

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Tensors: Notations and Summation Convention, Transformation law for vectors, Cartesian tensors, Algebra of Cartesian tensors, Differentiation of Cartesian tensors, The metric tensor, Transformation of curvilinear co ordinates, General tensors, Contravariant, Covariant derivative of a vector, Physical components, Christoffel symbol, Relation with the metric tensor, Covariant derivative of a tensor, Riemann – Christoffel curvature tensor.

UNIT-II

Curves with Torsion: Tangent, Principal normal, Curvature, Binormal, Torsion, Serret-Frenet formulae, Locus of Center of curvature, Circle of curvature, torsion of a curve, Involutes, Evolutes and Bertrand curves.

Envelopes and Developable Surfaces: Surfaces, Tangent plane, normal, Envelope, Edge of regression, Developable surfaces, Curvilinear co ordinates on a surface: Fundamental Magnitudes.

References:
UNIT I

Tensors: Summation convention, Coordinate transformation, Cartesian tensors of different orders, Sum, product and quotient laws, Contraction, Symmetric and skew symmetric tensors, Relation between alternate and Kronecker tensors, Eigen values and Eigen vectors of a tensor of order two, Three scalar invariants of a tensor of order two, Eigen vectors and values of symmetric tensors, Orthogonality of Eigen vectors and reality of Eigen values, Gradient, Divergence and Curl in tensor notations, Gauss divergence theorem.

Analysis of Strain: Affine transformation, infinitesimal affine transformation, Geometrical interpretation of component of Strain, Strain quadric of Cauchy.

UNIT-II

Analysis of Strain: Principal strains and Invariants, general infinitesimal deformation, Example of Strain, Equations of Compatibility, Finite deformations.

Analysis of Stress: Stress tensor, Equation of equilibrium, Stress quadric of Cauchy, Principal stress and invariants, Maximum normal and shear stress, Plane stress, generalized plane stress, Airy stress function, General solution of biharmonic equation, stresses and displacements in terms of complex potentials, simple problems.

References:
MATH-675S: SPECIAL FUNCTIONS

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Hypergeometric Functions: The hypergeometric series, An integral formula for the hypergeometric series, The hypergeometric equation, Linear relations between the solutions of the hypergeometric equation, Relations of contiguity, The confluent hypergeometric function, Generalised hypergeometric series.

Legendre Functions: Legendre polynomials, Recurrence relations for the Legendre polynomials, The formulae of Murphy and Roderigues, Series of Legendre polynomials, Legendre’s differential equation, Neumann’s formula for the Legendre functions, Recurrence relations for the functions $Q_n(\mu)$, The use of Legendre functions in potential theory, Legendre’s associated functions, Integral expression for the associated Legendre function, Surface spherical harmonics, Use of associated Legendre functions in wave mechanics.

UNIT II

Bessel Functions: The origin of Bessel functions, Recurrence relations for the Bessel coefficients, Series expansions for the Bessel coefficients, Integral expressions for the Bessel coefficients, The addition formula for the Bessel coefficients, Bessel’s differential equation, Spherical Bessel functions, Integrals involving Bessel functions, The modified Bessel functions, The Ber and Bei functions, Expansions in series of Bessel functions, The use of Bessel functions in potential theory, Asymptotic expansion of Bessel functions.

References:

5. W. W. Bell, Special Functions for Scientists and Engineers, Dover, 1968.

MATH-676S: FLUID MECHANICS –I

Total Marks : 100  
Theory : 80 Marks  
Internal Assessment : 20 Marks  
Time : 3 hrs.

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.

2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.

3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.

4. All questions carry equal marks.

UNIT-I

Real fluids and ideal fluids, velocity of fluid at a point, streamlines, pathlines, streaklines, velocity potential, vorticity vector, local and particle rate of change, equation of continuity, irrotational and rotational motion, acceleration of fluid, conditions at rigid boundary.

Euler’s equation of motion, Bernoulli’s equation, their applications, Potential theorems, axially symmetric flows, impulsive motion, Kelvin’s Theorem of circulation, equation of vorticity.

UNIT-II

Some three dimensional flows: Sources, sinks and doublets, images in rigid planes, images in solid sphere, Stoke’s stream function.

Two dimensional flows: Complex velocity potential, Milne Thomson Circle Theorem and applications, Theorem of Blasius, vortex rows, Karman vortex street.

References

2. L.D. Landau & E. N. Lipschitz (Fluid Mechanics).
MATH-678S: LINEAR PROGRAMMING

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I


UNIT-II


[Scope as in Chapter 2-5; Chapter 7-9 of the reference no.1,chapter 4-6 of reference no. 3, chapter 5 of reference no. 2].

References:
MATH 680S: Geometry of Numbers-I

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:

1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

Convex sets in Euclidean space IR^n, Lattices, basics of Lattices, Minkowskis’ Fundamental Theorem and its applications and generalizations. Hermite’s Theorem on minima of +ve definite quadratic forms.

UNIT-II

Minkowskis’ 2nd Theorem, Mahlers’ Compactness theorem, critical determinants, critical lattices.

References:

2. J.W.S.Cassels - An Introduction to Geometry of Numbers.
4. C.A.Rogers - Packings and Coverings.
SEMESTER IV

MATH-637S: LINEAR ALGEBRA
(COMPULSORY COURSE)

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:

1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Definition and examples of vector spaces (over arbitrary fields), subspaces, direct sum of subspaces, linear dependence and independence, basis and dimensions, linear transformations, quotient spaces, algebra of linear transformations, linear functions, dual spaces, matrix representation of a linear transformation, rank and nullity of a linear transformation, invariant subspaces.

UNIT II

Characteristic polynomial and minimal polynomial of a linear transformation, eigenvalues and eigenvectors of a linear transformation, diagonalization and triangularization of a matrix, Jordan and Rational canonical forms, bilinear forms, symmetric bilinear forms, Sylvester’s theorem, quadratic forms, Hermitian forms, Inner product spaces, Gram-schmidt orthonormalization process.

References:

3. S.Singh and Q Zameeruddin, Modern Algebra (Delhi, Vikas).
4. I.N. Herstein, Topics in Algebra (Delhi Vikas).
5. V.Bist and V. Sahai, Linear Algebra (Narosa, Delhi).
MATH 638S: Functional Analysis (Compulsory Course)

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I
Banach Spaces with examples of $L^p([a,b])$ and $C([a,b])$, Hahn Banach theorem, open mapping theorem, closed graph theorem, Baire Category theorem, Banach Steinhaus theorem (uniform boundedness principle). Boundedness and continuity of linear transformation, Dual Spaces, embedding in second dual.


UNIT-II
Hilbert space, orthonormal basis, Bessel’s inequality, Riesz Fischer theorem, Parseval’s identity, bounded Linear functionals; projections, Riesz Representation theorem, adjoint operators, self adjoint, normal, unitary and isometric operators.


References:
MATH 681S: Probability and Mathematical Statistics-II

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.

2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.

3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.

4. All questions carry equal marks.

UNIT-I


UNIT–II

Hypothesis Testing: The basic idea of significance test. Null and alternative hypothesis, Type-I and Type-II errors. Uniformly most powerful tests, Likelihood Ratio tests. t, Chi-square and F-distributions. Tests of significance based on t, Chi-square and F. One way and two way Analysis of Variance (ANOVA).

Non-Parametric Tests: Sign test, Wilcoxon signed rank test, Mann-whitney test.

References:

MATH-692S: COMPUTATIONAL TECHNIQUES-II

Total Marks: 100

Computational Techniques –II (Theory)

Theory (4 hours per week)
Theory marks: 60 marks
Internal Assessment : 20 marks

Note:
1. Nine questions will be set in total - four from Unit I and five from Unit II.
2. The students will be required to attempt 5 questions, selecting at least two from each Unit.
3. Use of calculator is allowed for numerical work.

UNIT-I

MS Excel: Introduction, Functions and Formulae, Graphics and Data base.

Programming in C: Historical development of C, Character set, Constants, Variables, Keywords, Operators, Hierarchy of arithmetic operations, if and if-else statements, Logical and Conditional Operators, Switch structure, while structure, do-while and for-Loops, Nested loops, Break and Continue statements, Arrays, Functions, Print Function, Function Declaration and Function Prototype, Return Statement, Local and Global Variables, Passing Arrays as parameter, Recursion and Library Functions, Files in C, Introduction to pointers, Simple programs.

UNIT-II

Numerical Differentiation, Numerical Integration: General formulae, Trapeziodal rule, Simpson’s 1/3 and 3/8 rule, Romberg integration, Newton-Cotes formulae, Gaussian integration.


Approximation of functions: Chebyshev Polynomials, Orthogonality of Chebyshev polynomials, Lanczos Economization of Power series.

Computational Techniques –II (Practical)

Practical (3 hours per week): 20 marks
Internal Assessment : No marks

Writing programs in C for the problems based on the methods studied in theory paper and to run the program of PC.
Practical examination shall be conducted by the department/college concerned as per the following distribution of marks:

- Writing one Program of C and running it on PC = 10 marks
- Practical Record = 5 marks
- Viva Voce = 5 marks

References:
4. C. Xavier: C Language and Numerical Methods, New Age Int. Ltd.

MATH-693S: DIFFERENTIAL GEOMETRY-II

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Note:
1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Curves on a Surface: Principal directions and curvature, First and second curvature, Euler’s theorem, Dupin theorem, Dupin’s indicatrix, Normal curvature, Mean curvature, Umblic points, Conjugate directions, conjugate system, asymptotic lines, Curvature and Torsion, Isometric lines, Null lines.
UNIT II

Equations of Gauss and of Codazzi: Gauss’s formulae for $r_{11}$, $r_{12}$, $r_{22}$, Gauss Characteristic equation, Mainardi-Codazzi relation, Bonnet’s theorem.

Quadric Surfaces: Geodesics, Geodesic property, equation of geodesics, surface of revolution, Torsion of geodesic, Central quadrics, Fundamental magnitudes, The fundamental theorem of surface theory, Liouville’s equation, Joachimsthal’s theorem.

References:


MATH-694S: ELASTICITY –II

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Equations of Elasticity: Generalized Hook’s Law, Homogeneous isotropic media, Equilibrium and dynamical equations for isotropic media, Strain energy function, Uniqueness of solution, Beltrami-Michell Compatibility equations, Saint Venant’s Principal.

D’Alembert’s method of one dimensional wave equation, Waves in three dimensions, Harmonic waves, Spherical waves, Superposition of waves and stationary waves, Solution of equation of wave motion of stationary type by method of separation of variables, Cartesian, plane polar and spherical polar coordinates.
UNIT-II


References:


MATH 695S: INTEGRAL TRANSFORMS AND THEIR APPLICATIONS

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>: 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>: 80 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>: 20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>: 3 hrs.</td>
</tr>
</tbody>
</table>

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT I

Laplace Transforms: Definition and examples, Existence theorem and basic properties, Convolution theorem and properties of convolution, Differentiation and Integration of Laplace transform, the inverse Laplace transform and examples, Tauberian theorems for Laplace transforms and Watson’s Lemma, Laplace transforms of fractional integrals and fractional derivatives.

Finite Laplace Transforms: Definition and examples, Basic operational properties, Applications, Tauberian theorems for finite Laplace transforms.

Hankel Transforms: Definition and examples, operational properties, Applications to solve partial differential equations.

UNIT II

Fourier Transforms: Fourier Integral formulas, Definition and examples, Basic properties, Fourier cosine and sine transforms and examples, Basic properties of Fourier cosine and sine transforms, Multiple Fourier transforms.

Applications of Fourier Transform to Solve/Evaluate: Ordinary and Partial differential equations, Integral equations, Definite integrals. Applications of Multiple Fourier transform.

Finite Fourier Cosine and Sine Transforms: Definition and examples, Basic properties, Applications, Multiple finite Fourier transforms and their applications.

Mellin Transforms: Definition and examples, Basic operational properties and Applications.

References:


MATH 696S: Fluid Mechanics-II

<table>
<thead>
<tr>
<th>Total Marks</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.

2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.

4. All questions carry equal marks.

**UNIT-I**

Viscous Flows: Stress components, Stress and strain tensor, coefficient of viscosity and Laminar flow, plane Poiseuille flows and Couette flow. Flow through tubes of uniform cross section in the form of circle, Ellipse, equilateral triangle, annulus, under constant pressure gradient.

Diffusion of vorticity. Energy dissipation due to viscosity, steady flow past a fixed sphere, dimensional analysis, Reynold numbers, Prandtl’s boundary layer, Boundary layer equation in two dimensions, Karman integral equation.

**UNIT-II**

Elements of wave motion, waves in fluids, surface gravity waves, standing waves, dispersion relation, path of particles, waves at the interface of two liquids, equipartition of energy, group velocity, energy of propagation of waves.

**References**

2. L.D. Landau & E. N. Lipschitz (Fluid Mechanics).

**MATH 698S : Non-Linear Programming**

<table>
<thead>
<tr>
<th></th>
<th>Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>80 Marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>20 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

**Note:**

1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.
UNIT-I

Nonlinear Programming: Convex functions, Concave functions, Definitions and basic properties, subgradients of convex functions, Differentiable convex functions, Minima and Maxima of convex function and concave functions. Generalizations of convex functions and their basic properties.

Unconstrained problems, Necessary and sufficient optimality criteria of first and second order. First order necessary and sufficient Fritz John conditions and Kuhn-Tucker conditions for Constrained programming problems with inequality constraints, with inequality and equality constraints. Kuhn Tucker conditions and linear programming problems.

UNIT-II


Quadratic Programming: Wolfe’s method, Beale’s method for Quadratic programming.

Linear fractional programming, method due to Charnes and Cooper. Nonlinear fractional programming, Dinkelbach’s approach.

Game theory - Two-person, Zero-sum Games with mixed strategies, graphical solution, solution by Linear Programming.

[Scope as in Chapter 17 of reference no. 4, Chapter 3 & 4 of reference no.1, chapter 24, 26 and 28 of reference no. 2, Chapter 8 of reference no. 3, Chapter 16 of reference no. 5]

References:

MATH 700S: Geometry of Numbers-II

Total Marks : 100
Theory : 80 Marks
Internal Assessment : 20 Marks
Time : 3 hrs.

Note: 1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

Packing, Packing-density of Lattices, Covering Constants, Lattice and non-Lattice Covering for n-dimensional convex bodies.

UNIT-II

Minima of indefinite binary quadratic forms. Homogeneous and non-homogeneous minima of indefinite quadratic forms.

References:

2. J.W.S.Cassels - An Introduction to Geometry of Numbers.
4. C.A.Rogers - Packings and Coverings.

Published by: Col. G.S. Chadha (Retd.), Registrar, Panjab University, Chandigarh.
FACULTY OF SCIENCE

SYLLABI

FOR

M.Sc. (TWO YEAR COURSE)

1st & 2nd YEAR (Semester System)

IN

PHYSICS

EXAMINATIONS 2015-2016

---:O:--
OUTLINES OF SYLLABI AND COURSES OF READING FOR M.Sc. (TYC) IN PHYSICS (1<sup>st</sup> to 4<sup>th</sup> SEMESTER) FOR THE EXAMINATION 2015-16 onwards.

### M.Sc 1<sup>st</sup> Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 6001</td>
<td>Mathematical Physics I</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6002</td>
<td>Classical Mechanics</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6003</td>
<td>Quantum Mechanics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6004</td>
<td>Classical Electrodynamics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6005</td>
<td>Electronics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6051</td>
<td>Physics Lab.I</td>
<td>9</td>
<td>125</td>
<td>5</td>
</tr>
</tbody>
</table>

### M.Sc 2<sup>nd</sup> Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 6011</td>
<td>Mathematical Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6012</td>
<td>Quantum Mechanics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6013</td>
<td>Particle Physics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6014</td>
<td>Nuclear Physics I</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6015</td>
<td>Electronics II</td>
<td>4</td>
<td>15+60=75</td>
<td>3</td>
</tr>
<tr>
<td>PHY 6052</td>
<td>PHYSICS LAB II</td>
<td>9</td>
<td>125</td>
<td>5</td>
</tr>
</tbody>
</table>
M.Sc 3rd Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 7001</td>
<td>Classical Electrodynamics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7002</td>
<td>Statistical Mechanics</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7003</td>
<td>Nuclear Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7004</td>
<td>Condensed Matter Physics I</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7021</td>
<td>Physics Laboratory III</td>
<td>9</td>
<td>150</td>
<td>6</td>
</tr>
<tr>
<td>PHYS 7022</td>
<td>Computational Physics I</td>
<td>4</td>
<td>50</td>
<td>2</td>
</tr>
</tbody>
</table>

M.Sc 4th Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 7051</td>
<td>Particle Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7052</td>
<td>Condensed Matter Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7071</td>
<td>Physics Laboratory IV</td>
<td>9</td>
<td>125</td>
<td>6</td>
</tr>
<tr>
<td>PHYS 7073</td>
<td>Computational Physics II</td>
<td>4</td>
<td>50</td>
<td>2</td>
</tr>
</tbody>
</table>

**Special Paper (two of the following)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 7053</td>
<td>Experimental Techniques in Nuclear Physics and Particle Physics</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7054</td>
<td>Fibre Optics and Non-linear Optics</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7055</td>
<td>Nonlinear Dynamics</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7056</td>
<td>Particle Accelerator Physics</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7057</td>
<td>Analytical Techniques for materials</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
</tr>
</tbody>
</table>

* The special papers will be offered depending upon the availability of teachers, and the students will be allotted one of the courses being taught, on the basis of their option and percentage of marks in M.Sc. I examination.

♀ All Theory Paper and Practical Exams. will be of 3 hours.
M.Sc.- 1st SEMESTER

M.Sc 1st Semester  
PHY6001  
MATHEMATICAL PHYSICS I

Max. Marks: 15+60 = 75  
Total teaching hours : 60

Objectives: The aim and objective of the course on Mathematical Physics I is to equip the M.Sc student with the mathematical techniques for understanding theoretical treatment in different courses, e.g., to evaluate various definite integrals, to solve various differential equations including Laplace equation, Schroedinger equation, equations used in electronic circuits, electrical circuits, nuclear decays etc., Concepts of Complex analysis, Dirac Delta function, beta, gamma functions, Special functions: Bessel, Legendre, Hermite, Lagurre functions for developing a strong background if the student chooses to pursue research in Physics as a career.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I
(6.1-6.5, 7.1-7.3 of Book1)

UNIT II
(8.7, 10.1, 10.4 of Book 1)

UNIT III
Dimensional analysis. Vector algebra and vector calculus. (Book 4)  
Linear algebra, matrices, Cayley-Hamilton Theorem. Eigenvalues and eigenvectors. (Book 4)  
(8.1, 8.3-8.6 of Book 1)
UNIT IV

Special Functions: Bessel function of first and second kind, Generating function, integral representation and recurrence relations for Bessel’s functions of first kind, orthogonality. Legendre function: generating function, recurrence relations and special properties, orthogonality. Various Legendre polynomials, Associated Legendre functions: recurrence relations, parity and orthogonality. Hermite functions and Laguerre function. Generating function, Recurrence relations and orthogonality .

(11.1,11.2,12.1-12.5,13.1,13.2 of Book 1)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books


M.Sc 1st Semester
PHY6002 CLASSICAL MECHANICS

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives: The aim and objective of the course on Classical Mechanics is to train the students of M.Sc class in the Lagrangian and Hamiltonian formalism, conservation theorems, rigid body motion, Hamilton’s equations, Canonical Transformations to an extent that they can use these in the modern branches like Quantum Mechanics, Quantum field theory, Condensed Matter Physics, Astrophysics etc.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.
UNIT I


Hamilton Principle: Calculus of variations. Hamilton principle. Lagrange’s equation rom Hamilton’s principle. Extension to non-holonomic systems, advantages of variational principle formulation, symmetry properties of space and time and conservation theorems. (2.1-2.6 of Book 1)

UNIT II

Rigid Body Motion: Independent co-ordinates of rigid body, orthogonal transformation. Eulerian angles and Euler’s theorems. Infinitesimal rotation. Rate of change of vector, Coriolis force, angular momentum and kinetic energy of a rigid body, the inertia tensor, principal axis transformation. Euler equations of motion. Torque free motion of rigid body, motion of a symmetrical top. (4.1, 4.2, 4.4, 4.6, 4.8, 4.9, 4.10, 5.1, 5.3, 5.7 of Book 1)

UNIT III


UNIT IV


TUTORIALS: Relevant problems given at the end of each section in the text books.

Books
Objectives: The aim and objective of the course on Quantum Mechanics I is to introduce the students of M.Sc to the formal structure of the subject and to equip them with techniques of linear vector space and matrix mechanics, Stationary state approximate methods, angular momentum, perturbation theory, Variational method with the application to ground states of harmonic oscillator, hydrogen atom etc., Fermi’s Golden rule so that they can use these in various branches of Physics as per requirement.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

UNIT II
Angular Momentum: Angular part of the Schroedinger equation for a spherically symmetric potential, orbital angular momentum operator, Eigen values and eigenvector of $L_z$ and $L_z$. Spin angular momentum. General angular momentum, Eigenvalues and eigenvectors of $J^2$ and $J_z$. Representation of general momentum operator. Addition of general angular momentum, C.G. coefficients. (3.8, 3.10, 3.11, 3.12 of Book 1 and 8.1-8.3, 8.5, 8.6, 8.9, of Book 2, Book 5)

UNIT III
Stationary State Approximate Methods: Non- Degenerate and degenerate perturbation theory and its application to anharmonic oscillator, Variational method with application to the ground states of harmonic oscillator, hydrogen atom, helium and other simple cases. (5.1-5.4, 5.6-58, of Book 2 and Ch 4 of Book 1)
UNIT IV

Time Dependent Perturbation: General expression for the probability of transition from one state to another. Constant and harmonic perturbations. Fermi’s golden rule and its application to radiative transition in atoms. Selection rules for emission and absorption of light.

(Ch 6 of Book 1 and 9.5-9.8, 9.12-9.15 of Book 2)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books:

M.Sc 1st Semester

PHY6004 CLASSICAL ELECTRODYNAMICS I

Max. Marks: 15+60 = 75
Total teaching hours: 60

Objectives: The Classical Electrodynamics course covers Electrostatics and Magnetostatics, Multipole expansion, concepts of dielectrics: Molecular polarizability, Clausius Mossetti equation, boundary value problems: Green’s theorem, Method of images, Maxwell equations and their applications to propagation of electromagnetic waves in dielectrics, metals and plasma media, EM waves in bounded media: Fresnel amplitude relations, polarization, Total internal reflection, wave guides, radiation from localized time varying sources.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.

2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

Electrostatics in Vacuum: Coulomb’s Law, Gauss Law, Scalar potential. Laplace and Poisson’s equations. Electrostatic potentials, energy and energy density of the electromagnetic field.

(1.1-1.4 and 1.6 of Book 1 and 1.1-1.7 of Book 2)

Multipole Expansion: Multipole expansion of the scalar potential of a charge distribution.
Dipole moment, quadrupole moment. Multipole expansion of the energy of a charge distribution in an external field.

(1.5, 1.7 of Book 1 : 4.1-4.2 of Book 2)

**Magnetostatics**: the differential equations of magnetostatics, Vector potential. Magnetic field of a localized current distribution.

(3.1-3.5 of Book 1 , 5.1 – 5.7 of Book 2)

**UNIT II**


(2.1-2.5 of Book 1 : 4.3, 4.5-4.7 of Book 2)


(4.1-4.3 of Book 1: 1.8-1.10, 2.1-2.7, 3.12, 5.9-5.12 of Book 2)

**UNIT III**


( 5.1-5.5 of Book 1: 6.1-6.5, 6.8-6.9 of Book 2)

**EM waves in various unbounded media**: Wave equation, plane waves in free space and isotropic dielectrics, polarization, energy transmitted by a plane wave, Poynting’s theorem for a complex vector field. Waves in conducting media, skin depth, EM waves in rare field plasma and their propagation in ionosphere.

(6.1-6.8 of Book 1; 7.1-7.5, 7.7 of book 2)

**UNIT IV**

**EM waves in bounded media-Applications**: Reflection and Refraction of EM waves at plane dielectrics interface, Fresnel’s amplitude relations. Reflection and transmission coefficients. Polarization by reflection. Brewster’s angle, Total internal reflection, Parallel plate transmission lines, Wave guides, TE and TM waves, Rectangular wave guides and cavity resonators.

( 7.1-7.3 of Book 1 ; 8.1-8.8 of Book 2, 9.1, 9.2 of book 4)

**Radiation from Localized Time Varying Sources**: Solutions of the inhomogeneous wave equation in the absence of boundaries. Fields and Radiation of a localized oscillating source. Electric dipole and electric quadrupole fields, centre fed linear antenna.

(8.1-8.6 of Book 1: 9.1-9.4 of Book 2)

**TUTORIALS**: Relevant problems given at the end of each section in the text books.
Books

M.Sc 1st Semester
PHY6005 ELECTRONICS I

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives: The Electronics I course covers basic circuit analysis, two-port network analysis, analysis of circuits in frequency domain, and basis of various passive filters. It includes physics of various semiconductor devices; Operational amplifier and its applications in analogue computation, comparator circuits, active filters, instrumentation amplifier; IC555 based applications and basics of amplitude and frequency modulation and demodulation.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I
Semiconductor Devices:
Growth of semiconductor crystals, Direct and indirect semiconductors, Effect of temperature and doping on Carrier concentration and their mobility, Drift and diffusion of carriers, Carrier lifetime and Photoconductivity, Energy band diagrams, position of Fermi level.
Fabrication of p-n junction, Qualitative description of current flow at a junction, Diffusion and depletion capacitance of p-n junctions, Varactors, Ohmic and rectifying contacts, Zener and Avalanche diode, Tunnel diode, Light emitting diode, Laser diode, Photodiodes and Solar cell. Fundamentals of operation of BJT, FET, MOSFET and UJT. Liquid crystal display.
High frequency devices: Gunn diode, IMPATT diode.

UNIT II
Circuit Analysis : Thevenin and Norton theorems, Mesh and Node analysis. (Book 3)
Admittance, Impedance, Hybrid and Transmission matrices for two-port networks and their applications (Book 4).
Transforming circuit elements to frequency domain (Laplace transforms), Transfer function, location of poles and stability of circuit, Sinusoidal frequency and phase response (Bode plot), Analysis of LP, HP, BP, BR and AP passive filters. (Book 3)

UNIT III

OPAMP based Circuits: Differential amplifiers, common mode rejection ratio, Transfer characteristics of OPAMP, inverting and noninverting configurations, open loop and close loop gain, Slew rate, Basic internal circuit of IC Opamp. (Book 5 and 6)

Comparators with hysteresis, Window comparator, Rectangular and triangular wave generators. 555 timer based circuits. (Book 7)

Analogue computation – Summing amplifier, Integrators and Differentiators, Solving differential equations and simultaneous linear equations, Logarithmic and antilogarithmic amplifiers, Current-to-voltage and Voltage-to-current converters. (Book 6)

Instrumentation amplifiers. (Book 8)

UNIT IV

Active filters: Sallen-key and Multiquad Configurations for LP, HP, BP filters, Active BR and AP filters. (Book 9)

Power Devices: pnnp devices, SCR and trigger applications. (Book 1 and Book 2)

Communication systems: General communication system, Generation and detection of amplitude modulated, Single-side band, Double-side band suppressed carrier and Frequency modulated wave. ASK, PSK and FSK, Satellite and mobile communication - TDMA, FDMA, CDMA. (book 10)

TUTORIALS: Relevant problems given in the recommended books.

Books:
Objectives: The aim and objective of the courses on Physics Laboratory I and Physics Laboratory II is to expose the students of M.Sc. to the experimental techniques in general Physics, electronics, nuclear Physics and condensed matter Physics so that they can co-relate the theoretical concepts with the experimental ones and develop confidence to handle sophisticated equipments wherever necessary.

Note:
1. All the contents of unit 1 are compulsory. Students are expected to perform at least 10 experiments in each semester from unit 2 taking 5 from each of sections A and B. The experiments performed in first semester cannot be repeated in second Semester.
2. The duration of the examination will be 3 hours.

Unit 1:
Introduction to experimental techniques: Measurement techniques: Data and error analysis, Plotting and curve fitting software, Introduction to electronic components & use of instruments: Oscilloscope, Multimeter, Wave-form generator.

Unit 2:
Section-A
1. To study the dependence of energy transfer on the mass ratio of the colliding bodies, using air track. OR To verify the law of conservation of linear momentum in collision with initial momentum zero, using air track.
2. To obtain the potential energy curve due to magnet-magnet interactions using air track apparatus.
3. To determine Planck’s constant using photocell.
4. To measure heat capacity of solid at high and low temperatures.
5. To determine dielectric constant at high frequency using Leacher Wire. To study reflected waves in Leacher Wire for different terminating loads.
6. To determine dipole moment of an organic molecule, Acetone.
7. To study the characteristic of J-H curve using ferromagnetic standards.
8. To determine the velocity of ultrasonic waves in given liquid, using interferometer.
9. To compressibility of a given liquid by Ultrasonic diffraction grating.
10. Measurement of vacuum using the pirani/thermocouple gauge.
11. To study the characteristics and dead time of a GM Counter.
12. To study Poisson and Gaussian distributions using a GM Counter.
13. To study absorption of beta rays in Al and deduce end-point energy of a beta emitter.
14. Determination of dissociation limit of iodine molecule by constant deviation spectrograph
15. To study the Fresnel’s bi-prism and its applications.
Section- B

16. To study temperature-dependence of conductivity of a given semiconductor crystal using four probe method.
17. To determine the Hall coefficient for a given semiconductor.
18. To study the characteristics of a PN junction with varying temperature and to find the energy band gap of semiconductor. To measure the capacitance of the junction.
19. To study the series and parallel L.C.R. circuit and find its Q factor for different resistances.
20. To study solid state power supply and voltage multiplier circuits (using breadboard).
21. Design different Clipping and Clamping circuits: positive, negative and bias (using breadboard)
22. To study characteristics of (a) Si and Ge diodes, Zener diode and (b) LEDs, solar cell, photodiode and phototransistor.
23. To study dependence of intensity of radiative transitions in LED as a function of temperature and to deduce energy difference between minima of direct and indirect conduction bands of the indirect semiconductor.
24. Hybrid parameters of a transistor and design an amplifier. Determination of k/e ratio.
25. To study Hartley/Colpitts oscillators.
26. To verify the statement: Power dissipation in the side bands in amplitude modulation is directly proportional to the square of the modulation.
27. To study the various aspects of frequency modulation and demodulation.
28. To study the astable and monostable multivibrators.
29. To study logic gates and flip flop circuits.
30. To study common cathode and common anode seven segment display IC’s on a bread-board.
M.Sc.- 2nd SEMESTER

M.Sc2nd Semester
PHY6011 MATHEMATICAL PHYSICS II

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives: The aim and objective of the course on Mathematical Physics II is to equip the M.Sc student with the mathematical techniques for understanding theoretical treatment indifferent courses. The knowledge of Fourier analysis, Laplace transforms, tensor analysis, integral equations help to solve plenty of problems in higher Physics. Numerical analysis helps to solve problems of computational physics and develop a strong background if he chooses to pursue research in Physics as a career.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

Group Theory: Basic definitions, Multiplication table, conjugate elements and classes. Subgroups, Direct product of groups, Isomorphism and Homomorphism. Permutation groups, Definition of representation and its properties. Reducible and irreducible presentation. Schurs’ Lemmas (Statement only), Orthogonal theorem, Characters of a representation. Example of C4ν. Topological groups and Lie groups, three dimensional rotation group. Unitary groups: SU(2), O(3), the axial rotation group SO(2). Applications of group theory.
[1.1-1.7, 3.1-3.3, 3.5, 3.6, 4.1-4.3(excluding 4.3.2 and 4.3.3), 4.5 (excluding its subsections)and based on Chapters 5-8 of Book 2]

UNIT II

(14.1-14.5, 15.1-15.6, 15.8-15.10, 15.12 of Book 1)
UNIT III

III Integral Equations: Definitions and classifications, Neumann series, Separable kernels, Hilbert-Schmidt theory. Green’s function in one dimension.
(16.1, 16.3, 16.4, 9.5 of Book 1)

(2.6-2.10 of Book 1)

UNIT IV

(Books 3 and 4)

Elementary probability theory, random variables, binomial, Poisson and normal distributions. Central limit theorem.
(Book 1)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books
Objectives: The aim and objective of the course on Quantum Mechanics II is to introduce the students of M.Sc to the formal structure of the subject and to equip them with scattering theory, Born approximation, Relativistic quantum mechanics: Klein Gordon equation, Dirac equation, fine structure of hydrogen atom, Lamb shift, Field Quantization, Relativistic Quantum Field Theory, the concept of Feynman diagrams helps to study various phenomena like Compton scattering etc. so that they can use these in various branches of Physics as per requirement.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I
Scattering Theory: Scattering Cross-section and scattering amplitude, partial wave analysis, Low energy scattering, Green’s function in scattering theory, Born approximation and its application to Yukawa potential and other simple potentials. Electron scattering by an atom, Optical theorem, Scattering of identical particles. (CH 5 of Book 1 and 6.1, 6.2, 6.4-6.6, 6.8-6.13, 6.19 of Book 2)

UNIT II
Relativistic Quantum Mechanics: Klein-Gordon equation, Dirac equation and its plane wave solution, significance of negative energy solutions, spin angular momentum of the Dirac particle, non-relativistic limit of Dirac equation. Electron in electromagnetic fields, spin magnetic moment. spin-orbit interaction, Dirac equation fora particle in a central field. Fine structure of hydrogen atom, Lamb shift. [Chs 7, 8 of Book 1, Ch10 of Book 2. Ch. 10 of Book 3 (Except Foldy Wouthuysen Transformation and 10.2B)]

UNIT III
Field Quantization: Resume of Lagrangian and Hamiltonian formalism of a classical field. Second quantization: Concepts and illustrations with Schroedinger field. Quantization of a real scalar field and its application to one meson exchange potential. (Ch. 9 of Book 1 and 11.2, 11.3 of Book 3)
UNIT IV

Relativistic Quantum Field Theory: Quantization of a complex scalar field. Dirac field and e.m. field. Commutation relations. Covariant perturbation theory. Introduction to Feynman Diagrams.
(Ch II-12 of Book 1: 11.4, 11.5 of Book 3: 1.5, 2.1-2.3, 3.13, 4, 4.1-4.5, 5.1, 5.2, 6.1-6.3, 7.1 of Book 4)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books:

M.Sc 2nd Semester
PHY6013 PARTICLE PHYSICS I

Max. Marks: 15+60=75
Total teaching hours: 60

Objectives: The aim and objective of particle Physics is to familiarize with the concepts of Fermions, bosons and other particles and their interactions with fields in particle physics, Yukawa picture, Invariance principles and conservation laws: parity, Charge conjugation, CPT theorem, Hadron-Hadron Interactions: Strangeness, G-Parity, Relativistic Kinematics and Phase Space; Dalitz plots, Static Quark Model of Hadrons: Baryon decuplet, Baryon octet, spin, colour, quark- anti quark combination, Weak Interaction: Classification, Fermi theory, cabobbo theory, CP violation In K-decay and its experimental determinations and develop a strong background if the student pursue research in particle physics.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.
UNIT I

Introduction: Fermions and Bosons, particles and antiparticles, quarks and leptons, interactions and fields in particles physics, classical and quantum pictures. Yukawa Picture, types of interactions- electromagnetic, weak, strong and gravitational, Natural unit.
(Books 1-4)

UNIT II

(Books 1-4)

Hadron-Hadron Interactions: Cross section and decay rates, Pion spin, Isospin, Two nucleon system, Pion-nucleon system, Strangeness and Isospin, G-parity, Total and Elastics cross section, Particle Production at high energy.
(Books 1-4)

UNIT III

(Books 1-4)

Static Quark Model of Hadrons: The Baryon decuplet, baryon octet, meson octet, quark spin and color, quark-antiquark combination.
(Book 1-4)

UNIT IV

(Books 1-4)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books:
**Objectives:** The aim and objective of the course on Nuclear Physics is to familiarize the students of M.Sc class to the basic aspects of Nuclear Physics like wave mechanical properties of nuclei, electric and magnetic moments, nuclear shapes, nuclear forces, basic properties of neutrons, detection, Nuclear reactions, types of reactions, conservation laws so that they are equipped with the techniques used in studying these things.

**Note:**
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

**UNIT-I**

**Global nuclear properties**
Systematics in nuclear masses and binding energies, Nuclear sizes, Methods to determine nuclear radii, Nuclear electric and magnetic multipole moments, Quantum properties of nuclear states.
(Book 1, Book 2, Book 3)

**Nuclear Reactions**
Types of nuclear reactions, Coulomb barrier, Conversation laws, nuclear reaction kinematics and Q-value, Laboratory and Centre of mass coordinates and their relationship, Reaction cross section, Classical analysis of cross section, Partial wave analysis, thick target yield
(Book 1)

**UNIT-II**

**Radio Active Decays**
Kinematics of alpha-decay (HYDE), naturally occurring decay chains, Range of alpha particles (Bragg Curve), Geiger-Nuttal law, Gammow’s theory of alpha decay, Cluster decay.
(Book 2, Book 3)

Beta decays : $\beta^-$, $\beta^+$ and electron capture decays, Energy relations and Q-values in beta decays, Fermi theory of beta decay, Kurie plots, Comparative half-life, Classification of beta transitions, selection rules for allowed and forbidden transitions, violation of parity conservation, Wu-Ambler experiment, helicity of electron and of neutrino.
Electric and magnetic multipole gamma transitions, selection rules, Internal Conversion process, Transition rates, directional correlation in gamma emission.
(Book 3, Book 4)
UNIT-III
Nuclear Forces- Two-nucleon interaction potential,
Ground state of deuteron, excited states of deuteron, magnetic dipole and electric quadrupole
moment of deuteron and tensor forces.
Neutron-proton (n-p) scattering at low energies, Scattering length, spin dependence, Effective range
theory in n-p scattering, Coherent and incoherent scattering, tensor forces, proton-proton (p-p)
scattering at low energy, comparison of n-p and p-p scattering.
(Book 1)

UNIT-IV
Neutron Physics
Basic properties of neutrons, Neutron sources, Slowing down of neutrons, Energy distribution of
thermal neutrons, Neutron diffusion, detection of neutrons, time of flight.
(Book 3, Book 5)

Nuclear Fission – Types of fission, Fission cross section, Mass and energy distribution of
fragments, Spontaneous fission, Nuclear Fission Reactors - Four factor formula, General aspects of
reactor design, Classification of nuclear reactors.
(Book 1, Book 3, Book 5)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books:
1. Nuclear Physics : Theory and Experiment R.R. Roy and B.P. Nigam (New Age International (P)
M.Sc2nd Semester

PHY6015 ELECTRONICS-II

Max. Marks: 15+60=75
Total teaching hours : 60

Objectives: The Electronics II covers the logic systems: concepts of dc positive, negative systems, logic gates in DL, RTL, DTL and TTL logic families, number systems, Karnaugh map representation of logic functions, Multiplexers and Flip Flops, Registers, Analog to digital converters, digital to analog converters, Semiconductor memory devices: Organizations, operations, classification and characteristics of memories, digital display, Seven segment display, charged couple device memory and applications, Fundamentals, types and various concepts of Microprocessors

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

Digital circuits: Boolean algebra, de Morgans theorem, Karnaugh maps.
Data processing circuits: Multiplexers, Demultiplexers, Arithmetic building blocks, Encoders, Decoders, Parity generators, PLA.

Digital logic families: RTL, DTL, TTL, ECL, CMOS, MOS, Tri-state logic - switching and propagation delay, fan out and fan in, TTL-CMOS and CMOS-TTL interfaces.
(Book 1 and Book 2)

UNIT II

Sequential circuits: Flip-Flops – RS, JK, T, D; clocked, preset and clear operation, race-around conditions in JK Flip-flops, master-slave JK flip-flops, Switch contact bounce circuit.
Shift registers, Asynchronous and Synchronous counters (up, down, up-down, decade), Counter design and applications.
(Book 1 and Book 2)

UNIT III

A/D Converters: Successive approximation, Counter-type, Dual slope, voltage to frequency and voltage to time conversion techniques, accuracy and resolution. Sample-and-hold circuit. D/A converter using resistive network, accuracy and resolution.
(Book 1 and Book 2)

Semiconductor memory devices: Organizations, operations, Classification and characteristics of memories, read only memory (ROM organization, PROM, EEPROM), RAM (Bipolar RAM, MOS RAM), Static and Dynamic Random Access Memories, Charged Couple Device Memory, Applications.
UNIT IV

Microprocessor: Fundamentals of Microprocessors, Buffer registers, Bus organised computers, SAP-I, Microprocessor (µP) 8085 Architecture, memory interfacing, interfacing I/O devices. Instruction classification, addressing modes, timing diagram, Data transfer, Logic and Branch operations.

Microcontroller: Overview of the 8051 family and Architecture. (Book 4 and Book 5)

IC Fabrication: Basic ideas of integrated circuits, Epitaxial growth, Diffusion, Masking, Etching, Fabrication of Monolithic Integrated circuits. (Book 6)

TUTORIALS: Relevant problems given at the end of each chapter in the books listed below.

Books:


M.Sc 2nd Semester

PHY6052 PHYSICS LABORATORY II

Max. Marks: 125
Teaching hours: 9 hrs per week

Objectives: The aim and objective of the courses on Physics Laboratory I and Physics Laboratory II is to expose the students of M.Sc. to the experimental techniques in general Physics, electronics, nuclear Physics and condensed matter Physics so that they can co-relate the theoretical concepts with the experimental ones and develop confidence to handle sophisticated equipments wherever necessary.

Note:
1. All the contents of unit 1 are compulsory. Students are expected to perform at least 10 experiments in each semester from unit 2 taking 5 from each of sections A and B. The experiments performed in first semester cannot be repeated in second Semester.
2. The duration of the examination will be 3 hours.

Unit 1:

Introduction to experimental techniques: Measurement techniques: Data and error analysis, Plotting and curve fitting software, Introduction to electronic components & use of instruments: Oscilloscope, Multimeter, Wave-form generator.
Unit 2:

Section-A

1. To study the dependence of energy transfer on the mass ratio of the colliding bodies, using air track. OR To verify the law of conservation of linear momentum in collision with initial momentum zero, using air track.
2. To obtain the potential energy curve due to magnet-magnet interactions using air track apparatus.
3. To determine Planck’s constant using photocell.
4. To measure heat capacity of solid at high and low temperatures.
5. To determine dielectric constant at high frequency using Leacher Wire. To study reflected waves in Leacher Wire for different terminating loads.
6. To determine dipole moment of an organic molecule, Acetone.
7. To study the characteristic of J-H curve using ferromagnetic standards.
8. To determine the velocity of ultrasonic waves in given liquid, using interferometer.
9. To compressibility of a given liquid by Ultrasonic diffraction grating.
10. Measurement of vacuum using the Pirani/thermocouple gauge.
11. To study the characteristics and dead time of a GM Counter.
12. To study Poisson and Gaussian distributions using a GM Counter.
13. To study absorption of beta rays in Al and deduce end-point energy of a beta emitter.
14. Determination of dissociation limit of iodine molecule by constant deviation spectrograph.
15. To study the Fresnel’s bi-prism and its applications.

Section-B

16. To study temperature-dependence of conductivity of a given semiconductor crystal using four probe method.
17. To determine the Hall coefficient for a given semi-conductor.
18. To study the characteristics of a PN junction with varying temperature and to find the energy band gap of semiconductor. To measure the capacitance of the junction.
19. To study the series and parallel L.C.R. circuit and find its Q factor for different resistances.
20. To study solid state power supply and voltage multiplier circuits (using breadboard).
21. Design different Clipping and Clamping circuits: positive, negative and bias (using breadboard).
22. To study characteristics of (a) Si and Ge diodes, Zener diode and (b) LEDs, solar cell, photodiode and phototransistor.
23. To study dependence of intensity of radiative transitions in LED as a function of temperature and to deduce energy difference between minima of direct and indirect conduction bands of the indirect semiconductor.
24. Hybrid parameters of a transistor and design an amplifier. Determination of k/e ratio.
25. To study Hartley/Colpitts oscillators.
26. To verify the statement: Power dissipation in the side bands in amplitude modulation is directly proportional to the square of the modulation.
27. To study the various aspects of frequency modulation and demodulation.
28. To study the astable and monostable multivibrators.
29. To study logic gates and flip flop circuits.
30. To study common cathode and common anode seven segment display IC’s on a bread-board.
M.Sc. 3rd SEMESTER

M.Sc. 3rd SEMESTER
PHY7001    Classical Electrodynamics II

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives:
The course of classical electrodynamics includes the postulates of special theory of relativity, Lorentz transformations, motion of particle in various aspects of electric and magnetic fields like constant and varying fields including non-relativistic and relativistic motions of charge particle and magnetic mirroring. The Covariant Formulation of Electrodynamics in Vacuum gives information of Four vectors in Electrodynamics, covariant continuity equation, wave equation, covariance of Maxwell equations. Electromagnetic field tensor, Energy momentum tensor of the EM fields and the conservation laws. Lagrangian and Hamiltonian of a charged particle in an EM field. The aim of the course is to take a glimpse of radiation from accelerated charges, Thomson scattering, Rayleigh scattering, absorption of radiation by bound electron.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

Special Theory of Relativity : Postulates of Special theory of Relativity, Interval, Lorentz transformation as orthogonal transformation in 4-dimension, Four velocity and Four acceleration, relativistic equation of motion: Minkowski force, Four momentum, applications of energy momentum conservation : Disintegration of a particle, C.M. System and reaction thresholds.
(9.1-9.6 of Book 1; 11.3-11.7, 11.9-11.10 of Book 2).

UNIT II

Charged Particle Dynamics : Non-relativistic motion in uniform constant fields: Constant uniform electric field, Constant uniform magnetic field, Crossed uniform and constant electric and magnetic fields. Non-relativistic motion of a charged particle in a slowly varying magnetic field : Time varying magnetic field, Space varying magnetic field, Gradient Drift, Curvature Drift. Adiabatic magnetic field invariance of flux through an orbit, magnetic mirroring, Relativistic motion of a charged particle: Constant magnetic field, Constant electric field Electromagnetic Field of a plane wave.
(10.1-10.4 of Book 1).

UNIT III

(11.1-11.4, 11.6-11.7 of Book 1; 12.1, 12.3-12.6 of Book 2).
UNIT IV


TUTORIALS: Relevant problems given in each chapter in the text and reference books.

Books

M.Sc.-3rd SEMESTER
PHY7002        STATISTICAL MECHANICS

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives:
The aim of the course is to familiarize the students with the techniques of ensemble theory and relate the statistics and thermodynamics, Gibbs paradox, micro canonical ensemble theory and its application to ideal gas of monatomic particles, equipartition and virial theorems, physical significance of various statistical quantities, energy fluctuations, a system of harmonic oscillators as canonical ensemble, statistics of paramagnetism, thermodynamics of magnetic systems and negative temperatures, significance of statistical quantities, Ising model and Heisenberg models, Fluctuations so that he/she can use these to understand the macroscopic properties of the matter in bulk in terms of its microscopic constituents.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.
UNIT I

The Statistical Basis of Thermodynamics: The macroscopic and microscopic states, contact between statistics and thermodynamics, classical ideal gas, Gibbs paradox and its solution. (1.1-1.6 of Book 1).

Elements of Ensemble Theory: Phase space and Liouville's Theorem, The micro canonical ensemble theory and its application to ideal gas of monatomic particles, equipartition and virial theorems, canonical ensemble and its thermodynamics, partition function, classical ideal gas in canonical ensemble theory, energy fluctuations. (2.1-2.4, 3.1-3.7 of Book 1)

UNIT II


Elements of Quantum Statistics: Quantum states and phase space, quantum statistics of various ensembles. An ideal gas in quantum mechanical ensembles, statistics of occupation numbers. (2.5, 6.1-6.3 of Book 1)

UNIT III

Ideal Bose Systems: Basic concepts and thermodynamic behaviour of an ideal Bose gas, Bose-Einstein condensation, Discussion of gas of photons (the radiation fields) and phonons (TheDebye field). (7.1-7.3 of Book 2).

Ideal Fermi Systems: Thermodynamic behaviour of an ideal fermi gas, discussion of heat capacity of a free-electron gas at low temperatures, Pauli paramagnetism [8.1, 8.2A, 8.3 (omit sub sections A and B)].

UNIT IV

Elements of Phase Transitions: First- and second-order phase transitions (Introduction), Diamagnetism, paramagnetism, and ferromagnetism. a dynamical model of phase transitions, Ising and Heisenberg models. (11.3 of Book 1)

Fluctuations: Thermodynamic Fluctuations, random walk and Brownian motion, introduction to non-equilibrium processes, diffusion equation (14.1-14.3 of Book 1)

TUTORIALS: Relevant problems given in the end of each chapter in the text book.

Books
Objectives:
The aim and objectives of the course on Nuclear Physics-II is to expose the students of M.Sc. class to the relatively advanced topics in nuclear models and nuclear reactions so that they understand the details of the underlying aspects and it can prepare them to use all these techniques if they decide to become a nuclear physicists in their career.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

UNIT II
Collective Model of Nucleus: Rotation - D Matrices, Parameterization of nuclear surface, Collective surface oscillations, Derivation of the collective hamiltonian, transformation to body-fixed frame. (Book 2) Collective modes of motion, Nuclear vibrations, β and γ vibrations in spheroidal nucleus and associated energy spectra, Iso-scalar vibrations, Giant resonances. (Book 3) Brief overview supported by examples - Deformed rotational nuclei, rotational energy spectra for even-even nuclei and odd-A nuclei, decoupling parameter, Electric quadrupole moment and magnetic dipole moment, E2 and M1 transition probabilities, Energy spectrum with coupling of vibration and rotational motion. (Book1, Book 2)

UNIT-III
Nuclear reactions, Resonance: Breit-Wigner Dispersion Formula, Compound Nucleus, cross section for formation of compound nucleus, Statistical theory of nuclear reactions. Optical model for nuclear reactions at low energies, comparison with experiments.
Direct Reactions - Kinematics of stripping and pick-up reactions, theory of stripping and pick-up reactions.  
(Book 1)

**UNIT IV**
Harmonic anisotropic oscillator, Nilsson model. (Book 1)
Rotational motion at very high spins, Population of high spin states, Cranking shell model, Signature quantum number, Backbending phenomenon, Kinematics and dynamic moment of inertia.  
(Book 3 and Book 5)
Brief reviews - Nuclear Physics at extremes of stability, nuclear halos, proton rich nuclei, Radioactive ion beams, Production of superheavy nuclei (Book 3)

TUTORIALS: Relevant problems given at the end of each section in the text books.

Books:

**M.Sc.-3rd SEMESTER**

**PHY7004** CONDENSED MATTER PHYSICS-I

Max. Marks: 15+60=75  
Total teaching hours : 60

**Objectives:**
The aim and objective of the course on Condensed Matter Physics I is to make the students of M.Sc class familiar to the Solid structure, lattice dynamics, elastic constants, dielectric properties, energy band theory and transport theory so that they are prepared with the techniques used in investigating these aspects of the matter in condensed phase.

**Note:**
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding units of the syllabus. Unit V in the paper will have one compulsory question consisting of 5 to 8 short answer type questions covering the whole syllabus. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.
UNIT-I

Structure and lattice dynamics
Bragg Law, Reciprocal lattice vectors, Structure factor, Form factor [Book 1]
Forces between atom: ionic bonding, cohesive energy of ionic crystal, evaluation of Madelung constant of NaCl structure, covalent bonding, metallic bonding, hydrogen bonding, van der waals bonding [Book 2]
Stress components, displacement and strain components, work done by elastic forces in a solid, reduction of no. of elastic constant due to existence of potential of elastic forces. Elastic stiffness constant for isotropic body, elastic waves, waves in [100] and [110] directions [Book 3]
Dynamics of the chain of identical atoms, dynamics of a diatomic linear chain, dynamics of identical atoms in three dimensions, experimental measurements of dispersion relations, anharmonicity and thermal expansion. [Book 2]

UNIT-II

Band theory
Bloch theorem, the Kronig-Penney model, zone schemes, effective mass of electron, nearly free electron model, tight binding approximation, OPW method, pseudo potential method, conductors semiconductors insulators [Book 2]

UNIT-III

Transport theory
Electronic transport from classical kinetic theory; Boltzmann transport equation, electrical conductivity, calculation of relaxation time in metals, thermal conductivity of metals and insulators, thermoelectric effects; Hall effect and magnetoresistance; Transport in semiconductors. [Book 4]

UNIT-IV

Dielectric properties
Polarization mechanisms, Dielectric function from oscillator strength, dielectric constant and its measurements, polarizability, the classical theory of electronic polarizability, Clausius-Mosotti relation; dipolar polarizability.
Piezo- pyro and ferroelectric properties of crystals, ferroelectricity, ferroelectric domain, antiferroelectricity and ferrielectricity
[Book 1 and Book 2]

Books
Objective: The aim and objective of the courses on Physics Laboratory III and Physics Laboratory IV is to train the students of M.Sc. class to advanced experimental techniques in general physics, electronics, nuclear physics, particle physics and condensed matter physics so that they can investigate various relevant aspects and are confident to handle sophisticated equipment and analyze the data.

Note: Students are expected to perform at least 10 experiments in each semester taking 5 from each of the sections A and B. The experiments performed in third semester cannot be repeated in fourth Semester.

Section-A

1. Study of arc emission spectrum of given samples (Fe and Cu).
2. Refractive index of air using Jamin’s Interferometer.
3. To study the Michelson interferometer and its applications.
4. To study optical polarization by reflection - Determination of Brewester’s angle.
5. To measure numerical aperture and propagation loss and bending losses for optical fibre as function of bending angle and at various wavelengths.
6. To study the intensity profile of the diffraction pattern of single slit and verify the uncertainty principle by using LASER.
7. To determine the gamma-ray absorption coefficient for Pb, Sn and Fe elements and Pb-Sn alloy.
8. To study the alpha spectrum from natural sources Th and U.
9. To calibrate the given gamma-ray spectrometer and determine its energy resolution.
10. To calibrate the given gamma-ray spectrometer and determine its energy resolution using multi-channel analyzer. To determine strength of a $^{60}$Co source by sum-peak method.
11. To determine range of Alpha-particles in air at different pressure and energy loss in thin foils.
12. To determine strength of alpha particles using SSNTD.
13. To study $\bar{p} - p$ interaction and find the cross-section of a reaction using a bubble chamber.
14. To study $\bar{n} - p$ interaction and find the cross-section using a bubble chamber.
15. To study $K^+ - d$ interaction and find its multiplicity and moments using a bubble chamber.
16. To determine the g-factor of free electron using ESR.
17. To study thermoluminescence of trapping-centres produced by UV in doped CuS.
18. To measure dielectric constant of barium titanate as function of temperature and frequency and hence study its phase transition.
Section-B

20. To design and assemble an Integrated circuit regulated power supply with output of both polarities and a current regulator.
21. To design and study a constant current source.
22. To study of the Switched-mode power supply.
23. To study FET/MOSFET characteristics, biasing and its applications as an amplifier.
24. To measure characteristic parameters of an OPAMP and use of operational amplifier for different mathematical operations.
25. To design a rectangular/triangular waveform generator using Comparators and IC8038.
26. To design (i) Low pass filter (ii) High pass filter (iii) All-pass filter using 741 OPAMP.
27. To design (i) Band pass filter (ii) Band-reject filter using 741 OPAMP.
28. To configure various shift registers and digital counters.
29. Use of timer IC 555 in astable and monostable modes and applications involving relays and LDR.
30. (i) Study of the characteristics of klystron tube and to determine its electronic tuning range; (ii) To determine the standing wave ratio and reflection coefficient; (iii) To determine the frequency & wavelength in a rectangular waveguide working on TE_{10} mode; (iv) To study the square law behaviour of a microwave crystal detector.
31. Experiments with microwave (Gunn diode): Young's double slit experiment, Michelson interferometer, Febry-Perot interferometer, Brewester angle, Bragg's law, refractive index of a prism.
32. Analog to digital and Digital and analog measurements based experiments (Phoenix Kit, IUAC, New Delhi).
33. Microprocessor kit: (a) hardware familiarization (b) programming for (i) addition and subtraction of numbers using direct and indirect addressing modes (ii) Handling of 16 bit numbers (iii) use of CALL and RETURN instructions and block data handling.
34. Use of Digital storage oscilloscope Two Applications for (a) plotting v-i characteristics; and (b) measuring speed of e.m. waves in coaxial cables.
35. Frequency modulation using Varactor/Reactance modulator and Frequency demodulation using Quadrature detector/Phased Locked Loop detector.
M.Sc.-3rd SEMESTER
PHYS 7022 COMPUTATIONAL PHYSICS I Lab (Practical Paper)

Max. Marks: 50
Teaching hours: 4 hrs per week

Note: The Computational Physics paper will consist of two parts –
(a) Written examination for 40% of the total marks covering Unit I and Unit II with equal weightage and duration one hour. Question paper will be set by the external examiner.
(b) Practical examination for 60% of the total marks and duration two hours.

Unit I


Unit II

Computer hardware, software, C++ Programming Language Algorithms, Structured Programming.
I/O Statements : printf, scanf, getc, getch, getchar, getche, etc. Streams : cin and cout.
Manipulators for Data Formatting: setw, width, endl and setprecision etc. ASCII Files I/O.
Preprocessor : #include and #define directives.
Arrays and Structures :- One and Two Dimensional Arrays. Idea of Structures.

Unit III

List of Numerical Problems:
1. Data handling: find standard deviation, mean, variance, moments etc. of at least 25 entries.
2. Choose a set of 10 values and find the least squared fitted curve.
3. Generation of waves on superposition like stationary waves and beats.
4. Fourier analysis of square waves.
5. To find the roots of quadratic equations.
7. Find first order derivative at given x for a set of 10 values with the help of Lagrange interpolation.
8. To generate random numbers between (i) 1 and 0, (ii) 1 and 100.
10. To find determinant of a matrix - its eigenvalues and eigenvectors.
Books

M.Sc.- 4th SEMESTER

M.Sc.- 4th SEMESTER
PHY 7051 PARTICLE PHYSICS II
Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives:
The aim and objective of the course on Particle Physics II is to expose the students of M.Sc. class to the relatively advanced topics like internal symmetries and quark model, details of different types of fundamental interactions and unification schemes so that they understand these aspects properly and are well equipped to pursue a career in high energy physics.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I

UNIT II
Quark Model: Introduction to constituent quark model, Quantum number of quarks & valence quark contents of hardrons, simple applications to hadron phenomenology, e.g., unitary spin & spin hadron wave function of baryons and mesons.
UNIT III
Weak Interactions: Introduction to four fermion Fermi theory. Fermi transitions. Gamow Teller transitions. Development of V-A theory. Weak neutral current and GIM model. Neutrino-nucleon scattering. Introduction to $c\bar{c}$ and $b\bar{b}$ system.

Strong Interactions: Introduction to gauge field theories, including Non-Abelian gauge field (motivation, construction and consequences of Yang-Mills theory). Elements of QCD.

UNIT IV

TUTORIALS: Relevant problems given at the end of each chapter in the books listed below.

Books

M.Sc.- 4th SEMESTER
PHY 7052 CONDENSED MATTER PHYSICS II

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives:
The aim and objective of the course on Condensed Matter Physics II is to expose the M.Sc. students with relatively advanced topics like optical properties, magnetism, superconductivity and disordered solids so that they are confident to use the relevant techniques in their later career.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40 % of the total marks.
UNIT-I

[Book 1]

UNIT-II

Magnetism: Dia- and para-magnetism in materials, Pauli paramagnetism, Ferromagnetism, Heisenberg Hamiltonian and resume of the results; Antiferromagnetism, Ferrimagnetism, ferrites, spin waves, specific heat - Bloch law, Magnons.
[Book 1]

UNIT-III

Superconductivity: Source of superconductivity, response of magnetic field, the Meissner effect, Type I and Type II superconductors; thermodynamics of superconducting transitions, origin of energy gap, isotope effect, London equations, London penetration depth, coherence length, elements of BCS theory, flux quantization, normal tunneling and Josephson effect, high Tc superconductors.
[Book 2 and Book 4]

UNIT-IV

Defects and disorders: Point Imperfections, concentration of point imperfections, line imperfections, Burgers vector and circuit, presence of dislocation, dislocation motion, energy of a dislocation, slip planes and slip directions, surface imperfections.
[Book 2]
Types of liquid crystals, classification, calamitic thermotropic liquid crystals, lyotropic liquid crystals, mesogenic materials
[Book 3 and Book 4]

TUTORIALS: Relevant problems given at the end of each chapter in the books listed below.

Books
M.Sc.- 4th SEMESTER
PHY 7071    Physics Laboratory IV

Max. Marks : 150
Teaching hours: 9 hrs per week

Objective: The aim and objective of the courses on Physics Laboratory III and Physics Laboratory IV is to train the students of M.Sc. class to advanced experimental techniques in general physics, electronics, nuclear physics, particle physics and condensed matter physics so that they can investigate various relevant aspects and are confident to handle sophisticated equipment and analyze the data.

Note: Students are expected to perform at least 10 experiments in each semester taking 5 from each of the sections A and B. The experiments performed in third semester cannot be repeated in fourth Semester.

Section-A

1. Study of arc emission spectrum of given samples (Fe and Cu).
2. Refractive index of air using Jamin’s Interferometer.
3. To study the Michelson interferometer and its applications.
4. To study optical polarization by reflection - Determination of Brewster’s angle.
5. To measure numerical aperture and propagation loss and bending losses for optical fibre as function of bending angle and at various wavelengths.
6. To study the intensity profile of the diffraction pattern of single slit and verify the uncertainty principle by using LASER.
7. To determine the gamma-ray absorption coefficient for Pb, Sn and Fe elements and Pb-Sn alloy.
8. To study the alpha spectrum from natural sources Th and U.
9. To calibrate the given gamma-ray spectrometer and determine its energy resolution.
10. To calibrate the given gamma-ray spectrometer and determine its energy resolution using multi-channel analyzer. To determine strength of a $^{60}$Co source by sum-peak method.
11. To determine range of Alpha-particles in air at different pressure and energy loss in thin foils.
12. To determine strength of alpha particles using SSNTD.
13. To study p-p interaction and find the cross-section of a reaction using a bubble chamber.
14. To study n-p interaction and find the cross-section using a bubble chamber.
15. To study k-d interaction and find its multiplicity and moments using a bubble chamber.
16. To determine the g-factor of free electron using ESR.
17. To study thermoluminescence of trapping-centres produced by UV in doped CuS.
18. To measure dielectric constant of barium titanate as function of temperature and frequency and hence study its phase transition.

Section-B

20. To design and assemble an Integrated circuit regulated power supply with output of both polarities and a current regulator.
21. To design and study a constant current source.
22. To study of the Switched-mode power supply.
23. To study FET/MOSFET characteristics, biasing and its applications as an amplifier.
24. To measure characteristic parameters of an OPAMP and use of operational amplifier for different mathematical operations.
25. To design a rectangular/triangular waveform generator using Comparators and IC8038.
26. To design (i) Low pass filter (ii) High pass filter (iii) All-pass filter using 741 OPAMP.
27. To design (i) Band pass filter (ii) Band-reject filter using 741 OPAMP.
28. To configure various shift registers and digital counters.
29. Use of timer IC 555 in astable and monostable modes and applications involving relays and LDR.
30. (i) Study of the characteristics of klystron tube and to determine its electronic tuning range; (ii) To determine the standing wave ratio and reflection coefficient; (iii) To determine the frequency & wavelength in a rectangular waveguide working on TE_{10} mode; (iv) To study the square law behaviour of a microwave crystal detector.
31. Experiments with microwave (Gunn diode): Young’s double slit experiment, Michelson interferometer, Febry-Perot interferometer, Brewester angle, Bragg’s law, refractive index of a prism.
32. Analog to digital and Digital and analog measurements based experiments (Phoenix Kit, IUAC, New Delhi).
33. Microprocessor kit: (a) hardware familiarization (b) programming for (i) addition and subtraction of numbers using direct and indirect addressing modes (ii) Handling of 16 bit numbers (iii) use of CALL and RETURN instructions and block data handling.
34. Use of Digital storage oscilloscope Two Applications for (a) plotting v-i characteristics; and (b) measuring speed of e.m. waves in coaxial cables.
35. Frequency modulation using Varactor/Reactance modulator and Frequency demodulation using Quadrature detector/Phased Locked Loop detector.

M.Sc.- 4th SEMESTER
PHYS 7073          Computational Physics II

Max. Marks: 50
Teaching hours: 4 hrs per week

Note: The Computational Physics paper will consist of two parts –
(a) Written examination for 30% of the total marks covering Unit I and duration one hour.
   Question paper will be set by the external examiner.
(b) Practical examination for 70% of the total marks and duration two hours.

Unit I

C++ Programming Language
Idea of Strings and Pointers.

Unit II

List of Physics Problems.

Note: Do at least 10 problems using C++ programming.

1. Study the charging and discharging of a capacitor in RC circuit with a DC source using Euler method. Graphically demonstrate the variation of charge with time for two values of time step size. Modify the program to include AC source instead of D.C. Source.
2. Study the growth and decay of current in RL circuit containing (a) DC source and (b) AC source using Runge Kutta method. Draw graphs between current and time in each case. Perform power analysis in the circuit for two values of time step size for the case.
3. Write a program to study graphically the EM oscillations in a LCR Circuit (use Runge-Kutta method). Show the variations of (a) charge vs time, (b) current vs time.
4. Study graphically the motion of a falling spherical body under various effects of the medium (viscous drag, buoyancy and air drag) using Euler method.
5. Study graphically the path of a projectile with and without air drag, using FN method. Find the horizontal range and maximum height in either case. Write your comments on the findings.
6. Motion of artificial satellite.
7. Study of motion of a one-dimensional harmonic-oscillator without and with damping effect (use Euler method). Draw graphs showing the relations (a) velocity vs time (b) acceleration vs time (c) position vs time.
8. Obtain the energy eigen values of a quantum oscillator using Runge-Kutta method.
9. Study the motion of a charged particle in (a) uniform electric field (b) in uniform magnetic field (c) in combined electric and magnetic fields (cyclotron). Draw graphs in each case.
10. Monte-Carlo technique to simulate phenomenon of Nuclear radioactivity. Modify your program to a case when daughter nucleus is also unstable.
11. Study the motion of two coupled harmonic oscillators. Compare the numerical results with analytic results.

Books
M.Sc.- 4th SEMESTER
PHYS7053   Experimental techniques in Nuclear and Particle Physics

Max. Marks: 15+60 = 75
Total Teaching Hours : 60

Objectives: The aim and objective of the course on Experimental Techniques in Nuclear, Particle and Condensed Matter Physics is to expose the students of M.Sc. class to theoretical aspects of different equipment and methods used in the fields of Nuclear and Particle Physics.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40 % of the total marks.

Unit I
Data interpretation and analysis, precision and accuracy, error analysis, propagation of errors, Statistical treatment of experimental data. Least squares fitting of linear and nonlinear functions, chi-square test, Binomial, Poisson and Gaussian distributions.
Detection of radiations:
Interaction of gamma-rays, neutrons, electrons and heavy charged particles with matter, Relativistic particle interaction.
General properties of radiation detectors, pulse height spectra, energy resolution, detection efficiency, dead time.
Back ground radiation and detector shielding.
(Book 1 and Book 2)

Unit II
Gas-filled detectors : Proportional counters, Gas multiplication factor, space charge effects, energy resolution. Position-sensitive proportional counters.
Organic and inorganic scintillators and their characteristics, coupling to photomultiplier tubes and photodiodes.
Semiconductor detector in X-ray, gamma-ray Spectroscopy, Ge and Si(Li) detectors, Charge production and collection process.
Semiconductor detector in particle identification and Charged particle Spectroscopy (Telescope arrangement, time of flight).
Detection of fast and slow neutrons - nuclear reactions for neutron detection.
(Book 1 and Book 2)
Unit III

Electronics associated with detectors: Electronic shielding and grounding, Measurement and control, Signal conditioning and recovery.

Electronics for pulse signal processing, preamplifiers (voltage and charge-sensitive configurations), Linear amplifiers, CR-(RC) and delay-line pulse shaping, pole-zero cancellation, baseline shift and restoration, overload recovery and pileup, Impedance matching, single-channel and multichannel analyzers.

Basic considerations in time measurements, Walk and jitter, Time pickoff methods, time-to-amplitude converters, γγ fast-slow coincidence set up.

(Book 1)

Unit IV

Detector systems for heavy-ion reactions: Large gamma and charge particle detector arrays, multiplicity filters, electron spectrometer, heavy-ion reaction analysers, nuclear lifetime measurements (DSAM and RDM techniques).

Detector systems for high energy experiments (brief account): Collider physics, Particle Accelerators, Secondary beams, Beam transport, Modern Hybrid experiments - CMS and ALICE.

(Book 1 and Book 3)

Books:

M.Sc.- 4th SEMESTER

PHYS7054 Fibre Optics and Non-Linear Optics

Max. Marks: 15+60 = 75
Total teaching hours : 60

Objectives: The aim and objective of the course on Fibre Optics and Nonlinear Optics is to expose the M.Sc. students to the basics of the challenging research field of optical fibers and their use in nonlinear optics.

Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40 % of the total marks.
UNIT I
Optical fibre, its properties and fabrication: Introduction, basic fibre construction, propagation of light, modes and the fibre, refractive index profile, types of fibre, dispersion, data rate and band width, attenuation, leaky modes, bending losses, cut-off wavelength, mode field diameter, other fibre types.
(Ch. 3 of book 1)
Fibre fabrication, mass production of fibre, comparison of the processes, fibre drawing process, coatings, cable design requirements, typical cable design, testing.
(Ch. 4 of book 1)

UNIT II
Optics of anisotropic media: Introduction, the dielectric tensor, stored electromagnetic energy in anisotropic media, propagation of monochromatic plane waves in anisotropic media, directions of \( \mathbf{D} \) for a given wave vector, angular relationships between \( \mathbf{D}, \mathbf{E}, \mathbf{H}, \mathbf{k} \) and Poynting vector \( \mathbf{S} \), the indicatrix, uniaxial crystals, index surfaces, other surfaces related to the uniaxial indicatrix, Huygenian constructions, retardation, biaxial crystals, intensity through polarizer/waveplate/polarizer combinations.
(Ch. 18 of book 2)

UNIT III
Electro-optic and acousto-optic effects and modulation of light beams: Introduction to the electro-optic effects, linear electro-optic effect, quadratic electro-optic effects, longitudinal electro-optic modulation, transverse electro optic modulation, electro-optic amplitude modulation, electro-optic phase modulation, high frequency wave guide, electro-optic modulator, strain optic tensor, calculation of LM for a longitudinal acoustic wave in isotropic medium, calculation of LM for a shear wave in lithium niobate, Raman-Nath diffraction, Raman-Nath acousto-optic modulator.
(Ch. 19 of book 2, Ch. 16, 17 & 19 of book 3)

UNIT IV
Nonlinear optics and processes: Introduction, anharmonic potentials and nonlinear polarization, non-linear susceptibilities and mixing coefficients, parametric and other non-linear processes, macroscopic and microscopic susceptibilities.

TUTORIALS: Relevant problems pertaining to the topics covered in the course.

Books
M.Sc.- 4th SEMESTER
PHYS 7055 NON-LINERAR DYNAMICS

Max. Marks: 15+60 = 75
Total teaching hours : 60

Note :
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40 % of the total marks.

UNIT I
Phenomenology of Chaos : Linear and nonlinear systems, A nonlinear electrical system, Biological population growth model, Lorenz model; determinism, unpredictability and divergence of trajectories, Feigenbaum numbers and size scaling, self similarity, models and universality of chaos.

UNIT II
Dynamics in State Space: State space, autonomous and non autonomous systems, dissipative systems, one dimensional state space, Linearization near fixed points, two dimensional state space, dissipation and divergence theorem. Limit cycles and their stability, Bifurcation theory, Heuristics, Routes to chaos. Three-dimensional dynamical systems, fixed points and limit cycles in three dimensions, Lyapunov exponents and chaos. Three dimensional iterated maps, Usequence.

UNIT III

UNIT IV

Quantum Chaos: Quantum Mechanical analogies of chaotic behaviour. Distribution of energy eigenvalue spacing, chaos and semi-classical approach to quantum mechanics.

TUTORIALS : Relevant problems pertaining to the topics covered in the course.

Books
Note:
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40% of the total marks.

UNIT I
Charged Particle Dynamics: Particle motion in electric and magnetic fields, Beam transport system, Beam pulsing and bunching techniques, microbeams, Particle and ion sources, secondary beams, Measurement of beam parameters.

UNIT II

UNIT III
Electrostatic and Heavy Ion Accelerators: Van de Graaff voltage generator, Cockcroft-Walton voltage generator, insulating column, voltage measurement, Acceleration of heavy ions, Tandem electrostatic accelerator, Production of heavy negative ions, Pelletron and Tandetron, Cluster beams, Superconducting Heavy Ion Linear Accelerators.

UNIT IV
Synchrotron Radiation Sources: Electromagnetic radiation from relativistic electron beams, Electron synchrotron, dipole magnet, multipole wiggler, noncoherent and coherent, Undulator, Characteristics of synchrotron radiation.
Radioactive ion beams: Production of Radioactive ion beams, Polarized beams, Proton synchrotron, Colliding accelerators.

TUTORIALS: Relevant problems given in the books listed below.

Books:
M.Sc.- 4th SEMESTER
PHYS 7057  ANALYTICAL TECHNIQUES FOR MATERIALS

Max. Marks: 15+60 = 75
Total teaching hours : 60

Note :
1. The question paper for the final examination will consist of five units. Unit I-IV will have TWO questions each from the corresponding unit of the syllabus. Unit V in the paper will have one compulsory question consisting of short answer type questions covering the whole syllabus. The compulsory question will not have any choice. Each question will have a weightage of 12 marks. The candidates will attempt five questions in all, selecting one each from the units I to IV and the compulsory question from unit V.
2. The question paper is expected to contain problems with a weightage of 30 to 40 % of the total marks.

UNIT I
Elemental analysis : EDXRF, WDXRF, Atomic Absorption Spectrometer.
Electron spin resonance. Nuclear magnetic resonance, chemical shift. (Book 2, Book 3)

UNIT II
Lasers: spontaneous and stimulated emission, Einstein A & B coefficients. Optical pumping, population inversion, rate equation. Modes of resonators and coherence length. (Book 5)
Molecular analysis: Double beam optics, UV-Vis Spectrometer, FTIR Spectrometer, Raman Spectrometer. (Book 2, Book 3)

UNIT III
Transducers : Classification, Transducers for temperature, pressure/vacuum, magnetic fields, vibration measurements, Resistive transducer, Inductive transducer, Capacitive transducer, Thermoelectric, LVDT, Strain gauge, Piezoelectric, Magnetostrictive, Hall-effect type, Electromechanical, Accelerometer.
Lock-in-detector, box-car integrator (Book 6, Book 7)
**Vacuum Techniques**: Mechanical pumps, Ionization pumps, turbo molecular pumps, Vacuum gauges - Pirani and Penning. (Book 8)

**UNIT IV**

**Sample Preparation techniques**: Thin films (Physico-chemical methods), Laser ablation, Evaporation, Sputtering, Electron beam sputtering, Beam Epitaxy.

**Characterization Techniques**:  
Structural properties: XRD, TEM, SEM, AFM, STM, Differential scanning calorimetry, measurement of specific heat, and thermal conductivity.  
(Book 9 and Book 10)

**Books**

1. Atomic and Molecular Spectra: Rajkumar (Kedarnath Ramnath Prakashan, Meerut).

**************************
FACULTY OF SCIENCE SYLLABI FOR
M. Sc. INFORMATION TECHNOLOGY
(SEMESTER SYSTEM)

EXAMINATIONS 2017 - 2018
--:O:--
## OUTLINES OF TESTS, SYLLABI AND COURSES OF READING FOR M. SC. INFORMATION TECHNOLOGY (TWO YEAR DEGREE PROGRAMME) FOR SESSION 2017 - 2018.

### FIRST YEAR

#### FIRST SEMESTER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-66</td>
<td>Linux Administration and Programming</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-61</td>
<td>Software Engineering</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-62</td>
<td>Computer Algorithms</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-42</td>
<td>Operating System Concepts</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-63</td>
<td>Minor Project Based on 66</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-64</td>
<td>Minor Project Based on 62</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
</tbody>
</table>

#### SECOND SEMESTER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-45</td>
<td>Advance Java and Network Programming</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-65</td>
<td>E- Commerce and Emerging Trends</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-60</td>
<td>Advanced Database System and MySQL</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-67</td>
<td>Artificial Intelligence</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-27</td>
<td>SEMINAR</td>
<td>2</td>
<td>-</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>MS-56</td>
<td>Minor Project Based on MS-45 &amp; MS-60</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-68</td>
<td>Minor Project Based on MS-67</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
</tbody>
</table>

### SECOND YEAR

#### THIRD SEMESTER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-32</td>
<td>.NET Framework and C#</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-69</td>
<td>Theory of Computation</td>
<td>6</td>
<td>80</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>MS-39</td>
<td>Computer Graphics</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-14</td>
<td>Systems Approach to Management and Optimization Techniques</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-18</td>
<td>SEMINAR</td>
<td>2</td>
<td>-</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>MS-33</td>
<td>Minor Project Based on MS-32</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>MS-59</td>
<td>Minor Project Based on MS-39</td>
<td>6</td>
<td>80</td>
<td>20</td>
<td>3</td>
</tr>
</tbody>
</table>

#### FOURTH SEMESTER

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-21</td>
<td>Major Project</td>
<td></td>
<td>320</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

The project period will be of 6 months duration. The project will involve development of application/system software in industrial/commercial/scientific environment.
GUIDELINES FOR SUBMISSION OF PROJECT REPORT (MS-21)

The report should consist of the following:

- Cover page including Project title, Name of the student, Name of the Department and Names of the Project Guides (both External and Internal).
- Acknowledgements.
- Certificates from company and department duly signed by external guide, Principal and internal guide.
- Contents with page numbers.
- Introduction (includes background and application or importance of the project)
- Objectives
  - **System Analysis** System Feasibility study
  - Software requirement specifications
  - Design with system flowcharts and input/output design.
- Implementation and Testing
  - Hardware and software used
  - Listing of well commented programs with result/output or detailed algorithms with input and output.

Further scope of the project

- Bibliography
- Appendices (any other information related to project)

Each student should observe the following norms while submitting the synopsis/thesis for the Project:

(a) Use both sides of the paper instead of only single side.
(b) Use one and half interline spacing in the text (instead of double space)
(c) Stop using a blank sheet before the page, carrying figure or table.
(d) Try to insert figure/table in the text page itself (instead of using a fresh page for it, each time.)

Students must consult/inform the internal guides regarding the progress of their work at least once in 20 days. It is the duty of the student to be in touch with his internal guide. The student must prepare 5 copies of the report including one copy for self. The remaining four are to be submitted before 31st May every year as per the following:

1. Main Library
2. Department Library
3. Internal Guide
4. Company

One softcopy of the work is to be submitted to the concerned head of the department/institution along with the report. The student must present his/her work in 15 minutes mainly focusing on his/her contribution with the help of slides followed by demonstration of the practical work done. The project Viva will be completed before 15th June every year exact dates will be informed before 31st May every year.

An external examiner, internal examiner and the internal guide will conduct project viva.
Objective: This course enables students to get familiar with Linux system, its commands, files & directories, system, shell programming, PERL programming and system administration. After the completion of this course, student will be able to:

- Work in the Linux environment for Linux server administration
- Write the shell programs, PERL programs and C-program with system calls

Note:
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT –I
1. Introduction to Linux: Functions of an operating system, Linux’s History, different flavors of Linux, Minimum System Requirements for installing Linux: Using LILO; Linux’s fdisk.


UNIT-II
3. Using the File System: Files Overview, Common types of files, file and directory management commands, Absolute and relative filenames; pwd, cd, rm, cat, mkdir, mv, cp;, Important directories in the Linux file System: / , /home, /bin, /usr, /usr/bin, /usr/spool, /dev, /usr/bin, /sbin, /etc.


UNIT-III


UNIT-IV
7. PERL: Creating and Executing Perl Programs, Handling Data in Perl: Variables, Numbers, Strings, File Operators: Arrays, Perl Programming Constructs: Statement Blocks, If Statements, unless
Statements, for Statements, for each Statements, while Statements, until Statements, Functions: Passing Arguments to Functions, Using Return Values; Perl Operators.

8. **System Calls:** C as System Programming Language, I/O system calls – umask(); create(); open(); read(); write(); lseek(); dup(); link(); access(); chmod(); chown(); Process management system calls; fork(); getpid(); getppid(); exit(); wait(); sleep(); Signal system calls – kill(); signal().

**REFERENCES:**
8. Jones, Tim: GNU/Linux Application Programming, Wiley India Pvt. Ltd.
Objectives: This course enables students to understand Software Configuration Managements Tools and Techniques. After the completion of this paper, student will be able to

- Use principles, concepts, methods, and techniques of the software engineering approach to produce quality software.
- Apply software engineering principles and practices in the planning and development of an actual software product.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

**UNIT - I**

2. **Software Requirement Specification (SRS):** Software Requirements, Definition of SRS, Characteristics of SRS, Components of SRS, Designing of SRS.
3. **System Analysis:** Principles of Structures Analysis, DFDs, E-R Diagrams, Data Dictionary.

**UNIT – II**

5. **Software Project Planning & Scheduling:** Objectives, Decomposition techniques, Planning and Scheduling Tools: GANTT Chart, PERT Chart, Critical Path Method and Work Breakdown Structure; Cost estimation, Cost estimation Models: Single Variable Model, COCOMO Model; Software Risks, Risk Assessment.

**UNIT – III**


**UNIT-IV**

REFERENCES:


Objective:
The objective of the module is to create skills in students to design and analyze algorithms. After studying this subject students will be able to
- Understand algorithms and give theoretical estimates for the resources needed by any algorithm.
- Analyze Algorithms.
- Have an empirical approach to gauge the comparative performance of a given set of algorithms.

Note:
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I
1. **Introduction to Data Structures**: Definition, Types of Data Structures, Stacks and its operations(Push, Pop), Queue and its operations (Insert, Delete), Tree (Binary Tree, General Tree and its Traversal), Graph(Types and its Traversal).
2. **Algorithms and Analysis**: Definition; Analysing algorithms; space and time complexity, Asymptotic Notation (O, Ω, θ) practical complexities, Best, average and worst case performance of algorithms, examples, Recursive algorithms, Introduction to recurrence relations.

UNIT – II
3. **Divide and Conquer**: General method, Binary search, Merge sort, Quick sort, Selection problem, Strassen's matrix multiplication and analysis of these problems.
4. **Greedy Method**: General Method, Knapsack problem, Job sequencing with deadlines, Minimum spanning Trees (Prim's Algorithm, Kruskal's Algorithm), Single source shortest paths and analysis of these problems.

UNIT - III
5. **Dynamic Programming**: General method, Optimal binary search trees, 0/1 Knapsack, the traveling salesperson problem, Single Source Shortest Path Problem (Bellman Ford Algorithm), All pair shortest path problem (Floyd's Algorithm).
6. **Back Tracking**: General method, N queen's problem, Graph coloring, Hamiltonian cycles, Analysis of these problems.

UNIT - IV
7. **Branch-And-Bound**: General Method, 0/1 Knapsack, Traveling Salesperson problems.
8. **NP-hard and NP-complete problems**: Basic concepts, Statement of Cook's Theorem, Satisfiability SAT, Examples of NP-hard graph [Clique Decision Problem, Chromatic Number Decision Problem] and NP-scheduling problems [Scheduling Identical Processors, Job Shop Scheduling].

REFERENCES:


Objectives: This course enables students to understand the concepts of Operating System. After the completion of this paper, student will be able to

- Manage various processes and use the scheduling algorithms.
- Handle the deadlock conditions.
- Manage the files on the disk with effective outcome.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

1. Introduction to Operating System: History, Structure of OS, Functions/ Operations of OS, Types: Single User, Multi-user, Simple Batch Processing, Multiprogramming, Multitasking, Parallel systems, Distributed system, Real time system.

UNIT - II


UNIT - III

UNIT - IV

7. **Storage Management**: File(s): Attributes, Operations, Types, Structure; Access Methods: Sequential, Direct access, Index; Directory Structure: Single level, Two level, Tree Structured, Acyclic Graph; File System mounting; File sharing; Protection: Types of access, access control.

8. **File system** structure, File system implementation, Directory implementation, Allocation methods: Contiguous Allocation, Linked Allocation, Indexed Allocation; Disk scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK; Disk management; Swap space management; RAID.

REFERENCES:

Objectives: This paper enables student to enhance the programming skills using object oriented programming approaches. After the completion of this paper, student will be able to
• To create enterprise and standard applications Java.
• To develop web applications with database support.
• To develop client server based applications.

Note:
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I
2. Swing: Features, components, Swing vs AWT, swing containers, controls, using Dialogs, sliders, progress bars, tables, creating user interface using swing.

UNIT-II
3. Java Database Connectivity: Connectivity model, Java. SQL package, JDBC Exception classes, Database connectivity, Data manipulation and navigation, Using PreparedStatement, creating database applications
4. Java RMI: Distributed object technologies, RMI architecture, creating RMI applications.

UNIT-III
5. Java Servlets: Servlets vs CGI, Servlet Lifecycle, creating and running servlets.

UNIT-IV
7. Java Beans : Component architecture, Components, Advantages of Beans, Bean Developer kit (BDK), JAR files, introspection, developing Beans, Using Bound properties, The Java Beans API, Introduction to EJB (Enterprise Java Beans),Types of EJB, Uses of EJB.
REFERENCES:

1. Schildt, Herbert: The Complete Reference Java 2, TMH.
2. Ivan Bayross: Web Enabled Commercial Application Development using Java 2.0, BPB.
Objectives: This course enables students to be familiar with Fundamentals of Electronic Commerce and Emerging Technologies such as Parallel Computing, Cloud Computing, Grid Computing, Mobile Computing, and Concept of Big Data.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I

1. **Electronic Commerce:** Traditional Commerce vs Electronic Commerce, Types of E-Commerce, E-Commerce infrastructure: Hardware and Software requirements, **Electronic Data Interchange (EDI):** EDI enabled procurement process and its benefits; Components of EDI system: EDI standards, EDI software, communication networks; **Electronic Payment Methods:** Types of Electronic Payment Systems, Digital Token Based Electronic Payment Systems, Smart cards and Electronic payment Systems, Credit Card-Based Electronic Payment Systems, Risk and Electronic payment Systems.

2. **Issues in E-commerce:** The legal and policy environment of E-Commerce; Intellectual Property, advertising and consumer protection; Copyright Law; Patent Law; Network Security and Firewalls; Client-Server Network Security Threats; Data and Message Security; Encrypted Documents and E-mail; Digital Signatures.

UNIT-II

4. **Business Intelligence:** Introduction to Business Intelligence, Digital data and its types – structured, semi-structured and unstructured, Introduction to Online Transaction Processing (OLTP), Online Analytical Processing (OLAP), Different OLAP architectures: MOLAP, ROLAP, HOLAP, Comparison of OLTP and OLAP, BI Definitions and need, BI Component Framework, Business Applications of BI.

5. **Case Studies:** Supply Chain management, Banking, Online Reservation Systems, Online Publishing

UNIT-III

6. **Parallel Computing:** Introduction and use, Flynn's Classical Taxonomy: SISD, SIMD, MISD, MIMD; Parallel Computer Memory Architectures: Shared Memory, Distributed Memory, Hybrid Distributed-Shared Memory; Parallel Programming Models: Shared Memory Model, Threads Model, Distributed Memory/Message Passing Model, Data Parallel Model, Hybrid Model, SPMD and MPMP, Introduction to Parallel Virtual Machine and Message Passing Interface, Supercomputers.

7. **Cloud Computing:** Introduction and use, Architecture, Service Models: infrastructure as a service, platform as a service, and software as a service;

UNIT-IV

8. **Grid computing:** Introduction and benefits, virtual organisations, grid Architecture and its relationship to other distributed technologies, grid application areas.
9. **Mobile Computing**: Definition, Guided Transmission, Unguided Transmission; Mobile computing architecture, Mobile Devices, Mobile System Networks: Cellular, WLAN, Ad hoc networks; Introduction to: GSM, CDMA, GPRS, EDGE; Introduction to Mobile Databases; Mobile Applications; Mobile Application Languages; features of Mobile Operating system: Palm OS, Symbian, Android.

**REFERENCES**:

4. M. Sasikumar, Dinesh Shikhare, P. Ravi Prakash: Introduction to Parallel Processing, PHI.
Objectives:
The course aims at providing the students through insight on few DBMS principles and practices. Students will learn and implement the operations for making and using databases with help of SQL and PL/SQL.

Note:

i) The Question Paper will consist of Four Units.
   ii) Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
   iii) The students are required to attempt ONE question from each Unit and the Compulsory question.
   iv) All questions carry equal marks unless specified.

UNIT – I

3. **Normalization**: Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency, Normal Forms– 1NF, 2NF, 3NF, BCNF, Multi-valued Dependency.

UNIT – II

4. **Relational Algebra and Relational Calculus**: Relational Algebra: Operations- Union, Intersection, Difference, Cartesian product, Projection, Selection, Division and relational algebra queries; Relational Calculus: Tuple oriented and domain oriented relational calculus and its operations.
5. **Transaction and Concurrency control**: Concept of transaction, ACID properties, Serializibility, States of transaction, Concurrency control: Locking techniques, Time stamp based protocols, Granularity of data items, Deadlock.

UNIT – III

6. **MySQL**: Introduction; Why MySql; Tools provided with MySQL; MySQL Architectural Terminology; Databases: Creating, Selecting, Dropping and Altering Databases; Tables: Creating, dropping, Altering, Indexing Tables; Adding new rows, Retrieving Information, Deleting or Updating Existing rows; Obtaining MySQL Metadata; Joins; Subqueries; Views; Multiple Tables Deletion and Updation; Foreign Keys and Referential Integrity; MySQL Data Types; Sequences.

UNIT – IV

10. **Data Warehousing**: Introduction; Features; Data modeling for Data Warehousing; Building Data warehouse; Comparison between Data Warehouse and DBMS Metadata; Problems and issues in Data Warehouse.
11. **Data Mining**: Overview; Goals of Data Mining; Techniques: Association rules(Market Basket Algorithm, Apriori Algorithm); Classification: Decision Tree, Induction Algorithm; Applications of Data Mining.
References:
2. Jiawei Han and Micheline Kamber, "Data Mining: Concepts and Techniques", Elsvier.
6. Bipin C. Desai, An Introduction to Database System
Objectives: The paper enables students to understand Artificial Intelligence techniques and the language LISP. After the completion of this paper, student will be able to

- Apply standard AI techniques to solve problems.
- Characterize the Knowledge Acquisition
- Differentiate various expert systems
- Write programs of AI using LISP

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

1. Artificial Intelligence (AI): Introduction and Applications, History of AI from Alan Turing and developments in AI, application areas; Criteria for success; Problem Characteristics; Problem representation-State space representation, problem reduction representation, production system; Introduction to agents, intelligent software systems, Applications, Intelligent architectures, components of intelligent agent based distributed systems.


UNIT - II


UNIT - III


UNIT - IV


REFERENCES:

2. George F Luger; William A. Stubblefield: Artificial Intelligence; Structures and Strategies for Complex problem solving, Pearson Education.
6. Bharti&Chaitany: Natural Language Processing, PHI.
7. Russel, Sturat&Norviig, Peter: Artificial Intelligence; A modern Approach; Person Education Pvt. Ltd.
Objectives: This course aims at making a student capable of developing console, windows and web applications using C# on .NET platform.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I

1. **Introduction to .NET environment:** The .NET strategy, the origins of the .NET technology, the .NET framework, the common language runtime, framework base classes, user and programs interface, visual studio .NET, .NET languages, benefits of the .NET approach.

2. **Introduction to C#:** Introducing C#, Overview of C#, Literals, Variables, Data Types, Operators, Expressions, Branching, Looping, Methods, Arrays, Strings, Structures, Enumerations, difference between C++ and C#, difference between Java and C#.

UNIT-II

3. **Object Oriented Aspects of C#** : Classes, Objects, Inheritance, Polymorphism, Interfaces, Operator Overloading, Delegates, Events, Errors and Exceptions.


UNIT-III

5. **Writing Windows Forms Applications and Deploying Windows Forms Applications:** Writing Windows Forms Applications: Understanding Windows Forms, Window form controls, Menus, MDI Forms, Using Inheritance in Windows Forms, Using Common Dialog Controls, Deploying Windows Forms Applications: Introduction to deployment, Click Once deployment, Creating an Installation Package for project.

6. **Writing ASP .NET applications and Deploying ASP .NET Applications:** Introduction to ASP.NET, Using Validation Controls, Managing State in ASP.NET Web Applications, Deploying ASP.NET Applications with Windows Installer.
UNIT-IV

7. Accessing Data with ADO.NET: ADO.NET Architecture, Components, Database, DataReader, DataAdapter, DataSet, Viewing data using Data Grid View Control, Creating Applications.

REFERENCES:

Paper Title: THEORY OF COMPUTATION
Paper Code: MS - 69
Maximum Marks: 100 (External : 80 + Internal : 20) Time : 3 Hrs.
Number of Lectures: 90 (45 minutes duration)

Objectives:
The goal of this course is to provide students with an understanding of basic concepts of Theory of Computation.

Note :
(i) The Question paper will consist of Four Units.
(ii) Examiner will set total of nine questions comprising two questions from each unit and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each unit and the compulsory question.
(iv) All questions carry equal marks.

UNIT I
2. Formal Languages: Chomsky Classification of Languages, Languages and their Relations, Languages and Automata.

UNIT II
UNIT III


5. **PDA**: Push down stack machine, Design of deterministic and non-deterministic push-down stack, Parser design.

UNIT IV

6. **LR(K) Grammars**: Properties of LR(K) Grammar, Closure properties of Languages.


References:

Objectives:
This paper enables students to understand graphics hardware and various 2D and 3D algorithms. After the completion of this paper, student will be able to:

• Implement the principles and commonly used paradigms and techniques of computer graphics.
• Use OpenGL proficiently using C / C++.

Note:
i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I
1. Introduction to Computer Graphics: Overview of Graphics Systems, Display Devices, Display Processors, Character Generation; Interactive graphical techniques; Positioning, (Elastic or Rubber Band lines, Inking, zooming, panning)
2. Raster Scan Graphics: Line Drawing algorithms-Direct method, DDA and Bresenham’s; Circle drawing algorithm- 2-point, 4-point, trigonometric method, 8-point, Bresenham method, Bresenham Midpoint method.

UNIT - II
3. Two Dimensional Geometric Transformation & Viewing: homogeneous coordinate system; Basic Transformations- Translation, Rotation, Scaling, Reflection, Shear, composite transformation like- Rotation about an Arbitrary Point, Reflection through an Arbitrary Line; transformation of points and unit square.
4. Clipping: Point clipping Line clipping algorithms: Cohen-Sutherland and Liang-Barsky, Polygon Clipping; Window to viewport coordinate transformation.

UNIT - III
5. Graphics Programming using C/C++: Basic Graphical functions; Mouse Programming, Graphic Languages: Primitives (Constants, actions, operators, variables), display subroutines, plotting and geometric transformations, Concept of Animation, Saving, Loading and Printing graphics images from/to disk. Animated algorithms for sorting, Towers of Hanoi.
6. OpenGL using C/C++: Geometric Primitives and Attributes; Viewing; Color; Lighting, Animation.

UNIT - IV
2. Three Dimensional Concepts & Object Representations: Three Dimensional Display Methods, Parallel Projection, Perspective Projection; Translation, Rotation, Scaling, Composite Transformation; Hidden line and surface elimination-Z-buffer, back face, scan line, depth sorting.

REFERENCES:
Objective: This course enables students to be familiar with different types of Info systems, basics of DR and its practical problems.

Note:
   i. The Question Paper will consist of Four Units.
   ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
   iv. All questions carry equal marks unless specified.

UNIT-I
2. Accounting Information System: Characteristics, sample system, subsystems for filling customer order, order replenishment stock, performing general ledger processes; features and use of Accounting Information System Package-Tally.
3. Marketing Information System: Basic concepts, model, subsystems including Marketing Research, Marketing Intelligence, Product, Place, Promotion and Pricing subsystems.

UNIT-II
4. Manufacturing Information System: Model and subsystems including Accounting information, Industrial Engineering, Inventory, Quality and Cost Subsystems.
5. Financial Information System: Model and Subsystems including Forecasting, Funds Management and Control Subsystems.
6. Human Resources Information Systems: Model and Subsystems including human resources research, human resources intelligence, HRIS Database, HRIS output.

UNIT-III

UNIT-IV
9. Special types of Linear Programming problems: Transportation and Assignment problems.

REFERENCES
FACULTY OF SCIENCE

SYLLABI FOR

POSTGRADUATE DIPLOMA

IN

COMPUTER APPLICATIONS

FOR

EXAMINATIONS 2017–2018
(SEMESTER SYSTEM)

--:O:-
Outline of the Syllabi and Courses for Post Graduate Diploma in Computer Applications for Examination – 2017 -2018 (Semester System).

**FIRST YEAR (SEMESTER –I)**

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Paper Name</th>
<th>Lecture</th>
<th>Tutorial</th>
<th>Practicals/Weeks</th>
<th>Exam. Marks</th>
<th>Int. Ass. Marks</th>
<th>Total Marks</th>
<th>Exam Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGD-1101</td>
<td>Computer Fundamentals</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-1102</td>
<td>Computer Programming using C</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-1103</td>
<td>DataBase Management System</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-1104</td>
<td>Data Communications and Networks</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-PR-1105</td>
<td>Lab1 (Based on PGD-1101 &amp; PGD-1102)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-PR-1106</td>
<td>Lab2 (Based on PGD-1103)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL PERIODS =42**

**TOTAL MARKS = 450**

**FIRST YEAR (SEMESTER –II)**

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Paper Name</th>
<th>Lecture</th>
<th>Tutorial</th>
<th>Practicals/weeks</th>
<th>Exam. Marks</th>
<th>Int. Ass. Marks</th>
<th>Total Marks</th>
<th>Exam Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGD-2101</td>
<td>Object Oriented Concepts Using JAVA</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-2102</td>
<td>Web Technologies</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-2103</td>
<td>Software Engineering</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-2104</td>
<td>Computer Based Accounting</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-PR-2105</td>
<td>Lab3 (Practical based on PGD-2101)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-PR-2106</td>
<td>Lab4 (Practical based on PGD-2102)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>60</td>
<td>15</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>PGD-2107</td>
<td>Project Work : Development of Business Application / Web Site</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>--</td>
<td>100</td>
<td>-</td>
</tr>
</tbody>
</table>

**TOTAL PERIODS =48**

**TOTAL MARKS = 550**

Note: Pass Marks 40% marks in Theory, Internal Assessment, and Practical separately.
50% marks for Project Work.
50% marks in Aggregate to qualify the examinations.
Objective: The objective of the course is to familiarize students with basic concepts related to Computers, DOS, Windows, Linux and application software’s like Word-processing, Spreadsheet Software and Presentation Software.

Note:
i. The Question Paper will consist of Four units.
ii. Examiner will set total of **Nine** questions comprising **Two** questions from each unit and **One** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **One** question from each unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I

1. **Basics of Computers:** Characteristics of computer; History of computers; classification of computers based on size, architecture, and chronology; Applications of computers; Hardware, Software, and Firmware. Types of software: System and Application software; Input, Process and Output, Block diagram of a computer.

2. **Representation of information:** BIT, BYTE, Memory, Memory size; RAM, ROM, PROM, EPROM, Magnetic tapes, Disks, Organization of data on disks: Tracks, sectors, cylinders, heads, access time, seek time and latency time. ASCII and EBCDIC Codes, Binary, Octal, Decimal and Hexadecimal Number Systems and their Conversion, Integer and Floating Point Representation Input/Output devices.

UNIT - II

3. **Disk Operating System:** Booting sequence; Warm and Cold Booting;Concept of File and directory, Types of DOS commands: Internal and External; Internal Commands: DIR, MD, CD, CLS, COPY, DATE, DEL, PATH, PROMPT, REN, RD, TIME, TYPE, VER, VOL; External Commands: XCOPY, ATTRIB, BACKUP, RESTORE, FORMAT, DISKCOPY, Introduction to CONFIG.SYS and AUTOEXEC.BAT files.

4. **Windows:** GUI, Icons, Toolbar, Control panel, Files and folder management under windows, Accessories, Network Neighborhood, System Tools, Recycle Bin.

5. **LINUX:** Overview of LINUX structure, Basic Linux commands such as date, echo, cal, bc, passwd, File and Directory commands such as ls, mkdir, pwd, cd, rmdir, cat, cp, mv, rm Understanding File Access Permissions using chmod, chown, chgrp. Comparison of main features of DOS, LINUX and Windows Operating Systems.
UNIT - III

6. Word Processing Software:

   Editing Text: Copy, Paste, Delete, Move etc., Finding and Replacing Text, Spell Check, Autocorrect feature, language setting and thesaurus
   Formatting: Character, Paragraph and Page formatting, working with indents, Bulleted and numbered lists, adding Headers and Footers, setting up Multiple Columns
   Working with tables: Inserting/creating table using toolbar and drawing, formatting table, adding/deleting rows/columns, Applying borders to tables
   Clipart: Using clip art, Creating Word Art
   Mail merge: Creating merged envelopes, creating merged mailing labels

UNIT - IV

7. Spreadsheet Software:
   Worksheet overview: Row, Column, Cells, Menus, creating, opening, saving, and printing worksheet; working with Range

   Editing information: Entering text, numbers and formulae, AutoSum, AutoFill, spell checking

   Working with Functions: Statistical, Mathematical and String functions, date and Time functions, Trigonometric functions

   Working with charts: Line graphs, Pie charts, Bar graphs, adding Titles, Legends etc. to charts, Printing Charts

8. Presentation Software:
   Basic features, selecting design templates, creating, saving and printing a simple presentation, various views, Adding pictures, shapes, clipart, audio and movie.

References:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Basandra, S.K</td>
</tr>
<tr>
<td>3</td>
<td>Sinha, P.K</td>
</tr>
<tr>
<td>4</td>
<td>Sanders, Donald M,</td>
</tr>
<tr>
<td>5</td>
<td>Rajaraman, V.</td>
</tr>
<tr>
<td>6</td>
<td>Curtin</td>
</tr>
<tr>
<td>8</td>
<td>Norton, P.</td>
</tr>
</tbody>
</table>
Course Duration: 60 Lectures of one hour each.

Objective: The objective of the course is to familiarize students with programming concepts of ‘C’ including functions, Arrays, strings etc.

Note:
1. The Question Paper will consist of Four units.
2. Examiner will set total of Nine questions comprising Two questions from each unit and One compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt One question from each unit and the Compulsory question.
4. All questions carry equal marks unless specified.

UNIT – I

2. C Language Fundamentals: ‘C’ Language: History, Structure of a C program, Data types, Constants and variables, Operators and Expressions, Type casting, Type conversion, Scope Rules: Local and Global variables, I/O functions, Control constructs (Sequencing, alteration and iteration)
3. Header files: stdio.h, ctype.h, string.h, math.h, stdlib.h, time.h
4. Storage classes: automatic, external, static, register
5. Preprocessor: #define, #include, #undef, #conditional compilation directives (#if, #else, #elif, #endif, #ifdef and #ifndef)

UNIT – II

6. Functions: library functions, user defined functions, scope rule of functions, Parameter passing: call by value and call by reference, Recursion
7. Arrays: One dimensional and two dimensional arrays, declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to functions
8. Pointers: Definition, Declaring pointers, accessing values via pointers, pointer arithmetic, pointer to strings, passing arguments using pointers, array of pointers

UNIT – III

9. Strings: Declaring String, built-in string functions - strlen(), strcpy(), strcat(), strcmp(), array of strings, two dimensional array of characters, Array of Pointers to Strings
10. Structure: Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, array of structures, Array in Structures, Difference between array and structure, nested structures
11. Unions: Declaring a Union, Accessing elements of a type union.
UNIT – IV

12. Console Input/Output: Console I/O Functions, Formatted Console I/O Functions, `sprintf()` and `sscanf()` Functions, Unformatted Console I/O Functions, `gets()`, `puts()`


References:

<table>
<thead>
<tr>
<th></th>
<th>Author</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kanetkar, Yashavant</td>
<td>Let us C</td>
<td>BPB Publications, New Delhi</td>
</tr>
<tr>
<td>2</td>
<td>Gottfried, B.</td>
<td>Theory and problems of Programming in C</td>
<td>Schaum Series. N.D. TMH</td>
</tr>
<tr>
<td>3</td>
<td>Sinha, P.K.</td>
<td>Computer Fundamentals</td>
<td>BPB Publications,</td>
</tr>
</tbody>
</table>
Objective: The objective of the course is to make the students understand Database concepts and SQL.

Note:

i. The Question Paper will consist of Four units.
ii. Examiner will set total of Nine questions comprising Two questions from each unit and One compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt One question from each unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT - I


UNIT – II

3. Relational Model: Storage organization for Relations, Relational Algebra, Relational Calculus, Functional dependencies, multivalued dependencies, Candidate Key and Primary Key in a Relation, Foreign Keys, Normalization - Introduction, 1NF, Partial Dependencies, 2N, data Anomalies in 2NF Relations, Transitive Dependencies 3NF


UNIT - III

4. Understanding SQL-1: Data Types, Creating Tables, Creating a Table with data from Another table, Inserting Values into a Table, Updating Column(s) of a Table, Deleting Row(s) from a Table, Dropping a Column, Querying database tables, Conditional retrieval of rows, Working with Null Values, Matching a pattern from a
Functions: Character Functions, Date Functions, Group Functions, Ordering the result of a Query. Aggregate Functions, Grouping the Result of a Query.

UNIT - IV

5. **Understanding SQL-II:** Definition and Advantages of Views, Creating and Altering Views, Using Views, Querying Multiple Tables using Equi-Joins, Cartesian Joins, Outer Joins, Self-Joins, SET Operators: Union, Intersect, Minus; Introduction to Nested Queries, Define Transaction, COMMIT and ROLLBACK,

<table>
<thead>
<tr>
<th>References:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
</tr>
</tbody>
</table>
Objective: The objective of the course is to make the students understand Layered structure of Networks and working of different Layered.

Note:

i. The Question Paper will consist of Four units.

ii. Examiner will set total of Nine questions comprising Two questions from each unit and One compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt One question from each unit and the Compulsory question.

iv. All questions carry equal marks unless specified.

UNIT – I

1. Introduction to Computer networks and applications: Network Structure and Architecture, Network Hardware and Software (protocol hierarchies, design issues for layers, interfaces and services: connection oriented and connection less), Network structure and architecture-point to point, multicast, broadcast, Classification of networks on the basis of Geographical Span (PAN, LAN, MAN and WAN) , LAN topologies (Bus, Ring, Star, Mesh, Tree and Hybrid). Network Connecting Devices: Repeaters, Hubs, Bridges, Routers, Gateways and Switches, Network Reference models: OSI model, TCP / IP model. Comparison between OSI and TCP/IP.

UNIT – II

2. Introduction to Data Communication: Analog Signal, Digital Signal, Analog vs Digital Communication; Band Width Limitation, Data rate of a channel; Physical Layer: Transmission media: Guided (Twisted-pair, Coaxial and Optical fiber) and Unguided (Radio, Microwave and infrared), Switching: Circuit switching, Packet Switching, Message Switching, Telephone system, modems. Modulation techniques: AM, PM, FM; Multiplexing Techniques- FDM, WDM, and TDM

UNIT – III


UNIT – IV

4. The Network Layer: Design Issues, Routing Algorithms (Shortest Path, Flooding, Flow Based, Distance Vector, Link State, Broadcast, Hierarchical Routing),
Congestion Control Algorithms and their general principles (Leaky Bucket, Token Bucket); Internetworking: tunneling, Internet Routing, fragmentation.

<table>
<thead>
<tr>
<th>References</th>
<th>Authors</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tanenbaum, Andrew S.</td>
<td>Computer Networks, PHI.</td>
</tr>
<tr>
<td>2.</td>
<td>Behrouz A. Forouzan</td>
<td>Data Communication &amp; Networking, TMH</td>
</tr>
</tbody>
</table>
Title: Lab1 (Based on PGD - 1101 and PGD - 1102)

Paper Code: PGD-PR-1105

Time: 3 Hrs.
Max. Marks: 75
External: 60
Internal: 15

This laboratory course will be based on PGD- 1101 and PGD- 1102

Note: Paper will be set at the time of examination. Due weightage may be given to the practical note-book and Assignments in evaluation.

Paper Title: Lab2 (Based on PGD -1103)

Paper Code: PGD-PR-1106

Time: 3 Hrs.
Max. Marks: 75
External: 60
Internal: 15

This laboratory course will be based on PGD- 1103.

Note: Paper will be set at the time of examination. Due weightage may be given to the practical note-book and Assignments in evaluation.
Objective: The objective of the course is to familiarize students with Object Oriented concepts including inheritance, visibility control etc. using JAVA programming language.

Note:
   i. The Question Paper will consist of Four units.
   ii. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt ONE question from each unit and the Compulsory question.
   iv. All questions carry equal marks unless specified.

UNIT - I

1. OOPs concepts: Basic Concepts of Object-Oriented Programming (Objects and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic binding, Message communication), difference between procedure oriented and object oriented approach, Benefits of OOP’s; Applications of OOP’s, Object-Oriented languages.

2. Object oriented programming with JAVA: Byte code, Java virtual machine, Java Development Kit, java tokens, constants, variables, data types, operators, expressions, control structures, defining class, creating objects, accessing class members, method overloading, static members

UNIT – II

3. Inheritance: Defining a subclass, subclass constructor, multilevel inheritance, Hierarchical inheritance, Overriding methods, Final variables, methods, and classes, Abstract Methods and Classes.
4. Visibility Control: Public access, friendly access, protected access, private access, private protected access.
5. Arrays: One dimensional array, declaration, creation and initialization of arrays, Array length, Two dimensional array

UNIT – III

6. Strings: String arrays, String methods, String Buffer class
7. Interfaces: Defining interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface variables
8. Packages: Java API packages, Defining a package, Creating and Accessing
packages, Adding class to a package, Hiding Classes.

9. **Multithreaded Programming**: Creating Thread, Extending the Thread class, Stopping and Blocking a Thread, Life cycle of a Thread.

**UNIT – IV**

10. **Errors and Exception Handling**: Fundamentals, error types, exception types, using Try and catch, finally statement, Built-in exceptions.

11. **Applet Programming**: Local and remote applets, Applet Life Cycle, Creating an executable Applet, Applet tag, Adding Applet to a HTML file, Passing parameters to Applets

<table>
<thead>
<tr>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Balaguruswamy, E.</td>
</tr>
<tr>
<td>2. Daniel Dang</td>
</tr>
<tr>
<td>3. Deitel &amp; Dietel</td>
</tr>
<tr>
<td>4. Liang</td>
</tr>
</tbody>
</table>
Objective: This course familiarizes students with concepts of HTML, CSS, JAVA Scripts and PHP.

Note:
   i. The Question Paper will consist of Four units.
   ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt **ONE** question from each unit and the Compulsory question.
   iv. All questions carry equal marks unless specified.

UNIT – I

1. **Introduction to HTML/DHTML:** Brief history of HTML, Building blocks of HTML, lists, links, images, image map, tables, frames, forms
2. **Introduction to cascading style sheets (CSS):** Introduction to Style Sheets, Types of style Sheets-Inline, embedded and external style sheets.

UNIT – II

3. **Fundamentals of Javascript:** Features, tokens, data types, variables, operations, control constructs, strings, arrays, functions, Document Object Model, event handling. Applications related to client side form validation.
4. **Javascript Objects:** Core language objects, The String Object, The Math Object, and The Date Object; User Defined Objects: Creating a User Defined Object, Instances, Objects within Objects

UNIT – III

5. **Introduction to PHP:** Embedding PHP code in a Web Page, Basic Syntax, Defining variable and constant, PHP Data types, Operators and Expressions
6. **Control Structures:** Making Decisions, Doing Repetitive task with looping, File inclusion statements.
7. **Functions:** Defining a function, Call by value and Call by reference, recursive function, Library functions
8. **Strings:** Creating and accessing String, Searching & Replacing String, Formatting String, String Related Library function.
UNIT – IV

9. **Arrays**: Anatomy of an Array, Creating index based and Associative array, Accessing array Element, Looping with associative array using each() and foreach(), Some useful Library function: current(), next(), prev(), reset(), end(). **Working with Forms**: Super global variables, super global array, Importing and accessing user input, Combine HTML and PHP code.

10. **Working with files and Directories**: Opening, closing, Coping, renaming and deleting a file, working with directories, File Uploading & Downloading

<table>
<thead>
<tr>
<th>References:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phillips</td>
<td>Using HTML, PHI</td>
</tr>
<tr>
<td>2. Bayross, Ivan</td>
<td>HTML1,DHTML, Javascript by BPB</td>
</tr>
<tr>
<td>4. Steve Suehring</td>
<td>PHP6 and MYSQL Bible, Wiley India edition</td>
</tr>
<tr>
<td>5. Steven Holzner</td>
<td>PHP: The complete Reference, Tata McGraw Hill</td>
</tr>
<tr>
<td>6. Kelvin Tetroi</td>
<td>Programming PHP</td>
</tr>
</tbody>
</table>
Objective: This course makes students understand concepts related to Software Engineering including process model, project management, design and testing.

Note:
1. The Question Paper will consist of Four units.
2. Examiner will set total of **NINE** questions comprising **TWO** questions from each unit and **ONE** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **ONE** question from each unit and the Compulsory question.
4. All questions carry equal marks unless specified.

**UNIT – I**

1. **Software Engineering Fundamentals**: Characteristics, Components, Applications, principles of software engineering, skills of software engineer.

**UNIT – II**

3. **Software Project Management**: Software Project management Plan(SPMP), Project scheduling Techniques- Work Breakdown Structure(WBS), Project Evaluation Review Technique (PERT), Gantt Charts, Critical path method (CPM)

**UNIT – III**

5. **Software Design**: Software Design Process, Design Failures and Remedies

**UNIT – IV**


<table>
<thead>
<tr>
<th>References:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Lewis, T.G.</td>
</tr>
<tr>
<td>5. Shere, Kenneth</td>
</tr>
<tr>
<td>9. Ghazzi, Carlo</td>
</tr>
</tbody>
</table>
Objective: This course makes students understand accounting principles and computerized accounting.

Note:

i. The Question Paper will consist of Four units.
ii. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT – I

Accounting: Principles, concepts and conventions, double entry system of accounting, introduction of basic books of accounts of sole proprietary concern, control accounts for debtors and creditors, closing of books of accounts and preparation of trial balance.
Final Accounts: Trading, profit and loss accounts and balance sheet of sole proprietary concern with normal closing entries.

UNIT – II

Introduction to Manufacturing Account, final accounts of partnership firms, limited company.
Introduction to Computerized Financial Accounting, coding logic and codes required, master files, Transaction files, Introduction to documents used data collection, processing of different files, outputs obtained.

UNIT – III

Introduction to Computerized Inventory Control, types of inventory and associated documents, Inventory reports-nature and types, Inventory Control: ABC and Ageing analysis, Methods of Stock validation: LIFO, FIFO, actual bases, Interfacing Inventory with Financial Accounting, Purchasing Sub-Systems, Sales Order processing.

UNIT – IV

Introduction to Computerized Payroll & Invoicing Applications, Exposure to Structure, Processing and Reports, Interfacing these applications to financial Accounting.
Use of Accounting package Tally: Introduction to Tally, Groups, Ledgers, Vouchers, Orders, Cost Centers and Categories, Stock, Reports in Tally.
<table>
<thead>
<tr>
<th><strong>References:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Home, James, C., 2004</td>
<td>Financial Management &amp; Policy, Prentice Inc</td>
</tr>
</tbody>
</table>
Paper Title: Lab3 (Based on PGD-2101)

Paper Code: PGD-PR-2105

Time: 3 Hrs.
Max. Marks : 75
External : 60
Internal : 15

This laboratory course will be based on PGD-2101.

Note: Paper will be set at the time of examination. Due weightage may be given to the practical note-book and Assignments in evaluation.

Paper Title: Lab4 (Based on PGD-2102)

Paper Code: PGD-PR-2106

Time: 3 Hrs.
Max. Marks : 75
External : 60
Internal : 15

This laboratory course will be based on PGD-2102

Note: Paper will be set at the time of examination. Due weightage may be given to the practical note-book and Assignments in evaluation.

Paper Title: Project Work.

Paper Code: PGD-2107

Max. Marks: 100

Major Project on any database application using any database development tool is to be developed/ Development of a Web Site using Database connectivity

***************
SYLLABI

FOR

M.COM. [SEMESTER SYSTEM] EXAMINATIONS, 2017-18

(For Regular College/University/USOL Students)
Note: 1. The duration of the examination in each subject will be 3 hours.
2. Maximum marks for external/written examination are 80 marks and Internal Assessment is 20 marks.
3. The marks for Internal Assessment will be divided as Follows:
   
   **For Regular Students**
   
   (a) Attendance : 20%
   (b) Written Assignments : 30%
   (c) Mid Semester Test : 50%

   **For University School of Open Learning (USOL) Students:**
   
   100% Internal Assessment will be based on Written Assignments

N. B.: Use of non-programmable calculators by the students in the Examination Hall is allowed. The calculators will not be provided by the University.

**INSTRUCTIONS TO THE PAPER SETTERS:**

**IF THERE ARE TWO UNITS:** Set 10 questions in all. Five questions from each unit. The students are required to answer five questions in all selecting at least 2 questions from each unit.

**IF THERE ARE THREE UNITS:** Set 10 questions in all. Three or four questions from each unit. The students are required to answer five questions in all selecting at least one question and not more than two from each unit.

**IF THERE ARE FOUR UNITS:** Set 10 questions in all. Two or three questions from each unit. The students are required to answer five questions in all selecting at least one question from each unit.

**IF THERE ARE FIVE UNITS:** Set 10 questions in all. Two questions from each unit. The students are required to attempt five questions in all selecting one question from each unit.
## SCHEME OF EXAMINATION

### SEMESTER-I

<table>
<thead>
<tr>
<th>Paper</th>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.C.101</td>
<td>MANAGERIAL ECONOMICS</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>M.C.102</td>
<td>QUANTITATIVE METHODS FOR BUSINESS</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>M.C.103</td>
<td>MODERN ACCOUNTING THEORY &amp; REPORTING PRACTICES</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>M.C.104</td>
<td>ORGANISATION THEORY AND BEHAVIOUR</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>M.C.105</td>
<td>MARKETING MANAGEMENT</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>M.C.106</td>
<td>MANAGEMENT INFORMATION SYSTEM</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>M.C.107</td>
<td>WORKSHOP ON IT APPLICATIONS IN COMMERCE</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(For Regular Students Only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M.C.107 A</td>
<td>IT APPLICATIONS IN COMMERCE (For USOL Students Only)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>700</td>
</tr>
</tbody>
</table>

### SEMESTER-II

<table>
<thead>
<tr>
<th>Paper</th>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.C.201</td>
<td>BUSINESS ENVIRONMENT</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>M.C.202</td>
<td>RESEARCH METHODOLOGY IN COMMERCE</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>M.C.203</td>
<td>FINANCIAL MANAGEMENT AND POLICY</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>M.C.204</td>
<td>PRODUCTION AND MATERIALS MANAGEMENT</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>M.C.205</td>
<td>OPERATIONS RESEARCH</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>M.C.206</td>
<td>BUSINESS POLICY &amp; STRATEGIC MANAGEMENT</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>M.C.207</td>
<td>SUMMER TRAINING REPORT AND VIVA VOCE</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(For Regular College Students)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M.C.207 A</td>
<td>ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT (For USOL Students Only)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M.C.207 B</td>
<td>FINANCIAL SERVICES (For USOL Students Only)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>700</td>
</tr>
</tbody>
</table>
SEMESTER-III

**Paper 1**  M.C.301  BUSINESS PERFORMANCE MEASUREMENT  100 Marks
**Paper 2**  M.C.302  TAX PLANNING AND MANAGEMENT  100 Marks

For Paper 3, Paper 4, Paper 5, Paper 6 Students has to select two groups from the given groups A to F having two papers each. (MC. 303 to MC. 314)

**Paper 3**  Select Group from A-F  100 Marks
**Paper 4**  Select Group from A-F  100 Marks
**Paper 5**  Select Group from A-F  100 Marks
**Paper 6**  Select Group from A-F  100 Marks

**Paper 7**  M.C.315  MC. 315-WORKSHOP ON FINANCIAL MARKETS AND INSTRUMENTS (For Regular Students Only)  100 Marks

**M.C.315 A**  FINANCIAL MARKETS AND INSTRUMENTS (Theory paper For USOL Students Only)  100 Marks

Total  700 Marks

**Group A: Marketing**
MC. 303  Integrated Marketing Communication & Brand Equity  100 Marks
MC. 304  Marketing Research  100 Marks

**Group B: Human Resource Management**
MC. 305  Human Resource Development  100 Marks
MC. 306  Industrial Relations  100 Marks

**Group C: International Business**
MC. 307  India's Foreign Trade and Investment  100 Marks
MC. 308  Management of International Business Operations  100 Marks

**Group D: Accounting & Finance**
MC. 309  Strategic Cost Management  100 Marks
MC. 310  International Accounting  100 Marks

**Group E: Applied Economics**
MC. 311  Industrial Economics  100 Marks
MC. 312  Applied Econometrics  100 Marks

**Group F: Banking and Insurance**
MC. 313  Bank Management  100 Marks
MC. 314  Insurance Management  100 Marks

(iii)
**SEMESTER-IV**

<table>
<thead>
<tr>
<th>Paper</th>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.C.401</td>
<td>PROJECT PLANNING AND CONTROL</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>M.C.402</td>
<td>KNOWLEDGE MANAGEMENT</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>M.C.403</td>
<td>BUSINESS ETHICS AND CORPORATE GOVERNANCE</td>
<td>100</td>
</tr>
</tbody>
</table>

Every student has to select any one group from the two groups selected in the third semester (Selected group in the 4th semester will be having three papers) (MC. 404 to MC. 421)

<table>
<thead>
<tr>
<th>Paper</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td>Select Group from A-F</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Select Group from A-F</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Select Group from A-F</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>M.C.422</td>
<td>COMPREHENSIVE VIVA-VOCE</td>
<td>100</td>
</tr>
</tbody>
</table>

Total: 700 Marks

**Group A: Marketing**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.404</td>
<td>Advertising and Sales Management</td>
<td>100</td>
</tr>
<tr>
<td>MC.405</td>
<td>Services Marketing</td>
<td>100</td>
</tr>
<tr>
<td>MC.406</td>
<td>Consumer Behavior</td>
<td>100</td>
</tr>
</tbody>
</table>

**Group B: Human Resource Management**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.407</td>
<td>Organizational Change and Development</td>
<td>100</td>
</tr>
<tr>
<td>MC.408</td>
<td>Training and Development</td>
<td>100</td>
</tr>
<tr>
<td>MC.409</td>
<td>Compensation Management</td>
<td>100</td>
</tr>
</tbody>
</table>

**Group C: International Business**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.410</td>
<td>International Business Environment</td>
<td>100</td>
</tr>
<tr>
<td>MC.411</td>
<td>Global Financial Management</td>
<td>100</td>
</tr>
<tr>
<td>MC.412</td>
<td>International Marketing Management</td>
<td>100</td>
</tr>
</tbody>
</table>

**Group D: Accounting & Finance**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.413</td>
<td>Advanced Corporate Accounting</td>
<td>100</td>
</tr>
<tr>
<td>MC.414</td>
<td>Security Analysis and Portfolio Manage</td>
<td>100</td>
</tr>
<tr>
<td>MC.415</td>
<td>Advanced Auditing</td>
<td>100</td>
</tr>
</tbody>
</table>

**Group E: Applied Economics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.416</td>
<td>Macro Economic Analysis and Policy</td>
<td>100</td>
</tr>
<tr>
<td>MC.417</td>
<td>Economics of Services</td>
<td>100</td>
</tr>
<tr>
<td>MC.418</td>
<td>World Trading System</td>
<td>100</td>
</tr>
</tbody>
</table>

**Group F: Banking and Insurance**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC.419</td>
<td>Bank Legislation</td>
<td>100</td>
</tr>
<tr>
<td>MC.420</td>
<td>Risk Management</td>
<td>100</td>
</tr>
<tr>
<td>MC.421</td>
<td>Actuarial Practice</td>
<td>100</td>
</tr>
</tbody>
</table>

(iv)
Objective: The objective of the course is to acquaint students with the concepts of microeconomic theory and their use in business decision making. The effort is to make them capable of using various concepts to deal with business problems in a global economic environment.

UNIT-I

UNIT-II
The demand for a commodity: Individual’s demand, Market demand, and the firm demand; Price, Income & Cross elasticity of demand; Using elasticity’s in managerial decisions; Theories of consumer behavior.

UNIT-III
Pricing Practices and Risk Analysis: Price and Output relationship under different market structures; Pricing Theories; Pricing of multiple products; Price discrimination - International price discrimination & Dumping, Transfer Pricing; Risk and Uncertainties in managerial decision making; Measuring risk with probability distribution; Utility Theory and risk aversion.

UNIT-IV
Technological change and the global market economy: Impact of technological change on productivity, labor and market structure; Industrial innovation and technology and technological environmental forecasting.

Reference Books:
2. Varian, Micro-Economic Analysis (ed. 3), Norton.
PAPER 2: MC. 102 - QUANTITATIVE METHODS FOR BUSINESS

Objective: The objective of the course is to acquaint students with some of the important statistical techniques for managerial decision making. The emphasis will be on their applications to business and economic situations.

UNIT-I


UNIT-II

Statistical Estimation and hypothesis testing: Introduction to Hypothesis testing - Meaning of Population, sample and sampling distribution - parameters and statistics - Central limit theorem - Concept of Standard Error - Confidential limits - Estimation of population parameters - properties of a good estimator - Point and interval estimation - Hypothesis Formulation and testing procedure - Type I and Type II errors - one tail and two tail tests - Sampling of Attributes - Estimation and testing Number and Proportions of Successes, Difference between two proportions.

UNIT-III

Sampling Variables : Large Samples - Difference between large and small samples - Estimating population mean - testing the significance of Mean - Significance of the difference between means of two samples - Significance between the standard deviations of two samples - Small Samples - $t$ test - fixing fiducial limits to population mean - testing the significance of the mean - testing the significance of the difference between two independent means - testing the significance of the difference between two dependent means - F test - meaning - Applications of F test - ANOVA - Assumptions - Procedure - one way and two-way analysis of variance.

UNIT-IV


Reference Books:

Paper 3: MC. 103 - Modern Accounting Theory & Reporting Practices

Objective: In view of the convergence of the Indian Accounting Standards with the IFRS, it is desirable to equip the students with the required knowledge of International financial reporting standards and practices. The students are expected to achieve a clear conceptual understanding of the IFRS and possess sufficient knowledge expected out of an expert.

Unit-I

The Regulatory and Financial Reporting Framework: The International Accounting Standards Board (IASB)-The role and the standard setting process. Progress towards international harmonization. The IASB-Framework for the Preparation and Presentation of Financial Statements; The first time adoption of international financial reporting standards : Objective of financial statements, Qualitative characteristics of financial statements, Elements of financial statements, Recognition and measurement of elements of financial statements, Fair value basis of measurement, Concepts of capital and capital maintenance.

Unit-II


Unit-III

Presentation and additional disclosures as per International Financial Reporting Standards (a). Events after the balance sheet date (b). Earnings per share (c). Related party disclosures (d). Interim financial reporting (e). Effects of changes in foreign exchange rates (f.) Segment reporting.

Unit-IV

Preparation of external financial reports for single entities as per International Standards (a) Income statements and discontinuing operations (b) Cash flow statements (c) Statement of changes in equity
(d) Preparation of external financial reports for combined entities and joint ventures (e) Definitions of subsidiaries, investments in associates and joint ventures (f) Exclusions from consolidations (g) Preparation of consolidated balance sheets and income statements (h) Equity accounting (i) Proportionate consolidation and joint ventures.

Reference Books:

5. Bhabatosh Banerjee, Regulation of Corporate Accounting and Reporting in India, World Press.

PAPER 4: MC. 104 - ORGANISATION THEORY AND BEHAVIOUR

Objective: The objective of the course is to develop a theoretical understanding among students about the structure and behavior of organization as it develops over time. The course will also make them capable of realizing the competitiveness for firms.

UNIT-I


UNIT-II

Group Decision making and Communication: Concept and nature of decision making process, Individual versus group decision making, Nominal group technique and Delphi technique, models of communication, communication effectiveness in organizations. Feedback, TA, Johari Window. Motivation: Need hierarchy, Maslow's Need Hierarchy, Two factor theory, Contemporary theories of motivation (ERG, Cognitive evaluation, goal setting, and equity) expectancy model. Behaviour modification, Motivation and organizational Effectiveness.
UNIT-III


UNIT-IV

Organizational Culture, Organizational Development and Stress Management: Concept and determinants of organizational culture, Organizational Development: Concept and intervention techniques. Individual and organizational factors to stress, Consequences of stress on individual and organization, management of stress. Case Studies: Some cases of real business world are required to be discussed.

Reference Books:

2. Fred Luthans, Organizational Behavior, McGraw Hill.
7. McSchane, Organization Behavior, TMH.

PAPER 5: MC. 105 - MARKETING MANAGEMENT

Objective: The objective of the course is to familiarize the students with the basic concepts and principles of marketing and to develop their conceptual and analytical skills to be able to manage marketing operations of a business firm.

UNIT-I

Introduction to Marketing Management; Marketing - Meaning and approaches, Role of Marketing in Organizations, 4Ps & beyond, Marketing Challenges, Marketing Process and Marketing Planning, Marketing information system.
UNIT –II


UNIT –III


UNIT –IV


Reference Books:


PAPER 6: MC. 106 - MANAGEMENT INFORMATION SYSTEM

Objective: The objective of the paper is to offer a comprehensive overview of Management information systems (MIS). It will explore technical, strategic and tactical issues related to MIS. Basic concepts in analyzing and designing information systems will be presented.

UNIT-I

MIS Definition - Characteristics - Evolution of MIS: Concepts; framework for understanding and designing MIS in an organization; MIS and other related disciplines: MIS and Management Accounting,
MIS and Computer Science, MIS and OR, MIS and Organizational Behavior, MIS and Management.

Concept of information: definition, features, types, process of generation and communication; quality of information; information overload; techniques for managing overload; summarizing; filtering; inferences and message routing. System concepts: definition, types and characteristics of system-control in systems: feedback: positive and negative; negative feedback control system, input, process and output control; law of requisite variety.

UNIT-II

Structure of MIS: Basic structural concepts: formal and informal information systems; public and private information systems; multiple approaches to the structure of MIS: Operational elements (physical components, process, outputs for users), activity subsystems, functional subsystems and decision support – synthesis of multiple approaches into a conceptual structure for MIS.

UNIT-III


UNIT-IV

Systems Development and Implementation: System development methodologies; SDLC approach; prototyping approach and user development approach - Systems Analysis; Systems Design; Concepts of database and database design; system implementation; management of information system projects; system documentation – information system audit. Security of information resources; threats to information resources; security systems for risk management. Enterprise Resource Planning Systems – Features-ERP Modules - implementation of ERP.

Reference Books:

PAPER 7: MC. 107 - WORKSHOP ON IT APPLICATIONS IN COMMERCE
(For Regular Students studying in Colleges/University Department Only)

Objective: The objective of the course is to expose the students with the use of IT technologies to solve business problems regarding various functional areas of business.

UNIT-I

UNIT-II
Introduction to Spread sheet- Understanding basic features of Spread sheet Ŷ Statistical functions- Database Functions -Finance Functions - Logical statements and formula creation- Creating Charts.

UNIT-III
Building decision models and data analysis through Spreadsheets - Forecasting Analyzing Financial Statements using accounting ratios - Project Appraisal IRR, NPV, MIRR - Inventory management Ŷ EOQ and Quantity discounts- Leasing decisions Ŷ Flexible budgets -Break even analysis-goal seek- scenario management and pivot table applications.

UNIT-IV
Database management systems - Concept of database-features- components of DBMS, Types of databases hierarchical, network, relational.-Normalization- Database administrator- Data warehousing- Data mining. Features of RDBMS -Database design and application development Ŷ Tables- creation- relationships- Forms designing forms queries- types of queries- reports- report design-use of RDBMS in business decisions.

Note: The workshop will include (a) Regular training of the students in labs and through interactions with experts and presentations. (b) Assigning a project to the students as per the curriculum of the subject (c) Internal Examination to be conducted by the subject teacher (e) Presentation session of the students on the assigned project.

Reference Books:

**PAPER 7: MC. - 107A - IT APPLICATIONS IN COMMERCE**

*(For USOL Students Only)*

**Objective:** The objective of the course is to expose the students with the use of IT technologies to solve business problems regarding various functional areas of business.

**UNIT-I**


**UNIT-II**

Introduction to Spread sheet - Understanding Basic Features of Spread sheet ĭ Statistical functions- Database Functions -Finance Functions - Logical statements and formula creation- Creating Charts.

**UNIT-III**

Building decision models and data analysis through Spreadsheets - Forecasting Analyzing Financial Statements using accounting ratios- Project Appraisal IRR, NPV, MIRR - Inventory management ĭ EOQ and Quantity discounts- Leasing decisions ĭ Flexible budgets -Break even analysis-goal seek- scenario management and pivot table applications.

**UNIT-IV**

Database management systems - Concept of database ĭ features - components of DBMS, Types of databases hierarchical, network, relational,-Normalization- Database administrator- Data warehousing- Data mining. Features of RDBMS -Database design and application development ĭ Tables- creation-relationships- Forms designing, forms queries- types of queries- reports- report design-use of RDBMS in business decisions.
Reference Books:

Objective: The objective of the course is to acquaint students with the concepts of macro economics and the macro environment in which a business organization operates. The course would also make the student capable of analyzing and understanding the macro economic policies of the government implemented from time to time and assess their impact on business.

UNIT-I

Business Environment: Cultural, social, political, technological, economic and legal environment - scanning - techniques of environmental forecasting - SWOT - Internal environment - their impact on policy formulation.

UNIT-II

Economic reforms in India - Liberalization - privatization and globalization - Competitive Strength of Indian industry - Impact of liberalization policy on different sectors - Foreign Investments policy in India. Multi-national corporations - Their participation in India - Their strategies, competitive strengths policies and performance.

UNIT-III


UNIT-IV


Reference Books:

3. Kazhmi Azhar, Business Policy, TMH.

PAPER 2: MC. 202 - RESEARCH METHODOLOGY IN COMMERCE

Objective: The objective of this paper is to impart knowledge about various stages of the research processes and their application in Commerce and Management Education.

UNIT-I

Introduction: - Meaning of the Research ķ Qualities of a research worker ķ Scientific Method ķ Definition ķ stages of scientific study ķ Different steps in scientific study ķ Logical Methods ķ Inductive & Deductive Methods ķ Nature of the Phenomena & the use of the scientific methods. Approach to a Research Project :- Purpose of Research ķ Functions in Research ķ Research Programme ķ Problem solving through research /financial aspects of research ķ Research Design ( Selective topic, Coverage, Hypothesis) ķ Sources of Information ķ Nature of study ķ Definition of terms ķ Techniques of study ķ Collection, Analysis & presentation of the data ķ Testing hypothesis ķ Stating results.

UNIT-II


UNIT-III

Presentation of Information:-Analysis of information ķ Classification, tabulation & interpretation ķ Presentation of data & its application ķ Pictorial presentation ķ Composition of information (quotation, footnotes, bibliography - tables, standards, abbreviations) - style of writing. Coordinating contents :- Front matter (blank sheet, title page, dedication, preface, table of contents, list of tables, list of figures, list of appendices etc. ) ķ Text proper ( Chapter wise information ) ķ Back matter ( appendices, glossary, bibliography, index, blank sheet).
UNIT-IV

Multivariate analysis - an overview of dependence and interdependence methods (multiple regression, discriminate analysis, conjoint analysis, factor analysis, cluster analysis); research report; ingredients and constructions of research report - procedure of preparation of reference and bibliography. Research Findings and Preparation and writing of a Research Report: - Benefits of implementation of actual research findings - carrying forward the studies - Management of research unit - Preparation and writing of a Research Report.

Reference Books:


PAPER 3: MC. 203 - FINANCIAL MANAGEMENT AND POLICY

Objective: The objective of the course is to acquaint the students with the basic analytical techniques and methods of financial management of business firms. The course also provides students the exposure to certain sophisticated and analytical techniques that are used for taking financial policy decisions.

UNIT-I


UNIT- II

Investment decisions; importance, difficulties, determining cash flows, methods of capital budgeting; risk analysis (risk adjusted discount rate methods and certainly equivalent methods) cost of different sources of raising capital; weighted average cost of capital.
UNIT- III


UNIT- IV

Determinants of dividend models - Walter, Gordon & M.M. models. Working Capital Æ Meaning, need, determinants; estimation of working capital need; management of cash; inventory & receivable.

Reference Books:


PAPER 4: MC. 204 - PRODUCTION AND MATERIALS MANAGEMENT

Objective: To impart knowledge regarding production and management techniques, process, tools, and acquaint the students with the knowledge of marketing functions, techniques and strategies.

UNIT-I

UNIT-II

UNIT-III
Facilities Location & Layout - Strategic importance - Factors affecting location & layout - Installation of facilities - Single location, multi-location decisions. Principles and Types of Facilities Layout. Importance and Functions of Production Planning & Control. Introduction to PERT / CPM - Network Crashing.

UNIT-IV

Reference Books:
1. Alan Mulemann, John Oakland, Keith Locker, Production and Operations Management, Macmillan India Ltd.
5. R. Panneerselvan, Production and Operations Management, Prentice Hall of India.
7. Mukhoipadhyay, Production Planning and Control, TMH.

PAPER 5: MC. 205 - OPERATIONS RESEARCH

Objective: To understand the concepts and techniques of Operations Research for business decision making and to acquire required skills to solve various problems in OR.

UNIT-I
Operations Research: Evolution, methodology and role in decision making; Linear programming: Meaning, assumptions, advantages, scope and limitations: Formulation of Problem and its solution by graphical and simplex methods (Including Big M Method and Two Phase Simplex Method); special cases in simplex method; infeasibility, degeneracy, unboundedness and multiple optimal solutions; duality. Dual Simplex Method.
UNIT-II

Transportation problems including transshipment problems; Special cases in transportation problems; unbalanced problems, degeneracy; maximization objective and multiple optimal solutions; assignment problems including travelling salesman's problem. Special cases in assignment problems; unbalanced problems, maximization objective and multiple optimal solutions.

UNIT-III

PERT/CPM: Difference between PERT and CPM, network construction, calculating EST, EFT, LST, LFT and floats, probability considerations in PERT, time cost trade off. Decision theory: decision making under uncertainty and risk, Bayesian analysis, decision trees. Replacement problem (Individual and Group replacement problems both).

UNIT-IV

Game theory, pure and mixed strategy games; principle of dominance; two person zero sum game; Queuing theory: concept, assumptions and applications; analysis of queue system, Poisson distributed arrivals and exponentially distributed service time model (MMI and MMK); simulation; meaning, process, advantages, limitations and applications.

Reference Books:


PAPER 6: MC. 206 - BUSINESS POLICY & STRATEGIC MANAGEMENT

Objective: The objective of the course is to help the students develop an understanding of the basic inputs in making and implementing corporate strategic decisions and also familiarize them with the issues and practices involved.

UNIT-I

Strategic Management - An Introduction - Evolution of business policy as a discipline - Strategy and the

UNIT-II


UNIT-III


UNIT-IV

New Business Models and strategies for Internet Economy: Shaping characteristics of E-Commerce environment - E-Commerce Business Model and Strategies - Internet Strategies for Traditional Business - Key success factors in E-Commerce - Virtual Value Chain. Cases in strategic management. A minimum of 10 cases encompassing the above topics to be analyzed and discussed in the class. Cases to be incorporated in the Question Paper.

Reference Books:

Paper 7: MC. 207- SUMMER TRAINING REPORT AND VIVA VOCE
(For Regular Students Only)

After the Completion of Second Semester Examination the students will go on 6-8 Weeks summer training in various Industrial undertakings, banking and financial services institutions, and Retail Sector organizations, undertake a project there to study a particular problem and file three copies of summer training report within 15 days completion of the training. The student has to file a certificate of completion of training issued by training organization. A VIVA-VOCE Examination will be conducted by the External examiner appointed by the University on the problems undertaken in the summer training report. Principal of the College/Chairperson of the Department must appoint one internal supervisor for the guidance of the student regarding the Summer Training Project. The List of the internal supervisors so appointed must be communicated to the Controller of examination within 10 days from the date of appointment. The Internal supervisor will also be acting as Internal Examiner at the time of Conduct of VIVA-VOCE and sit with External Examiner.

PAPER 7: MC. 207-A - ENTREPRENEURSHIP DEVELOPMENT & PROJECT MANAGEMENT
(For USOL Students Only)

Objective: The purpose of this paper is to prepare a ground where the students view Entrepreneurship as a desirable and feasible career option. In particular the paper seeks to build the necessary competencies and motivation for a career in Entrepreneurship.

UNIT-I


UNIT-II

UNIT-III

Project Management Technical, Financial, Marketing Personnel and Management feasibility Reports
Financial schemes offered by various financial institutions like Commercial Banks, IDBI, ICICI, SIDBI,
SFCs, Venture Capital Funding, Angle Capitalist.

UNIT-IV

Entrepreneurship Development and Government Role of Central Government and State Government in
promoting Entrepreneurship with various incentives, subsidies, grants etc. ṭ with special reference to ṭExport oriented unitsṭ Role of the following agencies in the Entrepreneurship Development DIC ṭ
District Industrial Center, SISI ṭ Small Industries Services Institute, EDII ṭ Entrepreneurship Development
Institute of India NIESBUD ṭ National Institute of Entrepreneurship and Small Business Development.
NEDB ṭ National Entrepreneurship Development Board.

Recommended Books:-

1. Brandt, Steven C., The 10 Commandments for Building a Growth Company, Macmillan Business
Books, Delhi.
New Delhi.
5. Taneja, Gupta, Entrepreneur Development New Venture Creation, 2nd ed., Galgotia Publishing
Company.

OR

PAPER 7: MC. 207-B - FINANCIAL SERVICES
(For USOL Students Only)

Objective: To provide insight to the structure, working and problems of financial, system in India as well
as to enable students to appreciate and understand the concepts, mechanism and utility of different financial
services.

UNIT – I

An overview of Indian financial system: Introduction, structure, components and mechanism of the
financial system. Financial Services: An overview. Introduction to SEBI.
UNIT–II

Merchant Banking: Functions and SEBI regulations and Non Fund-based and Fund-based activities including role in mobilization of funds. Depository Services in India (including regulatory aspects).

UNIT–III

Leasing - Introduction, financial evaluation of lease from lessor’s and lessee’s point of view, lease structuring, Tax, legal and accounting aspects especially in Indian context. Factoring: Features, process and agreement for factoring.

UNIT–IV


REFERENCES:

1. L.M. Bhole  
   Financial Institutions and Markets
2. J.C. Verna  
   Merchant Banking Organisation and Management
3. Lalit K. Bansal  
   Merchant Banking and Financial Services
4. M.Y. Khan  
   Financial Services
5. V.A. Avadhani  
   Investment and Securities Markets in India.
6. S. Ramesh & Arun Gupta  
   Venture Capital and Indian Financial Sector.

é é é é é é é é é é é ..
PAPER 1: MC. 301 - BUSINESS PERFORMANCE MEASUREMENT

Objective: The objective of this paper is to make the students familiar with the performance measurement techniques for business.

UNIT-I

Corporate Performance Measurement - Need and Importance; Historical Overview; Product Costing in price estimates and profit management; Techniques to measure and enhance profitability and quality of products and services; Activity Based Management, Target and Kaizen costing; benchmarking and environmental costing; Flexible Budgeting, and Activity Based Budgeting.

UNIT-II

Setting of performance goals and incentives, and the use of diagnostic tools and control; systems to achieve the goals; Strategic Profitability Analysis; Measuring performance using Economic Value Added (EVA) methodology; Comparison between Return on Investment (ROI) and EVA methodology of measuring performance.

UNIT-III

Measurement of Corporate Performance through Balanced Scorecard and its value creation potential; Rationality behind balance score card; performance dimensions of the balance score card; Throughput Accounting; Comparison of Activity Based Costing.

UNIT-IV

Information Systems aspects of management control; Control-needs of Information flow, and its consolidation in multi-locational setting; Management Control System and its applications; Responsibility Accounting - Meaning and Methodology, types of responsibility centres, organizational structure of responsibility centres; objectives and methods of transfer pricing, pricing corporate services and administration of transfer pricing.

Reference Books:

PAPER 2: MC. 302 - TAX PLANNING AND MANAGEMENT

Objective : The aim of this course is to familiarize the student with major latest provisions of the Indian tax laws and related judicial pronouncements pertaining to corporate enterprises having implications for various aspects of Corporate planning with a view to derive maximum possible tax benefits admissible under the law.

UNIT-I


UNIT-II

Definition of various kinds of companies - Meaning of company under IT Act. Residential status of companies and implications for Tax Planning. Assessment of companies including carry forward and set off of losses.

UNIT-III

Tax implications in planning of business unit as Proprietorship, Partnership, Pvt. Ltd. & Public Ltd. Tax planning in the context of exemptions, incentives, export promotions & various deductions under Chapter VI of Income Tax Act. Setting up of a new Industrial Establishment: location aspects; nature of business; planning for tax holiday benefits. Specific management decisions such as (1) make or buy; (2) own or lease, (3) repair or replace; (4) export vs. local sale; (5) shut down or continue; (6) expand or contract.

UNIT-IV

An overview of goods and service tax: Introduction to GST, reasons for introducing GST, pros and cons of GST. Registration procedure of trader / service provider under GST. Levy and collection of CGST/SGST under GST. Composite levy scheme of GST. Levy and collection of IGST. Input tax credit and relief to consumers and traders under GST. Applicable rates of tax on various goods and services under GST.

Reference Books:

MC. 303 - INTEGRATED MARKETING COMMUNICATION & BRAND EQUITY

Objective: The objective is to introduce the students to the integrated role of promotion techniques with the special emphasis on advertising.

UNIT-I
Marketing communication; functional areas of marketing communication; integrated marketing communication; types of advertising agencies; media partners and their role; compensating the advertising agencies; agency evaluation; brands - its meaning; creating and maintaining the brand; selecting desired brand position; developing brand identification; creating a brand image; creating and maintaining brand relationship with customers; brand-customer touch points; prospects and customers; AIDA model; think/feel/do models; brand decision making process; attitude formation and attitude change; brand likeability.

UNIT-II
Branding concepts; branding challenges and opportunities; brand equity concept; strategic brand management process; customer based equity; building a strong brand and its implications; identifying and establishing brand positioning; defining and establishing brand values; internal branding.

UNIT-III
Campaign planning; IMC planning process; internal marketing; segmenting and targeting; types of segmentation; message and profitability targeting; digitization of brand information; customer database; building relationship through data management; developing creative message strategy; process of developing IMC message strategy; methods of getting creative ideas; brand-message execution; copywriting; writing for point and electronic media; print layout and design; executional and strategic consistency.

UNIT-IV
Media classification; media strength and weakness; wireless communication; e-mail marketing; website marketing; integrating online brand communication; media planning; consumer sales promotion; sales promotion tools; determining consumer sales promotion strength and limitations of sales promotion; trade promotion; trade promotion for new products and existing brands; trade promotion strategies; objectives of co-marketing communication.

Reference Books:
2. Clow, Kenneth & Baack, Donald; Integrated Advertising, Promotion and Marketing Communication; Pearson Education, New Delhi.
3. Belch, George and Belch, Michael; Advertising and Promotion; Tata McGraw Hill, New Delhi.
4. Wells, William, Burnett, John ad Moriarty, Sandra; Advertising Principles and Practice; Pearson Education; New Delhi.
5. Jethwaney, Jaishree and Ijain, Shruti; Advertising Management; Oxford University Press; New Delhi.
MC. 304 - MARKETING RESEARCH

Objective: The course aims at exposing the students to the concept, tools and techniques of marketing research and developing their skills to be able to apply research techniques to aid marketing decision making.

UNIT I

Introduction : Meaning, nature and importance of marketing research; Marketing research and scientific method; Research reliability and validity; Problems in conducting marketing research; Marketing Information System (MIS); Ways of conducting marketing research; Syndicated research. Marketing Research Process: Steps involved in conducting marketing research; Problem identification; Determining information needs; Developing marketing research proposal.

UNIT II

Research Design : Meaning and importance; Types of research designs — explorative, descriptive and conclusive researches; Secondary data sources, uses and limitations; Primary data collection methods — questioning techniques and observation methods; Online data sources and research; Questionnaire preparation. Sample Design and Field Work : Defining universe and sampling unit; Determining sampling frame; Probability and non - probability sampling methods; Sample size determination; Field work and data collection — sampling and non-sampling errors.

UNIT III

Data Analysis and Report Preparation: Data editing, coding tabulation and graphical presentation; Univariate and multivariate data analyses techniques and their applications in marketing research; Report preparation, presentation and follow - up. Marketing Research Applications: Consumer research — behaviour and motivation research, attitude measurement and scaling techniques.

UNIT IV

Product research; Advertising research; Marketing and sales forecasting; Sales analysis. Marketing Research in India: Status, organization and developments; Ethical issues in marketing research.

Suggested Readings:

MC. 305 – HUMAN RESOURCE DEVELOPMENT

Objective: The objective of the course is to make student aware of the concepts, techniques and practices of human resource development. This course is intended to make students capable of applying the principles and techniques as professionals in organizations they work for.

UNIT I

Human resource development: Concept and evolution, human resource mobilizations, HRD Conceptual base, strategic interventions in HRD sector and target groups, HRD mechanisms, processes and outcomes, HRD instruments, HRD. HRD and Management: Attitude of top management towards HRD, Motivational aspects of HRD, Trends and Practices, Line manager and HRD.

UNIT II

HRD Activities: HRD culture and climate, Elements of HRD climate, measurement of HRD climate, factors to HRD climate, Determinant needs, developmental supervisor, HRD for Workers: HRD mechanisms for workers, Role of trade unions.

UNIT III

HRD in Organizations: Government organizations, educational institutions, armed forces, police and industry, private sectors and public sectors units.

UNIT IV

Emerging Issues in HRD: Creating awareness and commitment to HRD, Industrial relations and HRD, Utilization of HRD efforts, Future of HRD, International comparison of HRD (Commonalities and differences).

Reference Books:

5. Strategic HRM- Charles Greer, Pearson Education Asia , New Delhi.
MC. 306 – INDUSTRIAL RELATIONS

Objective: The objective of the course is to make students aware of the concept of industrial relations. The course will make them understand the importance of industrial relations for an organization and how these relations provide dynamics to organizations.

UNIT I

Industrial Relations: Concepts and scope, Historical development, Unilateralist, Pluralist and Marxist perspective of IR. Trade Unionism: role of trade unions, trade union in India, national level federations, Goals and objectives of unions and union leadership, weaknesses in trade unions, trade unions, politics and government. Theories of trade unionism. Cross cultural aspects of union management relations.

UNIT II

Trade Union Act 1926: An overview. Union recognition; de-unionization strategies. Union Management Relations: conceptual framework, union management perspectives, organizational factors affecting union management relations. Public policies and union management relations, role of state, constitution and labour policies, ILO, Major events and international issues, changes affecting HR/IR perspectives, perspectives in India.

UNIT III


UNIT IV


Reference Books:

2. C.S. Venkat Ratnam, Industrial Relations: Text and Cases, Oxford University Press, Delhi.
4. Farnham and Limlott, J., Understanding Industrial Relations Cassell.
MC. 307 - INDIA’S FOREIGN TRADE AND INVESTMENT

Objective: The objective of this course is to acquaint the students with structure and policy framework of India’s foreign trade and investments.

UNIT I

India’s Foreign Trade: Pattern and Structure of India’s foreign trade; India’s trade in service; Terms of trade; India on the world trading map; Analysis of thrust export products and markets. Foreign Trade Policy and Economic Relations: Policy making body and regulatory framework; Trends and developments in India’s foreign trade policy; Bilateralism and multilateralism in India’s trade relations; India and WTO, WTO and emerging trading environment, India’s trade and economic relations with EU and other regional groupings; India and regional economic cooperation in South Asia.

UNIT II

Export Promotion Measures and Facilities: Export promotion measures and schemes; Export and trading houses, Import facilities for exports; Export processing/special economic zones (EPZs/SEZs) and 100% EOUs – Policy framework and operational aspect. Institutional Arrangements and Infrastructure Support: Export promotion councils, Commodity boards/export development authorities; other service organizations; Infrastructure Support – Transportation and warehousing infrastructure, Indian ports and shipping system.

UNIT III

Procedural and Documentary Framework – An Overview: Trade operations and documentation; Procedure for getting started in export & import business. Trade contract and INCO terms; Export payment terms and UCDPC; quality inspection; Excise and customs clearance. Foreign Trade Finance and Insurance: Pre-shipment and post-shipment finance; Sources and schemes of foreign trade finance; Exim Bank and foreign trade finance; Coverage of Credit, transit, commercial and political risks; ECGC and risk coverage.

UNIT IV

Foreign Exchange facilities and Regulations; Foreign exchange facilities and exchange rate mechanism; Regulatory framework – FEMA and its objectives and provisions; Other acts and regulations. Foreign Investments: India’s foreign investment policy and flows: India’s investments abroad – pattern and structure; Indian Joint ventures in foreign countries and their operations. Balance of Payment Account: India’s Balance of Payment account and adjustment policies; foreign reserves and debt situation.

Reference Books:

4. Nayyar Deepak, Foreign Trade Sector, Planning and Industrialisation in India, in Terance J. Byres (ed.), The State Development Planning and Liberalisation in India, Delhi.
MC. 308 - MANAGEMENT OF INTERNATIONAL BUSINESS OPERATIONS

Objective: The course intends to acquaint the students with the management of international business operations of a business firm.

UNIT I

International Business Management: Complexities and issues; Approaches to international management; Cross-cultural values and business management; Foreign market entry mode decisions and level of international involvement; International management orientation; International business management - A strategic perspective. International Planning: Environmental scanning and monitoring; Resource allocation and portfolio compositions of a global firm; Linkages and synergies among business units across borders; Locus of decision making; Headquarter - subsidiary relationships in international business enterprises; International management information system.

UNIT II

Organizational and Control Aspects of International Operations: Organizational design and structure of international companies; Managing communication across cultures; Co-ordinating and controlling international business operations. International Production and Procurement: International production and location decisions; Procurement for international operations - International sourcing World class manufacturing and international quality standards; Supply chain management and global business operations.

UNIT III


UNIT IV

International Human Resource Management: Selection, training and development of people in international firms; Compensation and reward systems among international firms; Motivation and leadership in international firms. International Business Negotiations: Process and skills; Management of International Collaborative Arrangements.

Reference Books:

GROUP D: ACCOUNTING AND FINANCE

MC. 309 - STRATEGIC COST MANAGEMENT

Objective: This course aims to acquaint the students with concepts and various aspects of cost management from strategic perspective.

UNIT-I

Conceptual framework of SCM, environmental influences in cost management practices, role of SCM in strategic positioning; cost management tools-life cycle costing, target costing, kaizen costing, JIT & theory of constraints, BPR and bench marking.

UNIT-II

Nature of activity-based costing (ABC); benefits and limitations of ABC; limitation of volume-based costing system, indicates of ABC; activity hierarchic; cost drivers; designing an ABC system, Activity-based management; operational and strategic application of ABC; customer profitability analysis, process value analysis, financial measures of activity efficiency; Nature of value-chain analysis; activity analysis an linkage analysis; application of linkage analysis in cost reduction and value addition.

UNIT-III

Functional-based planning and control; budgeting nature, administration and effectiveness; budgeting cycle; activity-based budgeting; kaizen approach; ZBB; performance budgeting; human aspects of budgeting; responsibility centers and financial control - nature and role of responsibility centers; accounting and evaluation of responsibility centers, measuring the performance of investment centre Í ROI, RI, EVA; transfer pricing and its applications.

UNIT-IV

Strategic-based performance measurement system: Balanced score card-prospective and limitations; establishing objectives and performance measures in different perspectives of balance score card; productivity measurement and control; productivity efficiency; partial and total productivity measurement; measuring changes in activity and process efficiency; quality cost management and reporting.

Reference Books:

2. Horngren, Datar Foster, Cost Accounting, Pearson Education.
4. Kaplan, Atkinson and Young, Management Accounting, Pearson Education.
5. Kaplan, Atkinson, Advanced Management Accounting, Pearson Education.
MC. 310 - INTERNATIONAL ACCOUNTING

Objective: The objective of this course is to develop some conceptual knowledge and Understanding of international accounting issues among students. In addition, this course makes students capable of tackling issues in prevailing regulatory environments.

UNIT-I


UNIT-II

Specific Reporting Issues: Regulatory Disclosure Requirements; Foreign Operations Disclosure; Social Responsibility Disclosures. Managerial Accounting Issues: Strategic Planning; Management Control Systems; Performance Evaluation of foreign operations.

UNIT-III


UNIT-IV

Transfer pricing, methods, objectives, strategies. Emerging issues in International Accounting.

Reference Books:

2. Sandagaran S.M., International Accounting, South Western.
5. Frederick D.S. Choi and Gary K. Meek, International Accounting, Pearson Education.
GROUP E: APPLIED ECONOMICS

MC. 311 - INDUSTRIAL ECONOMICS

Objective: The objective of the course is to acquaint students of economic concepts as applied to industrial behaviour. The course makes student capable to analyse and take decisions in respect of a firm's or industry's operations.

UNIT-I


UNIT-II

Economies of size: Economies of size, vertical and horizontal integration, diversification, economies of scale and scope. Merger, acquisition and takeover, innovation, export led industrialization. Economies of location and spatial structure. Economics of ownership structure.

UNIT-III


UNIT-IV


Reference Books:

MC. 312 - APPLIED ECONOMETRICS

Objective: The objective of the course is to acquaint students of the methodology of econometrics and make them capable of applying it to business problems. The emphasis will be on application aspects with theoretical understanding.

UNIT-I

Basic Concepts: Definition and scope of econometrics; model specification; desirable qualities of models; evaluating an econometric model; Random variables, stochastic variables and the stochastic error term; probability distributions (review); estimators, desirable qualities of a good estimator; maximum likelihood estimators (definition). The multiple regression model; The 3 variable model; partial regression and correlation coefficients; assumptions of the classical linear model; Derivation of Ordinary Least Squares Estimators; Properties of OLS estimators, OLS AS BLUE; Variances and Standard deviations; Goodness of fit: R-squared and adjusted R-squared; Tests of significance t and F tests; Hypothesis testing involving more than one parameter; Forecasting: Evaluation of Forecasts; Mean Squared error, RMS error.

UNIT-II

Extensions of the basic linear model: 1) Model transformable to linear form: Estimation of elasticity by log-linear models; Growth rates by semi-log models; linear -log models; polynomial regression models (espquadratic). 2) Qualitative variables: Qualitative independent variables and dependent variables (into only); applications of dummy variables; Time dummy, intercept dummy and structural change.

UNIT-III

Relaxing the assumptions of the basic linear model: 1) Multicollinearity: Perfect and imperfect multicollinearity; consequences of multicollinearity, detection and solution. 2) Heteroscedasticity: Nature and Causes; Consequences; Detection by graphical analysis of residuals and Parks test; Solution of Heteroscedasticity: Weighted Least Squares. 3) Autocorrelation: nature and causes; Consequences; Detection by graphical analysis and D-W Test, Solution for AR. 4) Error in measurement. 5) Specification bias. 6) Simultaneous Equation Bias.

UNIT-IV

Estimation and specifications: Demand, Sales, Cost, Production and Consumption functions. Simultaneous equation system: Identification and Estimation of the model.

Reference Books:

GROUP F: BANKING AND INSURANCE

MC. 313 - BANK MANAGEMENT

UNIT-I

Banking structure in India - banking functions and services - Foreign commercial banks - Private commercial banks - capital adequacy. Principles of lending - financial adequacy assessing the borrower - project appraisal - structural and Infrastructural analysis - legal formalities - follow up loans, asset management companies.

UNIT-II


UNIT-III

Investment management - priorities in allocation of bank funds - investment in governments securities - maturity and yield - quality and diversification, profitability management - profit planning.

UNIT-IV


Reference Books :

1. Varshney, PN. Banking Law & Practice, Sultan Chand, New Delhi.
2. S.N.Maheswari, Banking Law & Practice, Ludhiana, Kalyani Publications.
4. K.Subramanian, Banking Reforms in India, TMH, New Delhi.
MC. 314 - INSURANCE MANAGEMENT

Objective: This course aims at a familiarizing the participants with the concept of insurance, the risk and its management, various insurance policies and their structure along with the legal dimensions involved. This course also aims at providing the knowledge of Insurance Company’s Management.

UNIT-I


UNIT-II


UNIT-III

Aviation insurance: Special Features Ġ types of Cover, Marine Insurance including Inland Rail/Road transit insurance. Life and Health Insurance: Life Insurance and annuities broad classification of Life insurances, special purpose policies; Family income, Family maintenance, Family policy, Joint Life Policies, Classes of life insurance. Health Insurance: Medical Insurance Types of Health Insurance Coverages, types of losses covered. Health insurance contract. Buying a health insurance policy.

UNIT-IV


References Books:
Objective: To provide an overview of the financial system in India and functioning of various segments of the financial markets and the financial instruments traded in those markets.

UNIT – I


UNIT – II


UNIT – III


UNIT – IV


Reference Books:

3. Fabozzi and Modigliani, Capital Markets: Institutions and Instruments (Prentice Hall of India, New Delhi

Note: The workshop will include (a) Regular training of the students in labs and through interactions with experts and presentations, (b) Assigning a project to the students as per the curriculum of the subject (c) Internal Examination to be conducted by the subject teacher (d) Presentation session of the students on the assigned project.
SYLLABUS OF M.COM. (SEMESTER SYSTEM) EXAMINATIONS

PAPER 7: MC. 315-A - FINANCIAL MARKETS & INSTRUMENTS
(For USOL Students Only)

Objective: To provide an overview of the financial system in India and functioning of various segments of the financial markets and the financial instruments traded in those markets.

UNIT–I


UNIT–II


UNIT–III


UNIT–IV


Reference Books:

SEMESTER-IV

PAPER 1: MC. 401 – PROJECT PLANNING AND CONTROL

Objective: The objective of the course is to provide the student with skills necessary to create, plan and control a new Enterprise.

UNIT – I


UNIT – II


UNIT – III


UNIT – IV

Project Implementation and Management: Project Organisation and Control Network Analysis – PERT & CPM Cost and Time Over-run Project Follow up and Monitoring.

Reference Books:
5. Yound, Trevour L.: Planning and Implementing Project, Sterling Publishing Ltd.
6. Krishnan and Moorthy: Text Book of Project Management, Mac Millan India Ltd.
PAPER: 2 MC. 402 - KNOWLEDGE MANAGEMENT

Objective: The main aim of the course is to create awareness amongst the students to know the details of Knowledge Management in the changing scenario and its significance in framing the business strategy.

UNIT-I

Concept of knowledge, Major Philosophical Schools, Knowledge in economic and management theories, Knowledge as competitive resource, Knowledge intensive organization, Knowledge value chain.

UNIT-II

Knowledge management systems, Barriers to knowledge sharing, Expert systems.

UNIT-III

Knowledge creation as a tool of excellence, tacit and explicit knowledge, Models of knowledge creation process, Critical enabling conditions, Cross leveraging knowledge.

UNIT-IV

Knowledge management strategy and business strategy, Knowledge architecture, Organizational design for knowledge management, Role of Top and Middle management, Knowledge based reward systems.

Reference Books:

6. Ikuijro Nonako and Hirotaka Tekeuchi : Knowledge Creating Company, OUP.
PAPER 3: MC. 403 – BUSINESS ETHICS AND CORPORATE GOVERNANCE

UNIT-I

UNIT-II

UNIT-III
Internal Corporate Governance Mechanism: Board of Directorsō Functional Committees of Board; Code of conduct, whistle blowers. External Corporate Governance Mechanism: Regulators, Gate keepers, Institutional Investors, Corporate raiders, Corporate Governance Ratings Corporate Governance in India: corporate form in India 50s to 90s i developments in Corporate Governance in India in nineties and 2000s i CII, Kumaramangalam, Narayanamoorthy, Naresh Chandra, JJ Irani Committee reports i Legal and Regulatory Changes i introduction and modification of Clause 49, Corporate governance in practice in India .

UNIT-IV
Cases:
1. A Dent in Wal Martō Public Image - The PR Strategy.
2. China Aviation Oilō Collapse: Singapore INCō challenges.
5. Bhopal Gas Tragedy

Source
(a) Case Studies for Managers, Vol. II, IBSPCD
(b) BECG Main Reference Book

Reference Books:
4. Fernando, A C., Corporate Governance, Pearson Education.
SEMESTER IV (ELECTIVES) GROUP A: MARKETING MANAGEMENT

MC. 404 - ADVERTISING AND SALES MANAGEMENT

Objective: The course aims at enabling the students to develop an in-depth understanding of the modern concepts and latest techniques of advertising and personal selling and sales force Management which constitute a fast-growing area of marketing.

UNIT-I

Advertising: Communication Basics: Role of communication; Communication process and flows; Planning the promotion mix; Advertising: Nature and importance; Advertising and the economy; Advertising and publicity; Advertising management process – an overview; Determining target audience; Advertising objectives and positioning decisions; Advertising budget decisions. Message Decision: Determining advertising message; Developing advertising copy – Headline main copy, logo, illustration, appeal, layout, creativity in advertising.

UNIT-II

Advertising through the internet; Media selection; Media scheduling. Organization of Advertising Operations: In-house vs. advertising agency arrangements; Managing advertising agency relations; valuation of advertisement and campaign effectiveness – Before - and after advertising tests and techniques. Advertising in India; Social and regulatory aspects of advertising. Recent developments and issues in advertising.

UNIT-III

Sales Management: Fundamentals of Personal Selling: Nature and importance of Selling; Types of selling; Personal selling, salesmanship and sales management; Process of effective selling; Strategic Sales management. Sales Planning: Setting personal selling objective; Market analysis and sales forecasting; Sales budget; Sales territory; Sales quota.

UNIT-IV

Sales Organization: Organization structure; relationship of sales department with other departments; Distribution networks relationship. Sales Force Management: Recruitment and selection; training and development; motivating, supervising and compensating sales personnel; Controlling the sales effort; Evaluation of sales personnel; Sales and cost analysis. Ethical and legal aspects of selling.

Reference Books:
MC. 405 - SERVICES MARKETING

Objective: To understand the service product and key elements of services marketing mix. Another objective deals with managing the service delivery process and the implementation of services marketing.

UNIT-I

Introduction to services marketing; role of services marketing; consumer behaviour in service encounters; customer interaction, purchase process, needs and expectations of customers; positioning services in competitive markets; search for competitive advantages; market segmentation, positioning vis-à-vis competitors.

UNIT-II

Creating the service product: Identifying and classifying supplementary services, planning and branding service-products, new service development; designing communication mix; branding and communication; effective pricing objectives and foundations for setting prices; distributing services; options for service delivery, place and time decisions, delivery in cyberspace, role of intermediaries.

UNIT-III

Designing and managing service processes; service process redesign, customer misbehavior; balancing demand and capacity: fluctuations in demand, capacity constrain, planning the service environment; consumer responses to and dimensions of service environment; managing people for service advantage: service leadership and culture.

UNIT-IV

Managing relationship and building loyalty; customer-firm relationship, analyzing and managing customer base; customer management relationship system in services marketing; customer feedback and service recovery; customer complaining behaviour, principles and responses to effective service recovery, service quality and the gap model, measuring and improving service quality, defining, measuring and improving service productivity; organizing for service leadership; search for synergy in service management, creating a leading service organization.

Reference Books:

1. Lovelock, Christopher, Wirtz, Jocken and Chatterjee, Jayanta; Services Marketing - People, Technology, Strategy; Pearson Education; New Delhi.
MC. 406 - CONSUMER BEHAVIOUR

Objective: Knowledge of consumer behaviour is a prerequisite for developing effective marketing strategy. The purpose of the course is to provide an in-depth understanding of the consumer and industrial buying processes and their determinants as relevant for marketing decision making.

UNIT-I

Consumer Behaviour: Importance and nature of consumer behaviour; Types of consumers and their role; Consumer buying process and determinants; Changing profile of Indian consumers.

UNIT-II

Individual Differences in Consumers: Needs and motivation; Perception; Attitude and attitude change; Learning and learning theories; Personality and life style analysis.

UNIT-III

External determinants of Consumer Behaviour: Family and its influence on consumer buying behaviour; Group and their influences; Social class; Culture and sub-culture.

UNIT-IV

Models of consumer behaviour; Business buying behaviour. Cross-cultural dimensions of consumer behaviour; Consumer research complexities and issues.

Reference Books:

GROUP B: HUMAN RESOURCE MANAGEMENT

MC. 407 - ORGANISATIONAL CHANGE AND DEVELOPMENT

Objective: This course is designed to provide in-depth understanding of behavioural interventions and enable the students to apply these interventions for building individual, team, system, systems and process-related competencies and helping organizational to achieve peak performance and become self-sustaining.

UNIT-I

Organizational Change - Meaning, nature, types; theories of planned change; Organizational development – nature and characteristics; process of organizational development.

UNIT-II

Human Process Interventions - T-group, process consultation, third party interventions, team building; organizational confrontation meeting, coaching and mentoring, role-focused interventions.

UNIT-III

Techno structural Interventions - Restructuring organization, reengineering, employee involvement, work design; Strategic Interventions – Organisation and environment relationships, organization transformation.

UNIT-IV

Contemporary issues and applications – Organizational development in global context, organizational development in service sector, OD Practitioners – role, competencies requirement, professional ethics and value and experiences; future trends in OD.

Reference Books:

MC. 408 - TRAINING AND DEVELOPMENT

Objective: The objective of the course is to familiarize the students with basic concepts and principles of Training and Development of Human Resource and train them to understand the learning environment of a firm. The knowledge so obtained will make them capable of providing training to Human Resource of a business firm.

UNIT-I

Conceptual Framework: The functions of training, relationship of training to organizational and individual goals, Factors effecting successful training process, Skills of a successful trainer ï Internal and external trainer. Training and Learning: The learning process, learning curve, principles of learning, training guidelines, experience versus training, kinds of training, system approach to training, programmed instruction, transfer of training.

UNIT-II

Training Needs Assessment and Curriculum Development: Identification of Training and Development needs, training needs assessment - various approaches (the job and the Individual), Advantages and disadvantages of basic needs assessment techniques.

UNIT-III

Assessing curriculum needs, curriculum standards, matching organizational training needs, Developing training materials. Training Methods: Three Stages of training (Preparatory, implementation and follow-up stage), On the job and off-the job methods., experiential versus non-experiential methods.

UNIT-IV

Evaluation of Training and Development, and Emerging Pattern: Reasons of evaluating training, Criteria for evaluation, problems of evaluation, steps involved in evaluation, methods for training evaluation, analysis and costing of training. Emerging Pattern of Training and development in India.

Reference Books:

MC. 409 - COMPENSATION MANAGEMENT

Objective: This course is designed to promote understanding in issues related to compensation in corporate sector and impart skills in designing, analyzing and restructuring compensation management system, policies and strategies.

UNIT-I

Role of compensation in organization: Economic and behavioural theories related to compensation; strategic perspectives of compensation; compensation as motivational tool; compensation policy.

UNIT-II

Internal and external equities in compensation system; determining the worth of jobs; understanding inter and intra-industry compensation differentials, designing pay structure and administrating compensation package; understanding different components of compensation package like fringe benefits, incentives and retirement plans; pay for performance plans.

UNIT-III

Compensation of special group: Corporate Directors, Chief Executives, Senior Managers; components of executive compensation package; compensation of professionals and knowledge workers, R&D staff, sales compensation plan, international compensation.

UNIT-IV

Statutory provisions governing different components of reward system; working of different institutions related to reward system like wage boards, pay commissions, role of trade unions in compensation management; tax planning.

Reference Books:

GROUP C: INTERNATIONAL BUSINESS

MC. 410 - INTERNATIONAL BUSINESS ENVIRONMENT

UNIT-I

UNIT-II

UNIT-III
International Investment : Types and significance of foreign investments ï factors affecting international investment ï growth and dispersion of FDI ï cross border mergers and acquisitions ï foreign investment in India ï The New Policy ï EURO/ADR issues ï M&A ï Indian companies going global. Multi National Corporation : Definition and Meaning ï Importance and dominance of MNCs ï Code of conduct ï MNCs in India ï Transfer of Technology ï global competitiveness ï indicators of competitiveness - competitive advantage of nations ï Technology and Global competitiveness.

UNIT-IV
International Monetary System and Foreign Exchange Marketing: The Pre- Bretton Woodâ caracteristic period, Breakdown of Bretton Wood system and emergence of EMS, EU and EURO. Social Responsibilities and Ethics, MNE Social Responsibilities, Efficiencies, Perspectives, Ethics, Technological Perspective, Foreign Corrupt Practices Act.

Reference Books:
4. Dynamics of Successful International Business Negotiations by Robert T. Moran, William G. Stripp ï JAICO
MC. 411 - GLOBAL FINANCIAL MANAGEMENT

UNIT-I


UNIT-II


UNIT-III


UNIT-IV


Reference Books:

MC. 412 - INTERNATIONAL MARKETING MANAGEMENT

UNIT-I


UNIT-II

Environment of International Business: Introduction, Political and Legal Environment, Cultural Environment, Financial and Monetary Environment. Indian Foreign Trade: Indian Trade Policy, Recent Transit in India’s Foreign Trade, Export Assistance, Institutional Infrastructure for Export Promotion in India, EXIM Policy of India.

UNIT-III


UNIT-IV


Reference Books:

2. Onkvisit & Shaw International Marketing: Analysis and Strategy. (PHI)
3. Keegan, Global Marketing Management, PHI.
5. Gitman, Global Marketing, Pearson.
GROUP D: ACCOUNTING & FINANCE

MC.413: ADVANCED CORPORATE ACCOUNTING

Objectives: Corporation is the most important part of the economic development of a company. With pace of development of the emerging scenario, the corporate accounting is also becoming little bit tougher. This paper will enable the students to learn the advanced accounting in the field of corporate world.

UNIT-I

Business Acquisition and Conversion of partnership into limited company and Limited Liability Partnership (LLP): Profit/loss prior to incorporation; Accounting for Acquisition of business. Conversion of Partnership into Limited Company with and without same set of books Amalgamation of firms, accounting in the books transferor and transferee firm.

Investment Accounts: Maintenance of Investment Ledger; Preparation of Investment Account (transaction with brokerage, STT, cum & ex-interest), Valuation of Investment under FIFO and Average method; Investment Account for Shares (with Right Shares, Bonus Shares and Sale of Right). Relevant Accounting Standard.

UNIT-II

Company Merger and Reconstruction: Amalgamation, Absorption and Reconstruction Meaning; relevant standard and meaning of different terms, Accounting in the books of Transferor Company. Accounting in the books of Transferee (both for amalgamation in the nature of Merger and of Purchase); inter-company transactions (including inter-company share holding). Internal reconstruction meaning, provisions and Accounting, Surrender of Shares for redistribution; preparation of Balance Sheet after reconstruction.

UNIT-III

Valuation: Goodwill Valuation using different methods i.e., Average Profit, Super Profit, Capitalization and Annuity. Shares Valuation using different methods: Intrinsic, Earnings, Dividend Yield, Earnings-Price, Cum-div and Ex-div, Majority and Minority view and Fair Value.

UNIT-IV

Meaning of Holding Company & Subsidiary Company; relevant standard; Consolidation of Balance Sheets of Parent & Subsidiary (only one); Minority Interest Basic principles and preparation of CBS; CBS with loss balance of Subsidiary Treatment for: Revaluation of Assets of Subsidiary, Intergroup Transactions, Holding of different securities. Consideration of dividend paid or proposed by Subsidiary in CBS; Bonus Shares issued or proposed to be issued by Subsidiary (excluding shares acquired on different dates by the Parent company, chain and cross holding).

Reference Books:
5. Hanif & Mukherjee, Corporate Accounting, TMH.
6. L.S Porwal, Accounting Theory, Tata Mcgraw Hill.
8. B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.
10. V.K.Goyal, Corporate Accounting, Excel Books.
MC. 414 - SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Objective: To enable the students to understand various techniques of analysis used in investment decisions, portfolio analysis and efficient portfolio management.

UNIT-I


UNIT-II

Forms of Market Efficiency and Valuation of Securities: Random Walk Theory Form of Market efficiency Analysis of Bond/Debentures: Valuation of bonds Analysis of risk in bonds-duration and convexity Valuation of Equity and Options.

UNIT-III


UNIT-IV


Reference Books:

MC. 415 - ADVANCED AUDITING

**Objectives:** The basic purpose of this paper is to provide in-depth knowledge of the auditing contemporary issues particularly related to the company audit.

**UNIT-I**


**UNIT-II**


**UNIT-III**


**UNIT-IV**


**Note:** Topics to be studied with reference to Standards on Auditing and Accounting including Applicable Indian Financial Reporting Standards.

**Reference Books :**

1. Gupta, Kamal, Contemporary Auditing, TMH.
2. Tandon, B.N., Principles of Auditing, S. Chand & Co.
5. Woolf, Emile, Auditing Today.
7. Auditing Assurance Standards and Guidelines issued by ICAI.
GROUP E: APPLIED ECONOMICS

MC. 416 - MACRO ECONOMIC ANALYSIS AND POLICY

Objectives: The Course seeks to provide grounding in basic macroeconomic theory and policy, with a focus on applications, especially in context of developing economies like India.

UNIT-I

Basic accounting concepts and tools in closed and open economies: National income accounting, nominal and real exchange rates and balance of payments, Keynesian theory of the short-run: Analysis of fiscal and monetary policies in the closed and open economy IS-LM models, including the Mundell-Fleming model.

Interest rates in open and closed economies: Yield curve, covered and uncovered interest parity condition.

UNIT-II

The labour market and policy analysis in the medium and long run: AS-AD analysis, Analysis of inflation and unemployment: The Phillips curve; theories of unemployment conditional convergence.

UNIT-III

Theory of business cycles, Classical theories of economic growth: The Solow model; evidence on convergence and Theories of endogenous growth.

UNIT-IV

Open economy analysis: Models of currency crisis, exchange rate volatility. Expectations theory and financial markets, including rational expectations model.

Reference Books:

2. Abel, A.S. and B.S. Bernanke, Macroeconomics, New Delhi Pearson Education.
MC. 417- ECONOMICS OF SERVICES

Objective: The objective of this paper is to acquaint the students with the economics of various kinds of services and its related issues.

UNIT-I

Introduction: Basic concepts of services, trade in services, classification of services (CPC), economic growth and structural shifts in favour of services, cost disease hypothesis and its implications on growth, empirical evidence, service sector in India, causes of growth, implications of the service sector growth for long run growth.

UNIT-II

Economics of education: Micro theories of education, Becker's theory, Mincerian equation, over education, measuring micro effects of education, signaling theory of education, new growth theories and macro economic effects of education, human resources and human capital development empirical evidence government policies, government funding and issues. PPP in education, the case for universal, free, primary education, structure of higher education and problems of its financing in India, other issues in education policy. Health: Economic dimensions of health care - demand and supply of health care, Grossman model of health care services, determinants of health - poverty, malnutrition, illiteracy and lack of information, Micro effects of health, health dimensions of macro economics development; health policy, financing of health care and resource constraints, inequalities in health - class and gender perspectives, institutional issues in health care delivery, economics of health insurance, community based health insurance.

UNIT-III

Economics of Infrastructure services : Role of infrastructure in economic development, natural monopoly and economics of infrastructure regulation, rate of return regulation, performance based regulation, pricing for infrastructure sector, role of subsidies, restructuring and privatisation of infrastructure sector with special reference to India, reform acts, competition in infrastructure sector, issues in infrastructure finance, modes of project financing, development of infrastructure projects - BOO, BOOT, BOLT etc.

UNIT-IV

Economics of ICT: ICT industry: An introduction, growth of the global ICT industry, measuring the impact of ICT, impact of IT on economic performance and trade, Impact of ICT on markets and society at large, direct and indirect macroeconomic impact on growth, theory and empirical evidence, specificities of information markets and network goods, need for specific sectoral regulation (discussions on case studies), familiarity with e-governance. The evolution of the sectoral regulation since the liberalisation of the Telecommunications market in 1998 in India.

Reference Books/Journals:

2. Gordon J. and Gupta P., Understanding India’s services revolution, working paper, IMF
4. NCAER (2006): E readiness report, India
MC. 418 - WORLD TRADING SYSTEM

UNIT-I

Basic economic principles relating to international trade mercantilism, Comparative advantage and gains from trade, Factor endowments and trade patterns, Qualifications to the case for free trade, reciprocity, the optimal tariff, infant industries, strategic trade theory, revenue-raising considerations, and national security considerations.

UNIT-II

Evolution of the multilateral trading system under GATT : Emergence of discriminatory trade policies in the inter-war years leading up to the Bretton Woods Conference in 1944, The formation the GATT i the Havana Charter and the failed attempt to establish the International Trade Organisation, Core principles of the GATT (MFN and national treatment), GATT and its changing character during the 1950s and 1960s, The emergence of the idea of special and differential treatment for developing countries and non-reciprocity, Exceptions to the GATT rules in textiles and agriculture in their implications, maturing of the GATT during the 1970s, GATT and the Uruguay Round.

UNIT-III

Analysis of the covered Agreements of the WTO: Agriculture, non-agricultural market access, rules, anti-dumping, subsidies, safeguards, trade facilitation, services, trips, environment, dispute settlement, attempts to expand the remit of the WTO, investment (MAI), labour standards.

UNIT-IV

Challenges to the Multilateral Trading System: The rise of regional trading agreements and free trade areas (FTAs), Relationship with the multilateral trading system, A "spaghetti bowl" syndrome?, North-South FTAs and South-South FTAs, US unilateralism, Use of Section.

Reference Books:

3. Aggarwal A., Anti-dumping and Developing Countries, An Introduction, New Delhi, Oxford University Press.
MC. 419-BANK LEGISLATION

**Objective:** The objective of this course is to apprise the students with the banking law and practice and develop an understanding of various laws affecting banks.

**UNIT-I**

Evolution of banking law: Banking Regulation Act, 1949; Reserve Bank of India Act, Bank Nationalization Act, 1969; A Study of Negotiable Instruments Act, 1881 based on case law.

**UNIT-II**

Banker and customer relations: Banks as borrowers; cheques - payment of customers' cheques: collecting banker and customers' accounts.

**UNIT-III**

Employment of funds; Guarantees; Advances secured by collateral securities; Advances against goods and documents of title to goods; Analysis of banks' balance sheet, Electronic funds transfer and other electronic payments; Internet banking.

**UNIT-IV**

The Foreign exchange Management Act, 1999, Provisions relating to: Preliminary (Sec 1-2), Regulation and Management of Foreign Exchange (Sec 3 to 9), Authorized person (Section 10 to 12) Contravention and penalties (Section 13 to 15) Adjudication and Appeal (Sections 16 to 21 and sections 34-35) Directorate of enforcement (section 36 to 38).

**Reference Books:**

1. P.N. Varshney: Banking Law and Practice.
2. B.M. Lall Nigam: Banking Law and Practice.
3. Tannan: Banking Law and Practice in India.
MC.420 - RISK MANAGEMENT

Objective: To provide an understanding and an appreciation of the principles and practices of risk management in order to enable production of the optimum strategy for the handling of risk in an organisation.

UNIT-I

Nature and Sources of Financial Risk: Introduction to Financial Risks, definition, including: Business Risk, Operational Risk, Financial Risk (market risk, credit risk, liquidity risk), Legal Risk; Introduction to risk management; Principles, essential features and objectives of risk management; Function and duties of a risk manager and the risk management department of a company; Content and purposes of a company’s risk management philosophy, statement, manual and report; Location and structure risk management within the organizational structure; Risk and Return.

UNIT-II

Process of Risk Management; Techniques used in identifying sources of risk: Quantitative and qualitative techniques used to identify and assess potential risks to an organization and the advantages and disadvantages of each technique. Techniques for gathering data. Methods of measuring, representing and comparing data for analysis and the relative advantages of each method. Probability theory, the ways in which probabilities are derived and their uses. Application of probability distribution.

UNIT-III


UNIT-IV


Reference Books:

MC. 421 - ACTUARIAL SCIENCES

Objective: The purpose of this course is to equip the student with the principles and techniques of actuarial practice. The paper requires at least a prior general knowledge of mathematics and statistics.

UNIT-I

Basic Mathematics: Basic functions, Annuities - certain, Loans repayable by installments, Simple methods of determining the rate of interest in a transaction, Capital redemption assurance, Valuation of simple loans and debentures.

UNIT-II

Life Contingencies: Mortality tables, Elementary functions, the central death rate, Single life annuities and assurances, Commutation columns, Temporary and deferred annuities and assurances, Conversion tables.

UNIT-III

Special annuities and assurances, Periodical payments, Complete annuities, Policy value, Select and other tables.

UNIT-IV

Joint-life Annuities and Assurances: Value of and premiums for joint-life and contingent annuities and assurances.

Reference Books:

1. Donald D.W.A. “Compound Interest and Annuities - Certain” 2nd Ed., Cambridge [Eng.] Published for the Institute of Actuaries and the Faculty of Actuaries at the University Press.
3. Harry Freeman, “Mathematics for Actuarial Students” Cambridge at the University Press.

MC. 422 - COMPREHENSIVE VIVA-VOCE

The Comprehensive VIVA-VOCE will be conducted at the end of the 4th Semester by the External Examiner appointed by the University. The VIVA-VOCE will be based on the content of the subjects studied by the student during the all four semesters.

Published by : Prof. A.K. Bhandari, Registrar, Panjab University, Chandigarh