PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

B.A. & B.Sc. (GENERAL) FIRST YEAR
(SEMESTER SYSTEM)
EXAMINATIONS, 2016-2017
(SEMESTER : FIRST AND SECOND)

i.e

First Semester : November/December, 2016
Second Semester : April/May, 2017
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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>
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<tr>
<th><strong>Elective Vocational Subject (one of the following):</strong></th>
<th><strong>Pre-requisite subject at +2 level</strong></th>
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<tr>
<td>1. Mass Communication –Video Production</td>
<td>Any</td>
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<tr>
<td>2. Functional English</td>
<td>English</td>
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<tr>
<td>3. Advertising, Sales Promotion &amp; Sales Management</td>
<td>Any</td>
</tr>
<tr>
<td>4. Foreign Trade, Practices and Procedures</td>
<td>Preferably with Economics or Commerce</td>
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<tr>
<td>5. Office Management &amp; Secretarial Practice</td>
<td>Any</td>
</tr>
<tr>
<td>6. Computer Applications</td>
<td>Preferably Computer</td>
</tr>
<tr>
<td>7. Functional Hindi</td>
<td>Hindi</td>
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<tr>
<td>8. Tax Procedures &amp; Practices</td>
<td>Accountancy/Business Studies</td>
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<tr>
<td>9. Principles and Practice of Insurance</td>
<td>Any</td>
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<tr>
<td>10. Information Technology</td>
<td>Any</td>
</tr>
<tr>
<td>11. Fashion Designing</td>
<td>Any</td>
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<tr>
<td>12. Early Childhood Care &amp; Education</td>
<td>Any</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>A</th>
<th>Elective Vocational Subject</th>
<th>Other Two Elective Subjects</th>
<th>Pre-requisite subjects at +2 level</th>
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<tr>
<td>1</td>
<td>Clinical Nutrition Dietetics</td>
<td>Chemistry, Physics &amp; Botany</td>
<td>PCB*</td>
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<td>2</td>
<td>Bio-Technology</td>
<td>Chemistry, Botany or Zoology</td>
<td>PCB</td>
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<td>3</td>
<td>Seed Technology</td>
<td>Botany, Chemistry</td>
<td>PCB</td>
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<td>4</td>
<td>Industrial Fish &amp; Fishery</td>
<td>Zoology, Chemistry</td>
<td>PCB</td>
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<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</td>
<td>Physics, Chemistry/Maths.</td>
<td>PCM</td>
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<tr>
<td></td>
<td>(Kept In Abeyance)</td>
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<tr>
<td>8</td>
<td>Computer Applications</td>
<td>Any two Science Subjects</td>
<td>Preferably Computer</td>
</tr>
<tr>
<td>9</td>
<td>Industrial Chemistry</td>
<td>Chem., Maths./Botany/Zoology</td>
<td>PCM/B</td>
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<tr>
<td>10</td>
<td>Industrial Microbiology</td>
<td>Chemistry and Botany or Zoology</td>
<td>PCB</td>
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<td>11</td>
<td>Food Science &amp; Quality Control</td>
<td>Chemistry and Botany/Zoology</td>
<td>PCB</td>
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<td>(Kept In Abeyance)</td>
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<tr>
<td>12</td>
<td>Information Technology</td>
<td>Any</td>
<td>Any</td>
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</table>

**B**

| 13 | Bioinformatics, **Botany/Zoology*** and any one of the following | PCM/PCB |
|    | Mathematics/Physics/Chemistry/Computer Science                    |         |
| 14 | Biotechnology, **Botany/Zoology*** and any one of the following  | PCM/PCB |
|    | Mathematics/Physics/Chemistry/Computer Science                    |         |
| 15 | Electronics : Physics + Electronics +Mathematics                 | PCM     |
|    | Chemistry + Electronics + Computer Science                        |         |

**OR**

| 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.
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.
उपाधि (डाकांक)

वि. डी. अव. वी.अ.मी. ड्राग बियूरो उम्मीद 2016 से विभागित हुई
(वि. डी. अव. वी.अ.मी. ड्राग बियूरो उम्मीद 2016 से विभागित हुई)

समयमंजरी 

पदबिंबः

1. अध्यायिकः उपाधि विषय से अधिभाष
2. संक्षेप उपजला
3. मूलभः उपजला
4. विभाजनः : मीटिंग वै विषय

बेवकः

1. वृद्धि-मूलभः (मूलभः) का विभागित मूल, वह संक्षेपित विश्वेष, वह पृथ्वीक्षणात्मक, चंद्रीज्ञान।

(उसके भिन्न उपजला अव. उसके भिन्न वैकृत्य मिलकर दिन रही उतं)

वृद्धि अव. बीमः

1. (अ) वृद्धि-मूलभः पूंजिव दिशें पूर्वांग मूल विभाजकः (दे दिशें विषय) 5 अंक
(ब) विषय दो साथ दे बैंडली उवर (दे दिशें विषय) 5+5=10 अंक

2. वृद्धि-सूत्तिकः दिशें मूलभः उवर वृद्धि (उवर दिशें सागर दे देख) 5×1=5 अंक
(अंतः उवर दिशें भम दे उवर दिशें)
3. संक्षेप उपजला (500 स्पष्ट विषय) शास्त्र मूलभः धार्मिकः दिशें 10 अंक
(चतुः दिशें दिशें वैद्य विषय उपजला)
4. मूलभः उपजला
5. विभाजनः : मीटिंग वै विषय

(i) विभाजनः : विभाजनः दी विषयों, भविष्य दे देख (दे मूलभः पूर्वें, पूर्वें पूर्वें दे विभाजन उवर (मूलभः मूल उवर) (दे दिशें विषय पूर्वें उवर लगता दे)

(ii) विभाजनः पूर्वें

हेट: पूर्वें संक्षेप दे पूर्वांग विभाजनः दे उदाहरण लगता दी मूलभः उवर दे विभाजन उवर पूर्वें नांद। (चतुः दिशें दे पूर्वें उवर वैद्य दिशें)

हेट: 1. टेबलमाट साहित्य भारत दे भीवीड़ा।
2. वैद्याविश्वास साहित्य 25-30 विभागिताविश्वास से गांवें अव. उदाहरण दे दिशें उवर पृथ्वीक्षणात्मक।
3. उदाहरण दे 6+3 = 9 पृथ्वीक्षणात्मक।

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

अंक:

1. भीमसंदी-रंगनिर्मिति (देवराज)
2. मुख्य निदेश कंटेस्ट
3. भूगोल
4. विभाग उत्तराधिकारी

खेती

1. एक एक (खेल भवन)
2. भीमसंदी-रंगनिर्मिति (देवराज)
3. मुख्य निदेश कंटेस्ट
4. भूगोल
5. विभाग उत्तराधिकारी

प्रश्नपत्र

1. भीमसंदी-रंगनिर्मिति (देवराज)
2. मुख्य निदेश कंटेस्ट
3. भूगोल
4. विभाग उत्तराधिकारी

संगठन पुरस्कार:

1. भीमसंदी-रंगनिर्मिति (देवराज)
2. मुख्य निदेश कंटेस्ट
3. भूगोल
4. विभाग उत्तराधिकारी

1. भीमसंदी-रंगनिर्मिति (देवराज)
2. मुख्य निदेश कंटेस्ट
3. भूगोल
4. विभाग उत्तराधिकारी

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शहीद और दुर्गाधीश देवी

गृह और दुर्गाधीश देवी नामक 2017 में रिहाई उपलब्ध

(फाइल आवेदन की स्थानीय रूप से)

समासंगठन घर

अंक: 50

सम्पूर्ण अंक: 45

प्रतिवेदन अवसमान: 5

समय: 3 घंटे
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:
   - 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 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.
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:

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

6. The paper-setter would avoid repetition between different types of questions 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 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 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 : 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 Punjab region.
Pedagogy: Lectures, library work and discussions.

UNIT I

2. Vedic Age: socio-economic life; development of caste; position of women.
3. Religion: vedic religion; impact of Buddhism and Jainism on the region.
UNIT II

4. Society and Culture c. 1000 A.D.: Socio-economic life; religious life; education
5. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III

9. Institution of Khalsa: new baptism; significance

UNIT IV

11. Society and Culture under Maharaja Ranjit Singh: social mobility; painting and architecture; literature.

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, MunshiRam 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
(All Candidates other than B.A.)

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

1. Early Socio Religious Reform: Christian Missionaries; Namdharis; Nirankaris.
2. Socio Religious Reform Movements: activities of Arya Samaj; Singh sabhas; Ahmadiyas.
3. Development of Press & literature: growth of press; development in literature

UNIT III

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

UNIT IV

1. Partition and its Aftermath: resettlement; rehabilitation
3. MAP: 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

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.

**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.
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
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), 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(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.rg/admin/issue/subpdf/Sexual_Harrassment_at_Workplace.pdf

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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) (10marks)

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)

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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 (ऐतिहासिक)
सेमेस्टर-1

पूर्णक : 90 + 10 = 100
समय : 3 घंटे

1 विषयात्मक :

सं. डॉ. शिबकुमार शर्मा, परिभाषित यूरो, पंजाब विश्वविद्यालय, विजयनagar द्वारा प्रकाशित।
इस वर्ग कक्षाओं की रचनाएं पाठ्यक्रम में नियामित की गई हैं—
कक्षीय, ग्रुप, अनुसंधान, विषय-संदर्भ द्वारा प्रकाशित।

(क) 5-5 अंकों की दो संख्या सहित व्याख्याएँ करनी होंगी। कुल 4 प्रश्न पूछे जाएँगे।
(ख) 6 अंकों का एक राष्ट्रीय नियोजक प्रश्न करवाया गया। कुल 2 प्रश्न पूछे जाएँगे।

2 तत्वावधान कहानियाँ :

सं. डॉ. लक्ष्मीचंद्र चौधरी, परिभाषित यूरो, पंजाब विश्वविद्यालय, विजयनagar द्वारा प्रकाशित। नियामित रूप से लाल कहानियाँ पाठ्यक्रम में हैं:-
राजस्थान के खिलाड़ी, मन्त्र, अश्वात्मक वायु, बीमा के सूचना, वायु, जल, अन्न-अर्थरूप।

(क) 5-5 अंकों की दो संख्या सहित व्याख्याएँ करनी होंगी। कुल 4 प्रश्न पूछे जाएँगे।
(ख) 6 अंकों का एक राष्ट्रीय नियोजक प्रश्न करवाया गया। कुल 2 प्रश्न पूछे जाएँगे।

3 तीव्र-तीव्र अंकों के तीन घन-खगोलीय प्रश्न करवाया जाएँगा।
कुल 6 प्रश्न पूछे जाएँगे। प्रश्नों के पता की सीमा 50 अंकों तक होगी। इस पता के पूरीतिज्ञ दो अंकों (विषयात्मक एवं तत्वावधान कहानियों) पर आधारित होगा।

4 हिंदी-साहित्य का परिचय :

अंक : 07

आदिकल का राजकागण, नृत्य-सीमा, परिभाषाकलाय, प्रसूतिकाल एवं पुरुषीय रूप से विशेष रूप से परिवर्तन करवाया जाएँगा।

7 अंकों का एक राष्ट्रीय नियोजक प्रश्न करवाया गया। कुल 2 प्रश्न पूछे जाएँगे। (शब्द-सीमा 200)

5 वस्तुविद्या प्रश्न :

अंक : 10

इस पता के पूरीतिज्ञ तीन अंकों के संयोजन में 1-1 अंक देने के लिए वस्तुविद्या प्रश्नों के उत्तर देने होंगे। कुल पद्धत प्रश्न पूछे जाएँगे।

6 समीकरण सिद्धांत :

अंक : 07

कहानी :- परिभाषा, तत्व और वस्तुविद्या संबंधी प्रश्न करवाया जाएँगा। 7 अंकों का केंद्रीय एक प्रश्न करवाया गया।
(शब्द-सीमा 200)

7 व्याख्यात्मक प्रश्न :

अंक : 20

(क) विश्वस्थित व्याख्या (सात में से पाँच करने होगे)| 5 अंक
(ख) तत्परतावाद व्याख्या (सात में से पाँच करने होगे)| 5 अंक
(ग) शब्द-शोधन और व्याख्या-शोधन (सात में से पाँच करने होगे)| 5 अंक
(घ) तर्कांश तो एक शब्द (सात में से पाँच करने होगे)| 5 अंक

8 परिसंहित सम्बन्धी (सातवाँ शब्दवादी) :

अंक : 5

कुल अंक में से पाँच के उत्तर देने होंगे।

9 आंतरिक मूल्यांकन :

अंक : 10

सहायक पुस्तकें :

हिंदी साहित्य का परिचय : कुप्रम द्वारा

निर्देश : यह लेखक Text के और तीन लेखक व्याख्या के अधिवर्ध्य होंगे।
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<td>प्रतार्थ, तलाह, सूचना, संबांध</td>
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<td>27. Covering letter</td>
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D
28. Dealing Assistant संबंधित सहायक
29. Dearness Allowance महाजागी भ्राता
30. Department विभाग
31. Deputy Secretary उपसचिव
32. Dissent विराम्यति, विनियति, (विविध), अहसासति
33. Duplicate अवैधिक, दूसरी प्रति
34. Duration अवधि
35. Duty हड़पौरी, काम, कार्य, कर्त्तव्य, भार, शुल्क

E
36. Encashment भुजाला, तुड़ला
37. Entry प्रविधिक, इंतराज, प्रेश
38. Evidence साक्ष्य, गवाप्रेष, प्रमाण
39. Expert विशेषज्ञ
40. Export विभार
41. Extract उद्धर

F
42. Fitness Certificate स्थायित्व प्रमाणपत्र, योग्यता प्रमाणपत्र
43. Fresh Receipt (F.R.) नई आदेशी
44. Further Action आजे की कार्यवाही, अमली कार्यवाही

G
45. General Manager प्रधान प्रबंधक, महाप्रबंधक
46. General Meeting साधारण भस्मा, साधारण बैठक
47. Grant-in-aid सहायता-अनुदान
48. Guidance मार्गदर्शन, सिद्धेश्त

H
49. Head Clerk प्रधान लिपिक, हेड कल्की
50. Head of Account लेख-शीर्ष
51. Head office प्रधान कार्यालय
52. Head Quarter मुख्यालय
53. Holiday अवकाश
I
54. Immediate officer आसल अधिकारी
55. Import आयात
56. Increment वेतन-पुनर्दि
57. Inquiry पूछताछ, जाँच
58. Inspector विशेषक
59. Instruction अद्वैत, हिरासत
60. Instructor अद्वैतक
61. Interpretation विवेचन, याख्या
62. Intimation प्रज्ञापन, सूचना, इत्यादि
63. Investigation अवेषण, तपशील, जाँच-प्रबंधन
64. Irrelevant अपरंपरा, विसंबंधत
65. Issue (संबंधित, प्रश्न, मर्यादा, क्रिया) जारी करता, भेजता, देता

J
66. Job नौकरी, जॉब, कार्य
67. Joining Date कार्यभारत-तालिका, कार्यालय-तालिका
68. Joint Secretary संयुक्त सचिव

L
69. Labour Welfare श्रम-कल्याण
70. Leave Salary पुरस्कार का पेमेंट
71. Leave Vacancy अवकाश-स्थिति
72. Length of Service सेवाकाल
हिन्दी (पाठ्यक्रम)
सेमेस्टर-2
पूर्णांक : 90+10 - 100
समय : 3 घंटे

1. कक्षात्तूक :
  (क) 5-5 अंकों की दो संक्षिप्त उत्तरांकित ज्ञानांक करती होंगी। कुल 4 व्याख्याएँ पूरी जाएँगी। कुल 2 प्रश्न पूर्ण जाएँगे।
  (ख) 6 अंकों का एक समीक्षात्मक प्रश्न करना होगा। कुल 2 प्रश्न पूरे जाएँगे।

इस खण्ड में से कवि-परिचय, कविता-सार तथा उद्देश्य संबंधी प्रश्न पूरे जाएँगे। उत्तर की स्थिति 200 होगी।

2. इंग्लिश की राजी- नवाबजवाब कर्म, मण्डुङ प्रकाशन, इंग्लिश।

वाञ्चक्रम, कवितांतक, चित्र-विचार, उद्देश्य के आधार पर चार समीक्षात्मक प्रश्न पूरे जाएँगे, जिनमें से 8 अंकों के कोई दो प्रश्न करने होंगे। (साम- स्थिति 200-250)

3. हिन्दी राहित्य का इतिहास :
  भाषात्वक : निजी श्रीर्पकों पर आधारित 2 प्रश्न पूरे जाएँगे। एक का उत्तर देना होगा। (साम-स्थिति 200) अंक-08
  भाषात्वक की पहली शैक्षिकताओं, समकालीन, प्रामाण्यालयकार्य, समाजसेवी और रुचि काल की विलोमशताएं, कवीर, जायसी, तुलसी और झुंझुनूस

4. वस्तुविश्लेष प्रश्न

इस पत्र के पूर्णतः तीनों खण्डों के संदर्भ में 1-1 अंक के दस वस्तुविश्लेष प्रश्नों के उत्तर देने होंगे। कुल पदन्त प्रश्न पूरे जाएँगे।

5. समीक्षासिद्धांत
  उपस्थाप-परिचायक, तत्त्व और वर्गीकरण संबंधी दो प्रश्न पूरे जाएँगे। 7 अंकों का जोखिम एक प्रश्न करना होगा।
  (साम-स्थिति 200) अंक-07

6. मूलाधारी और लोकोक्तियाँ (सामने में से पांच के उत्तर देने होंगे।)

7. विश्लेषित विषय पर अनुच्छेद-लेखन (सामने में से एक प्रश्न करना होगा)

8. लिखी पत्र-लेखन (दो में से एक प्रश्न करना होगा)

9. परिभाषात्मक शब्दावली-(उल्लंघन शब्दावली)

अतिरिक्त भूमियोगक

विनिर्देश : इस लेख का तीज लेखक वाक्यांश के अतिरिक्त होंगे।

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

भाषाओं (संस्कृती)

वीडियो नामक उपलब्ध समय 2016 ते विभिन्न भुजी

शुभ 2016

देश अंक : 100
विषय : 90
विज्ञान विभाग : 10
संख्या : 3 घंटे

प्रतियोगिता

1. आयुरविज्ञान वहनी विभाग रा भविष्यवाणी 25 घंटे
2. विज्ञान विभाग 25 घंटे
3. भाषाओं मंथन र दिव्यांग (1901 तै 2000 दं) 20 घंटे
4. समय 3 घंटे वांछी
5. मानव दे वे 10 घंटे

विषय

1. नवम ज्ञान (संघ. ) डा. नामक निर्देश, आयुरविज्ञान वहनी (1901 तै 2000 दं),

विज्ञानविभाग निर्देश, नामक पुर्वीतत्वविज्ञान, अंकीतानुसार।
(विज्ञानों बाहिरः नामक वी.वी. , पुर्वीत्वविज्ञान, पुर्वीत्वविज्ञान, पुर्वीत्वविज्ञान, पुर्वीत्वविज्ञान, पुर्वीत्वविज्ञान)
2. न्याय साहित्य, नामक निर्देश, नामक निर्देश, नामक निर्देश, अंकीतानुसार, अंकीतानुसार, अंकीतानुसार

पूरक अंतः वी.वी.

1. 'नवम ज्ञान' व्यपार दिने पुर्वीत्वविज्ञान परिचय (दी किताब किन्त

(2) 'न्याय साहित्य' निर्देश के दिन पुर्वीत्वविज्ञान परिचय (दी किताब किन्त

(3) वाहिक संपर्क किन्ते किताब विभाग रा दिना-अल्लु / वी.वी. शास्त्री दो (दी किताब किन्त

(3) दिव्यांगी परिचय विभाग (दी किताब किन्ते) (विज्ञानविभाग विभाग किताब, किताब,

वाहिक संपर्क के दिन पुर्वीतविभाग मंथन पुर्वीतविभाग (दी किताब किन्त

(3) बाहिक संपर्क के दिन पुर्वीतविभाग किताब 5 x 4=10 घंटे (भाग किताब कप) (भाग का

(4) भाषा संस्कृती कि दिव्यांग (1901 तै 2000 दं) : विभाग, वाहिक संपर्क कि

(5) वाहिक संपर्क के दिन विभाग के दिन वहनी, पुर्वीतविभाग, वहनी (के दिन के दिन

(6) मानव दे वे वहनी, पुर्वीतविभाग, वहनी वहनी, वहनी, वहनी (के दिन के दिन)

निर्देश रेखा : मनुष्य वापन लघु भाषा दिन 6 + 6 - 12 वी.वी.
<table>
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<td>भारतीय ऐतिहासिक परिचय</td>
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<td>भारतीय नर्तक</td>
<td>25 घंटे</td>
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<td>3</td>
<td>भारतीय नृत्यकला (1901 ईसा - 2000 ईसा)</td>
<td>20 घंटे</td>
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<tr>
<td>4</td>
<td>कालीन नागरिक समाज</td>
<td>10 घंटे</td>
</tr>
<tr>
<td>5</td>
<td>माधव आलेखन</td>
<td>10 घंटे</td>
</tr>
</tbody>
</table>

**पूर्वांग**

1. भारतीय ऐतिहासिक परिचय 100 अंक
2. भारतीय नर्तक 90 अंक
3. माधव आलेखन 10 अंक

**सामान्य उद्देश्य**

1. भारतीय ऐतिहासिक परिचय (1901 ईसा - 2000 ईसा)
2. भारतीय नर्तक
3. माधव आलेखन (1901 ईसा - 2000 ईसा)

**विविध संस्कृति**

1. (a) भारतीय ऐतिहासिक परिचय (1901 ईसा - 2000 ईसा)
2. (a) भारतीय नर्तक
3. माधव आलेखन

**पत्रभाषा**

1. भारतीय ऐतिहासिक परिचय (1901 ईसा - 2000 ईसा)
2. भारतीय नर्तक
3. माधव आलेखन

**पूर्वांग**

1. भारतीय ऐतिहासिक परिचय (1901 ईसा - 2000 ईसा)
2. भारतीय नर्तक
3. माधव आलेखन
संस्कृत (इलेक्ट्रिव)
सेमेस्टर-1

Paper - Sanskrit:
कथा, नीति एवं व्यक्तरण
(अन्तर्तर्क 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-अहंकार, मातृत्व तथा ईश्वर इत्यादि दुर्गुणों के वर्षभूत न होकर जीवन-पथ पर अग्रसर होने, विचार का वास्तविक अर्थ एवं वृद्धि की महिमा की दिशा देना।
• इसके अतिरिक्त व्यवहारिक शब्दावली द्वारा विद्यार्थियों की संस्कृति के प्रति रुचि जागृत करना।
• संस्कृत पूरी वेश्यानिक एवं व्यक्तरणनिभाय भाषा है। अतः विद्यार्थियों को संस्कृत व्यक्तरण के अध्ययनार्थ, अन्य क्रमों का प्रयोग, संबंधारभाषी शब्द, शब्दरूप, प्रत्युत्पाद एवं अन्य सामान्य ज्ञान से परिचित होना।
• पत्र का अध्ययन समय नौ घंटे प्रतिदिन प्रतिदिन होगा, जिसमें तीन घंटे कम्योजित चाहिए।
• सभी प्रश्नों में शतांत्रण अवधि निर्दिष्ट विकल्प आवश्यक है।

• अपरिशिक्तकारकम् (1-4 कहानी)
  (i) गद्य-भाग (साधनागं अनुवाद - तीन में से एक) 05अंक
  (ii) सूचि/शेल (दो की साधनागं-व्याख्या) 10अंक
  (iii) कथासार 05अंक

• नीतिशास्त्रकार (1-25 शेल)
  (i) शेल (दो की साधनागं-व्याख्या) 10अंक
  (ii) सूचि-साधनागं अनुवाद/ व्याख्या (तीन में से एक) 05अंक

• व्यवहारिक संस्कृत शब्दावली: शरीरंग, फल एवं सहितवं शब्दगं (15 में से 10 में की संस्कृत) 10अंक
  1. अंगुल-अंधुः: 2. औष-चुः:; ब्रजात्म, नेत्रम, नाकमः
  3. अंगुली-अंधुः: 6. कल्याण-मणिवंथः:
  4. औष-ओषः: 5. कमर-शोणिः; कविः:
  7. कान-करणः; श्रोत्रः
  8. गद्देन-श्रीवा 9. घुटना-जातुः:
  10. जीम-जिंदा, रसना 11. दौर-दौरनः; दशानः:
  12. नाक-शाणम, नासिकः
  13. पेट-कुकीः; उदरमः 14. बाहे-बाहः; भुजः:
  15. भौं-भूः:
  16. माथा-रठात्मः 17. शरीर-गायम, शरीरमः
  18. अंगु-अंगसः
  19. अमहस-आमसः: 20. आम-आमः
  21. कान-कानमः
  22. किरामिश-कुरामादः 23. स्वनः-स्वारमः
  24. जामुन-जन्मादः
25. तत्त्व-तत्त्वूजम्
26. खर्द्वा-खर्द्वृजम्
27. नारियल-नारिकेलम्
28. लीली-लीलिका
29. मी.सेव-सेवम्
30. अंदेर-अंदीरम्
31. नारंगी-नारंगम्
32. बेर-बिल्वम्, श्रीफलम्
33. बेर-बद्रीफलम्
34. मेवा-शुणफलम्
35. आज्ज-आज्जः
36. कक्कडी-कक्कटी
37. करळा-कारवेळम्
38. गोभी-गोजिंहा
39. टमाटर-टकालूम्
40. टिंडा-टिंडिसा:
41. धनिया-धान्यकम्
42. पालक-पालकीर्षप
43. व्याज-फलणुः
44. वेंगन-वेंगन
45. मिछी-मिछकः
46. शिचर-मरीचकम्
47. मूली-मूलकम्
48. लहसून-लहसुनम्
49. शालगम-शेतकन्दः
50. साग-शाकः

(च) वर्णों के उपासन रूप
(इ) निपतिपित अवश्य बोधिन्यों का बोधिन्यों में प्रयोग
      अत्र, तत्र, कुत्र, यत्र, अन्यत्र, सर्वत्र एकाः, इत्यादि

(अ) संस्कृत (राज्य) वर्ण शाखा (१ से ५० तक (पाँच वर्ण)
(ब) सामान्य-शाखा - तिथि, नक्षत्र, योग, कारण, वार
(ज) स्वर संबिधा (पाँच संबिधायः प्रश्नाः)
(झ) शब्दरूपः राम, लता, फल, मुनि, मति, नदी
(ञ) धातुरूपः पतं, गम, पढ, कीड, बड, पा (केवल लड़, लूट, लोट, लड़, विचित्रितः लकार में, दो धातुरूप प्रश्नाः)
(ट) हिन्दी से संस्कृत में अनुवाद (५ वाक्य)

साहित्य पुस्तक - 1. भारतीयतातरकम्(विषयगताओँ)। 2. नीतिशास्त्र (भर्तृहरि)। 3. शीघ्रवोष, चौकम्, वाराणसी।

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

Paper - Sanskrit :
कथा, नीति एवं व्यक्तरण
(आन्तरिक परीक्षा- 10, विविध परीक्षा- 90)
पूर्णक: 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।
- विधार्थियों को रोचक कथाओं के माध्यम से काम-कोय-लोम-मोह-अहंकार, मातर्यम तथा ईश्वर इत्यादि दुर्गुणों के वशीभूत न ठोकर जीवन-पथ पर अग्रसर होने, विधा का वास्तविक अर्थ एवं व्रद्धि की महिमा की दिशा देना।
- इसके आलंकार संस्कृत शब्दावली द्वारा विधार्थियों की संस्कृत के प्रति रुचि जागृत करना।
- संस्कृत पौरी वैज्ञानिक एवं व्यक्तरणानि भाषा है । अतः विधार्थियों को संस्कृत व्यक्तरण के अध्ययनार्थ, अवयवों का प्रयोग, संस्कृतवाची शब्द, शब्दरूप, प्रत्युत्पाद एवं अन्य सामान्य ज्ञान से परिपूर्ण करवाना।
- पत्र का अध्ययन समय नी पीरिस्कट(प्रतिघटना) प्रतिसाधारण होगा, जिसमें तीन पीरिस्कट कम्युनियां के होंगे।
- सभी प्रश्नों में शालावर्त अथवा निर्देश विकल्प आवश्यक हैं।

(क) अपरीक्षयककस्म (5-8 कहानी)
अंक-20
(i) गधा-भाष (समसंग अनुवाद - तीन में से एक) 05अंक
(ii) सूक्ति/श्लेष (दो की समसंग-व्याख्या) 10अंक
(iii) कथासार 05अंक

(ख) नीतिवादकस्म (26-50 श्लेष)
अंक-15
(i) श्लेष (दो की समसंग व्याख्या) 10अंक
(ii) सूक्ति-समसंग अनुवाद/ व्याख्या (तीन में से एक) 05अंक

(ग) व्याकरणिक संस्कृत शब्दावली : पशु, पशु एवं बनसपति सम्बन्धी (15 में से 10 शब्दों की संस्कृत)
अंक-10
1. ऊंट-उड़ाः 2. कवीरचा-शाश्वः 3. गाय-गद्दः, खरः
4. गाय-भीः 5. मठा-भ्रान्तः 6. गैडा-गण्डः
7. घोड़ा-अद्वः, घोटः 8. चूहः - मूकः 9. छिपपटः-दलन्तिका
10. नेवला-नेकुः 11. बन्दर-बानः, कपः 12. बक्र-अजः
13. बिही-माज़री 14. बैठ-करदः, कल्लवद्वः, वृषः 15. सेष-महिषी
16. दोंट-दिंडः 17. हाथी-जजः, दल्शी, करः 18. हिरन-मृगः, हरिणः, कुरः
19. उदङ्ग-उटःः, कोशिकः 20. कबूतर-कपोतः, पारावः 21. कीट-कोकिलः
22. बीजव-क्रकः
23. गीथ-मुदः
24. चकव-चकवाकः
25. पिच्छया-चत्करा
26. तोता - शुकः
27. पौष्प-चातकः
28. वर्गा-ककः
29. चतुर्व-चत्कृः; वर्तिका
30. वाज-शचेनः
31. मोर-मधुः
32. मुर्गा-कुकृः
33. हंस-हंसः
34. सारस-सारसः
35. आंबला-आमलकः
36. आम(वुष्ठ)-आमः
37. जामुन (वुष्ठ)-जम्बः
38. नारियल (वुष्ठ)-नारिकेलः
39. नीम-निमः
40. पीपल-अकरः
41. बेल (वुष्ठ)-बिल्वः
42. गुडाब-श्पृहप्रदः
43. कमल-कुब्जयम, पुंडरिकम, वदामः
44. गंधा-गन्धुपुष्मः
45. चमेली-मालती
46. चम्पा-चम्पः
47. पुल्ल-पकः
48. रात्रि की रात्नी-रजनीगणः
49. पला-पलम, पर्णमः
50. व्यत-वलितः; वीरुः

(च) निपालिखित अख्यायों का बाणपों में प्रयोग

कथम, अध:, शः, हः, परशः, सच:; पुरतः; पूतः; वामतः; दृष्टिनतः; नौचः, उचः; बहः; अन्तः

(ड) संस्या (रगः) वाली शब्द (51 से 100 तक) पांच शब्दः

(ढ) सामान्य- श्लोक (रायिः, मास, यह एवं दश दिशाओं के नाम)

(ण) शवदृष्ट: गुरु, विद्व, मातु, भवत, अस्मव, चुम्बु (दो शब्ददृष्ट: प्रश्नः)

(ज) धातुरूपः विष्यः, नी, श्या, भु, ल्याज, समु प्रात (केवल ल्यं, ल्यरु, ल्योट, ल्यडः, विष्यिल्यः ब्रह्म में दो धातुरूप प्रश्नः)

(ह) हिन्दी से संस्कृत में अनुवाद (10 वाक्य)

स्थानः पुस्तकः अपरिशृंख्लकारकमः (विष्णुष्मा)। नीतिशास्त्रकमः (भर्तिहरि)। श्रीप्रभोच, नौत्सवः वाराणसी।

5x1=5अक
5x1=5अक
5अक
2x5=10अक
10अक
5x2=10अक
URDU (Elective)

SEMESTER - I

Essay and Composition:

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<td>Internal Assessment</td>
<td>(5+3+2) : 10 marks</td>
</tr>
<tr>
<td>Time</td>
<td>: 3 Hrs</td>
</tr>
</tbody>
</table>

Unit-I

Essay | 30 marks

Unit-II

Letter/ Application | 20 marks

Unit-III

Mutazad Alfaz, Mutaradif Alfaz, Wahid aur Jama, Tazkeer-o-Taanees | 20 marks

Unit-IV

Muhaware, Correction of words/ sentences | 20 marks

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 :

Urdu Zuban Hamari, Mirza Ghalib ki Seerat, Darogha ki Panchon Ghee mein, Nasooh ki Bimari.

30 marks

**Unit-II**

Explanation of Ghazal verses from :

Muhammed Valiullah Vali, Mir Taqi Mir, Mirza Asadullah Khan Ghalib, Faiz Ahmed Faiz,
Raghupati Sahay Firaq Gorakhpuri, Jigar Moradabadi.

20 marks

**Unit-III**

Explanation of Nazm verses from :

Ajanta, Taj Mahal, Kashmir, Shikast-e-zindan ka khwab, Dastan Shahzade ke ghayab hone ki,
Farzi latifa, Ek chehlum par, Clerk.

20 marks

**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 2016-17.

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:

   Hafiz Maulavi Mohd. Ayyub Khan  
   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
شندیم کہ در وقت نزع روان
شندیم کہ دا رائی فرح تیار
مشتاقی وصبری از حد گرزش بارا

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

Books Prescribed for this Paper:

   From Hissa-ye-Nazm. Publisher: Ram Narayan, Beni Madhav
   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

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>100</th>
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<tbody>
<tr>
<td>Theory</td>
<td>70 marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10 marks</td>
</tr>
<tr>
<td>Viva</td>
<td>20 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

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 textbook.  
   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:**

<table>
<thead>
<tr>
<th>20 marks</th>
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</thead>
<tbody>
<tr>
<td>Reading</td>
</tr>
<tr>
<td>Seen</td>
</tr>
<tr>
<td>Unseen</td>
</tr>
<tr>
<td>Conversation</td>
</tr>
</tbody>
</table>

**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: 15 Marks
   1. My family.   2. My day.   3. Our class.   4. Working day.
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

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>(For regular students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>60 marks</td>
<td>10 marks</td>
<td>10 marks</td>
</tr>
</tbody>
</table>

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

   Russian -English dictionary.

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)
TELUGU (Elective)
KANNADA (Elective)
MALAYALAM (Elective)

The above Syllabus for B.A.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS has been
KEEPED IN ABEYANCE
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

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

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

Olympic Games, Asian Games & Common Wealth Games :

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

UNIT-IV

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

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. 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 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
12 Marks

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
12 Marks

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
12 Marks

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:


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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 : 03Hours

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 1½ marks comprising 6 question.

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>
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</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*.

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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.*
5. Dept. of Education, Ministry of Human Resource Development, Govt. of India


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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 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. While sending the syllabus to paper setter in theory, the syllabus prescribed for the practical paper should also be sent.
5. The candidate can take vocal music along with instrumental music.
6. 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 question of 02 marks each.
7. The candidate can also take instrumental music with tabla.
8. There would be upto 10 students in one section.

THEORY (3 Hours duration) 45 Marks
PRACTICAL (20 minute’s duration) 45 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 Tansen.
3. Sangeet: (Definition and Importance)

Unit-III

1. Brief description of Tanpura.
2. Definitions and types of Khayal.

Unit-IV

1. Notation & Description of Ragas prescribed in the course with Alap and Taans:- Kafi, Bhopali
2. Notation & Description of Talas prescribed in the course:- Teentala, Dadra (Single & Double)
3. To write Alankars in tala

**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 02 marks each.

PRACTICAL

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

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

5. The candidate can take vocal music along with instrumental music.

6. 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 question of 02 marks each.

7. The candidate can also take instrumental music with tabla.

8. There would be upto 10 students in one section.

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

2. Elementary knowledge of the Kanth Sadhna

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, Alhaiya Bilawal 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 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 02 marks each.

PRACTICAL

1. One Drut Khayal in each of the following Ragas with Alaps and Tanas: Yaman, Alhaiya Bilawal
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: Ektal, 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*  
   *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 should not be more than eight students in a batch for practical examination.

3. Harmonium can be used while singing Alankars.

4. 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.

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

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

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

8. There would be upto ten students in one section in practical class.

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 in Tala
3. To write the notation of Tala (Dadra & Teental) with dugun layakaries
4. Aroh Avroh Pakar of raga Yaman (non detail 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 02 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 taals by hand in Ekgun and Dugun layakaries: Dadra, Teen taal

5. Ability to play Shudh-Swaras on Harmonium.

6. Ability to play National Anthem on your own instruments

7. Ability to play Dadra taal on table.

Books Recommended


2. *Sangeet Kaumudi Part-II (Punjabi)* : V.S. Nigam


6. *Sangeet Manjusha* : Dr. Indrani Chakravarti.

7. Sangeet Shastra Vigyan
   Sangeet Kala ka Itihas : Sh. Panna Lal Madan

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

3. Harmonium can be used while singing Alankars.

4. 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.

5. 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.

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

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

8. There would be up to ten students in one section in practical class.

<table>
<thead>
<tr>
<th>THEORY (3 Hours duration)</th>
<th>45 Marks</th>
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<tbody>
<tr>
<td>PRACTICAL (20 minutes duration)</td>
<td>45 Marks</td>
</tr>
<tr>
<td>(i) Viva</td>
<td>: 35 Marks</td>
</tr>
<tr>
<td>(ii) Harmonium</td>
<td>: 05 Marks</td>
</tr>
<tr>
<td>(iii) Tabla</td>
<td>: 05 Marks</td>
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</tbody>
</table>

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, Avartan, 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 three todas
3. Write in notation Jhaptala, Keharva Tala with dukan 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
   02 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 Dadra &
   Keharva
4. Ability to play Teen tala on Tabla
5. Ability to play Aroh, Avron of Raag Yaman & Kafi on Harmonium.
**Books Recommended:**

2. *Sangeet Kaumudi Part-II (Punjabi)* : V.S. Nigam
3. *Sitar Marg Part-II* : S. Bandopadhyay
4. *Sangeet Sar, Part-I* : Mrs. Veena Mankaran
6. *Sangeet Manjusha* : Dr. Indrani Chakravarti
7. *Sangeet Shastra Vigyan* : Sh. Panna La Madan

**PRACTICAL**

1. One Maseetkhani gat in any rag of your course.
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 : Dadra & keherwa
4. Ability to play Teen taal on Tabla
5. Ability to play Aroh, Avron of Rag Yaman & Kafi on Harmonium.

**Books Recommended:**

2. *Sangeet Kaumudi Part-II (Punjabi)* : V.S. Nigam
6. *Sangeet Manjusha* : Dr. Indrani Chakravarti.
7. *Sangeet Shastra Vigyan* : Sh. Panna La Madan
TABLA (Instrumental)

SEMESTER – I

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 based on notation will 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).

**THEORY** (Time duration-3 Hours)                                                   45 Marks

**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) (05+05)                                                          10 Marks

Total: 100 Marks

**THEORY**

**UNIT-I**

(a) Define - : Dahina, Bayan, Palli, Kinar, Syahi
(b) Explain the following:
   - Laya, Matra, Vibhag, Tali
(c) Brief Introduction of Bhatkhande Tala notation system.

**UNIT-II**

(a) Description of playing techniques of Ten Varnas.
(b) Definition with example of the following:
   - Tihai, Mukhra, Mohra and Simple Tukra.
(c) Definition of Thah and Dugun.
UNIT-III

(a) Importance of Taal in Music.
(b) A structural study of the following Instruments:
    Dholak, Naal and Pakhawaj.
(c) Definition of Avanaddha Vadyas.

UNIT-IV

(a) Definition of Baaj and Gharana.
(b) Detail playing techniques of Delhi Gharana and its Kayda.
(c) Life sketches and contribution of the following artists:
    - Ustad Siddhar Khan
    - Ustad Nathoo Khan

UNIT-V

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

PRACTICAL

(a) Taals Prescribed Teen Taal, Chautaal, Kehrwa
(b) Laggi in Kehrwa Taal and its variety.
(c) Teen Taal (Peshkara, Two Paltas, Two Kaydas, Two Mukhra)
(d) Chautaal (Theka in Thah and Dugun)
(e) Practice of playing the above Taals with Vocal and Instrumental performances.
(f) Ability to play Nagma/Lehra on Harmonium in Teen Taal.
TABLA (Instrument)

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, *nine* 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 two questions each, out of which the candidates are to attempt one question from each Unit, fifth unit based on notation will 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).

5. All syllabus included of Semester-I.

THEORY (Time duration-3 Hours) 45 Marks

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) (05+05) 10 Marks

Total:100 Marks

Theory

UNIT- I

(a) Define- Lav (maidan), Baddhee, Gatta, Gudri (Yaduri)
(b) Explain the following:
   Khali, Sum, Avartan and Theka.
(c) Detail Introduction of Bhatkhande Taal Notation system and writing of Taals in Bhatkhande Notation system.

UNIT- II

(a) Playing techniques of ten Varnas : Sanyukta & Asanyukta Varnas.
(b) Define with examples of the following:
   Quaid(a Kayda), Rela, Peshkar and Paran.
(c) Definition of Chougun and Athgun.
UNIT- III

(a) Importance of Taal in Music & Dance.
(b) Avanaddha Vadyas and their importance in Music.
(c) A structural study of the following:
    Khol, Khanjari, Damru

UNIT- IV

(a) Definition of Gharana and brief history of Delhi and Ajrada Gharana of Tabla Vadan.
(b) Detail playing techniques and characteristics of Delhi and Ajrada Gharana.
(c) Life sketches and contribution of the following artists:
    - Ustad Habibuddin Khan
    - Pt. Beeroo Mishra

UNIT- V

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

PRACTICAL

(a) Taals prescribed Dadra, Ektaal, Teen Taal
(b) Laggi in Dadra and Kehrwa Taal.
(c) Ektaal (One Qaida, Two Tukra, Two Tihai, One Paran)
(d) Teen Taal (One Rela, one chakradar Paran, One Tukra, One Mohra)
(e) Practice of Dholak playing in Kehrwa Taal.
(f) Ability to play Nagma/Lehra on Harmonium in Ektaal.
(g) Tuning of Tabla.

Books Recommended:

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

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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. In all, nine 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 two questions each, out of which the candidates are to attempt one question from each Unit, fifth unit based on notation will be compulsory. Thus in all, the candidates are required to attempt five questions.

3. No electronic Instruments will be allowed for practical examination.

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

5. There would be upto 10 students in one section

**THEORY** (Time duration 3 hours.) 45 Marks

**PRACTICAL** (20 minutes duration) 45 Marks

**Internal assessment** (Theory and Practical) (5 + 5) 10 Marks

**Theory**

**Unit –I**

(a) Origin of Tandava

(b) Four Neck movements

(c) Eight eye glances

**Unit-II**

(a) Define Mudra. Just name Asamyukta Mudras based on Abhinaya Darpan.

(b) Definition of Folk Dance.

(c) Brief study of Kathak Dance in ancient period.

**Unit-III**

(a) Definition of the following terms:

   - Tora, Salami, Thaat, Tehai, Amad,

(b) Advantages of dance

(c) Life sketch of Pt. Uday Shankar

**Unit-IV**

(a) A study of two Folk Dances of Panjab, their costumes and background music.

(b) A study of two Folk Dances of Haryana, their costumes and background music.

**Unit- V**

(a) Notation of Nagma in Teen Taal

(b) Notation of Tatkar and Theka in Ekgun, Dugun and Chaugun laykaries

(c) Notation of Salami, Tora, Amad and Tihai in Teen taal.
Practical

(a) Teen Taal:
   I  Tatkar in Ekgun, Dugun and Chaugun laykaries
   II Salami - 1
   III Amad - 1
   IV Tora - 4
   V  Tihai - 1

(b) Practice on hand of above mentioned material in Teen Taal – prescribed in Part-A.
(c) Theka of Teentaal on hand in Ekgun & Dugun laykaries
(d) Theka of Teentaal on table

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INDIAN CLASSICAL DANCE

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, nine 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 two questions each, out of which the candidates are to attempt one question from each Unit, fifth unit based on notation will 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 syllabi including Semester-I.

THEORY (Time duration 3 hours.) 45 Marks

PRACTICAL (20 minutes duration) 45 Marks

Internal assessment (Theory and Practical) (5 + 5) 10 Marks

Theory

Unit –I

(a) Study of Lasya Dance.
(b) Six Eyebrow movements.
(c) Nine Head movements.

Unit-II

(a) Detail knowledge of Samyukta Mudras based on Abhinaya Darpan.
(b) Definition of Classical Dance.
(c) Detailed study of Kathak in mughal period.
Unit-III

(a) A study of four Folk Dances of Punjab.
(b) A study of four Folk Dances of Haryana.
(c) Knowledge of costumes and background music of Punjabi and Haryanvi Folk Dances.

Unit IV

(a) Brief study of Abhinaya and its various parts.
(b) Life sketch of Pt. Narayan Prasad.
(c) Definition of Nritta and Nritya.

Unit V

(a) Notation of Theka of Jhaptaal in Ekgun, Dugun and Chougun laykaries.
(b) Notation of Tatkar, Tora and Amad in Jhaptaal.
(c) Notation of Thaat, Tora, Tehai and Kavit in Teen Taal.

Practical

(a) Teen Taal:

i. Tatkar in Teentaal in Ekgu, Dugun and Chougun laykaries.
ii. Thaat - 1
iii. Tora - 2
iv. Kavitt - 1
v. Tihai

(b) Jhaptaal:-

i. Tatkar in Ekgun, Dugun and Chaugun laykaries.
ii. Tora - 2
iii. Amad - 1
(c) Practice of prescribed material in both the taals on hand

(d) Practical knowledge of Asamyukta Mudras.

(e) Ability to play nagma in teen taal on Harmonium.

(f) Ability to play theka of Jhaptaal on Tabla

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FINE ARTS

SEMESTER – I

Theory (History of Art)

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

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, Laocooon 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)

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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, exhibits 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 :  

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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

SEMMESTER – 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

SECTION-IV

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, inter 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map</td>
<td>10</td>
</tr>
<tr>
<td>Explanatory Note</td>
<td>08</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 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, Archaeological findings; inscriptions, coins and travel accounts.
II. Harappan Civilization: Extent, town planning; social economic and religious life.
III. Vedic Age: Political and Economic Life; social and religious life.

UNIT II

IV. Republics and Kingdoms 600-321 B.C.: Mahajanpadas; the rise of Magadha.
V. Jainism and Buddhism: Life and teachings of Mahavir Swami; 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) Extent of Harappan Civilization.
   (iii) Mauryan Kingdom under Ashoka.

Reading List:

5. Thapar, Romila : Early India from the Origin to A.D. 1300, Penguin, 2002.
PAPER: HISTORY OF INDIA 1200-1750 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 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 Tuglaq’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: Agra, Ahmednagar, Bijapur, Chittor, Daulatabad, Delhi, Fatehpur Sikri, Golkonda, Jaipur, Lahore, Lucknow, Mathura, Panipat, Poona, Surat, Udaipur.

(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).


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

   *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:


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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

Determination of Income and Employment:

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:

SOCIOLOGY
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. $9 \times 2 = 18$ 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 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 with special focus on Primary and Secondary Groups.

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 :**


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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, Line and Staff Agencies, Centralisation and Decentralisation, Decision Making

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:

5. K.K. Puri and G.S. Barara: Elements of Public Administration
Further Readings:

PUBLIC ADMINISTRATION
SEMESTER - II

PAPER : INDIAN ADMINISTRATION

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 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 (USO) 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 Secretary – Powers, Functions and Role  
Chief Secretary – Powers, Functions and Role  
District Administration: Structure and Functions

Essential Readings

3. Fadia, B.L. and Fadia Kuldeep  :  Indian Administration: (Agra: Sahitya Bhawan Publication, 2011)
5. P.D. Sharma, B.M. Sharma  :  Indian Administration Retrospect and Prospect (Jaipur: Rawat Publication, 2009)
9. S.R. Maheshwari  :  Indian Administration (New Delhi, Orient Longman, 2001)

Further Readings

1. M.V.Pylee  :  Constitutional Government in India (Bombay: Asia, 1965)
2. Government of India, 2nd ARC  :  13th Report-Organisational Structure of GOI  
15th Report-State and District Administration

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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:


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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:

PSYCHOLOGY
SEMESTER –I

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.

Schools of Psychology:

a) Brief Introduction: Associationism, Functionalism, Structuralism
b) Psychoanalysis, Behaviourism, Gestalt

Unit II

Emotions : Definitions and Concept of Emotions, Types of Emotions, Measurement of Emotions.
Theories of Emotions (James–Lange, Cannon Bard)

Unit III

Method of Psychology: Experimental Method, Observational Method.
Sampling Techniques, Survey Method.
Unit IV


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

Books Recommended:

Essential Readings:


Reference Books:


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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

Statistics: Graphical Representation of Data; Measures of Central Tendency and Variability.

Correlation: Meaning of Correlation, Rank Order and Product Moment-Calculation and Interpretation.
Unit III

Development: Concept, Heredity and Environmental Influences. Theories of Development: Erickson and 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; 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. Eysenck Personality Questionnaire- Revised
5. Interest Inventory
6. Familiarization of any five apparatuses

Books Recommended:

Essential Readings:

Reference Books:
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

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.

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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 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

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)

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 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 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

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

PAPER: 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-IV : Overview of the current status of the media industry in India.

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:**

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

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 (9×2 = 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


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
- Definition,
- Rationale for Women’s Studies,
- Evolution of Women’s Studies,
- 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** :

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 humans 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\times2=18 \text{ 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\times18=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

DEMONCRATIC GOVERNANCE:

- Democracy and People’s participation.
- Rule of Law: Non-arbitraries.
- 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

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, HINDU RELIGIONS

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 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 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. Vaishnavism: origin, development; features and institutions
Unit. II. Shaivism: 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
• राजस्मिन ध्वज धारण. 'पत्रकां 'संबंधित विश्वम भेद' दिनेश 2005-अलीगढ़ यूनिवर्सिटीविश्वविद्यालय. पितामह
• मतविधिति भिक्षु ढेर (सेठ). पंजाबि विभिन्न विविधता. भारती पुस्तक विभागीय, पितामह. एकल विश्व काली द्वीप, मंदिरां भजन सिंह द्वारा जीवन.
• मल्लिकेरी विभ. ज्ञान (सूच.) हिंदी यथा घटना इत्रों अन्य हिंदीबिन्दुसूचना विभ. उपसत्ति एव ग्रंथिपतिज्ञ. पद्मभूषण. राष्ट्र पुरुष जिलाधिकारी
• वल्लभ विध्वंसके. जनवरी चक्र के तुष्टिकें (विभ.)
• जेल भवन चंदकें. जनवरी चक्र (विभ.)

**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.

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. 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

- तत्त्व पुरुष घंटिला: पदम संपूर्णति दिलीम अंवं लभिविवेत्तय समविव ́ 2005-अंवं दुमा प्रभावितस विगितेनि भवावावी युवीलमिनीति, प्रिया अवां
- भूमिकपामी विप्लेत, में यशीत, सीता लक्षमत नष्टे घंटी, भाषान मंड लक्षित्रिमत, अभिमुखमत
Further readings

HOME SCIENCE
SEMESTER- I

Scheme of Examination

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Paper</th>
<th>No. of Papers</th>
<th>Time Allotted (hrs.)</th>
<th>Marks</th>
<th>Int. Marks</th>
<th>Total Marks</th>
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<tbody>
<tr>
<td></td>
<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
<td>3</td>
<td>40</td>
<td>10</td>
<td>100</td>
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Note: 1. Each Practical group will have 12-15 students.

PAPER: FAMILY RESOURCE MANAGEMENT, HYGIENE & HEALTH

Max. Marks: 50

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>Theory</td>
<td>40</td>
</tr>
<tr>
<td>Int. Ass.</td>
<td>10</td>
</tr>
</tbody>
</table>

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 & Diarrhea
(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>
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<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
<td>3</td>
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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

5. R.S. Deshpande : Modern Ideal Home for India, United Book Corporation, Poona, 1983.
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-A: 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 have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Sections B, C, D and E shall have two questions each from respective sections, out of which one question from each section 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 - Type, Significance, Emasculation, Techniques, mode of Reproduction and their significance.
Life cycle of a typical angiosperm. Concept of Plant Bleeding, introduction to self – Incompatability.
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 :

Paper-B : 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 have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Sections B, C, D and E shall have two questions each from respective sections, out of which one from each section is to be permitted. 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>
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<th>Theory hours</th>
<th>Practical hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
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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

Section-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.

Section-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.

Section-III

Section-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 :**


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ENVIRONMENT CONSERVATION

SEMESTER – II

PAPER : SOIL AND WATER POLLUTION

<table>
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<tr>
<th>Theory hours</th>
<th>Practical hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
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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

Section-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.

Section-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.

Section-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)

Section-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. Kudeshia, V.P. : Water Pollution, Prgati Parkashan, New Delhi, India, 2009

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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:


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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

Note: A student who has passed the +2 examination under 10+2+3 system of education of a recognised University/Board/Council or any other examination recognised by the Panjab University as equivalent thereto shall be eligible to offer the subject of Computer Science/Commerce/Economics/Mathematics as his/her subjects.

Only such colleges as have all necessary infrastructure or equipment and staff shall admit students to the subject of Computer Science. The infrastructure must be approved by the University as per practice.

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<th>Paper Code</th>
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<th>Subject</th>
<th>Lt/Wk</th>
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Computer Science

SEMESTER-I

SCHEME OF EXAMINATION

FIRST SEMESTER

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<td>C</td>
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Note: Practical marks will include the appropriate weightage for proper maintenance of Lab. Record

Paper-CS01 : Computer Fundamentals

Note:
(i) The question paper will consist of Four sections.
(ii) Examiner will set total of **NINE** questions comprising **TWO** questions from each section and **ONE** compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt **ONE** question from each section and the compulsory question.
(iv) All questions carry equal marks unless specified.

SECTION-A

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.

SECTION-B

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.

SECTION-C

SECTION-D


References:


**Paper-CS02: PC Software**

*Note:*

(i) The question paper will consist of Four sections.

(ii) Examiner will set total of **Nine** questions comprising **Two** questions from each section and **One** compulsory question of short answer type covering the whole syllabi.

(iii) The students are required to attempt **One** question from each section and the compulsory question.

(iv) All questions carry equal marks unless specified.

**SECTION-A**

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.

**SECTION-B**

Introduction to graphical user interface, window operating system, Anatomy of windows, organizing folders and files, recycle bin, my computer, windows explorer, control panel.

**SECTION-C**

**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.

**SECTION-D**

**Spread Sheet** : Worksheet overview, Row, Column, Cells, Menus, Creating Worksheet, Opening, Saving, Printing Worksheets; Calculations, Auto fill, working with Formulæ, 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.

**Books Recommended:**

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>
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<th>SECOND SEMESTER</th>
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</table>

Paper-CS03: Operating System Concepts

Note:
(i) The question paper will consist of Four sections.
(ii) Examiner will set total of NINE questions comprising TWO questions from each section and ONE compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt ONE question from each section and the compulsory question.
(iv) All questions carry equal marks unless specified.

SECTION-A

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

SECTION-B


SECTION-C


SECTION-D

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

References:

2. Brinch, Hansen, Operating System Principles, Prentice Hall of India
Paper-CS04 : C Programming

SECTION A


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.

SECTION B

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.

SECTION C

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.

SECTION D

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.

References:


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

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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

SECTION-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.
SECTION-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).

References :


Additional References :

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 paper (one theory and one practical) shall be allotted for the teaching.

Paper – 103: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-II

Max. Marks : 75
Theory : 65
Internal Assessment : 10
Time : 3 Hours

Note: 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

SECTION-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 week law of large numbers, and Central Limit Theorems (De-moivre’s – Laplace and Lindeberg -Levy).

SECTION-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 colligation & coefficient $V_{AB}$. 
References:


Additional References:

   Boes D.C. (1977)

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

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APPLIED STATISTICS

SEMESTER - I

Notes:
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 code named paper A in B.A./B.Sc. Semester-I having a total of 100 marks.
4. 9 Lectures (45 minutes each) per week shall be allotted for the teaching.

Paper-A: MATHEMATICAL METHODS-I

Max. Marks: 100
Theory: 90
Internal Assessment: 10
Time: 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

SECTION-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.

SECTION-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 (Sections 2.1, 2.2, 2.8), Chapter-III (Sections 3.1, 3.6), Chapter-IV (Sections 4.1, 4.7), Chapter-VI (Sections 6.1-6.8), Chapter VII, Chapter VIII (Section 8.2), Chapter IX (Sections 9.1-9.4), Macmillan Delhi.


Additional Reference:

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 code named paper B in B.A./B.Sc. Semester-I having a total of 100 marks.
4. 9 Lectures (45 minutes each) per week shall be allotted for the teaching.

Paper-B : PROBABILITY

Max. Marks : 100
Theory : 90
Internal Assessment : 10
Time : 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculators are allowed.
3. Statistical tables and log tables will be provided on request.

SECTION-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.

SECTION-II

Expectation and variance of random variable.
Binomial, Poisson, geometric, hypergeometric, uniform, exponential and normal distribution.

Books Prescribed:

Additional Reference:
PHYSICS

B.Sc. (GENERAL) FIRST YEAR (1st and 2nd Semester) EXAMINATION, 2016-17

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the papers is allocated 25 marks including 3 (three) marks for the Internal assessment.

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

**Paper B:** Vibrations, Waves and EM Theory

**Paper C:** Electricity and Magnetism

**Physics Practicals**

* 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:

2. The Mathematics of Waves and Vibrations by P.K. Ghosh (Mcmillan India).

Paper–C : ELECTRICITY AND MAGNETISM-I

(30 Hrs.)

UNIT-I

Basic ideas of Vector Calculus, Gradient, Divergence, curl and their physical significance, 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 and sheet of charge, Gauss’s Law and its differential form.

Work and potential difference, Potential difference as line integral of field, Electric potential due to dipole and quadrupole and its applications in Electrostatic field.

UNIT-II

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 choosing either of the Units I or Unit II in each semester. The unit of experiments allocated in the first semester cannot be repeated in second semester. The college must keep a record of the Unit allocated to each student. In the second semester examination, the students are expected to bring their Practical note books of both the semesters.

General Guidelines for Physics Practical Examinations:

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). 10
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 4
   (iii) Viva-Voce 5
   (iv) Record (Practical file) 3
   (v) Internal Assessment 3

   Total: 25 marks

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 20.

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:

UNIT-I

MECHANICS

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:

2. The Mathematics of Waves and Vibrations by P.K. Ghosh (Mcmillan India).

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.


UNIT-II


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 choosing either of the Units I or Unit II in each semester. The experiments performed in the first semester cannot be repeated in second semester. The college must keep a record of the Unit allocated to each student. In the second semester examination, the students are expected to bring their Practical note books of both the semesters.

**General Guidelines for Physics Practical Examinations:**

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**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 20.

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:

UNIT-I

MECHANICS

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.  **Electric measurements:**

**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. 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.

Activity :

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
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>
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<tr>
<td>I</td>
<td>Inorganic Chemistry-A</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>II</td>
<td>Organic Chemistry-A</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>III</td>
<td>Physical Chemistry-A</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>IV</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>6 periods per week 22 + 3 internal assessment</td>
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<tr>
<td></td>
<td><strong>Total:</strong></td>
<td><strong>15 periods/week</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Paper- I : INORGANIC CHEMISTRY-A

| Max. Marks | : 22 Marks |
| Internal Assessment | : 03 Marks |
| Time | : 03 Hours |
| 30 hours (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. BeF₂, BF₃, CH₄, PF₅, SF₆, IF₇, SnCl₂, XeF₄, BF₄⁻, PF₆⁻, SnCl₆³⁻. Valence shell electron pair repulsion (VSEPR) theory to NH₃, H₂O⁺, SF₆, CIF₃, ICl₂⁻ and H₂O. MO theory, homonuclear (elements and ions of 1st and 2nd 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 the 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

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

Electromagnetic Spectrum: Absorption Spectra:

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 auxochromes. 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-III  

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, threo 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  

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 the 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

Max. Marks : 22 Marks
Internal Assessment : 03 Marks
Time : 03 Hours
30 hours (2 Hrs./week)
3 Periods/week

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.)
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 (7 Hrs.)
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 (8 Hrs.)
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 the 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

Max. Marks : 22+3
6 Periods/week

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$_3^{3-}$, 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 titration 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. Standardise 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)


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CHEMISTRY
SEMESTER – II

Scheme of Teaching and Examination

<table>
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<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
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<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>
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</tr>
<tr>
<td></td>
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<td>15 periods/week</td>
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Paper- V : INORGANIC CHEMISTRY-B

Max. Marks : 22 Marks
Internal Assessment : 03 Marks
Time : 03 Hours
30 hours (2Hrs./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

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

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 the 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

Max. Marks : 22 Marks
Internal Assessment : 03 Marks
Time : 03 Hours
30 hours (2Hrs./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.)
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.

UNIT-II (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-III (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-IV  

(8 Hrs.)

Arenes and Aromaticity:


Aromaticity: The Huckel rule, aromatic 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 the 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:

Definition of colloids, classification of colloids.
Liquids in solids (gels): Classification, preparation and properties, inhibition, general applications of colloids.
UNIT-IV  

(8 Hrs.)

Solutions, Dilute Solutions and Colligative Properties:

Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient.

Dilute solution, colligative properties, Raoult’s law, relative lowering of vapour pressure, molecular weight determination. Osmosis, law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point. Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression of freezing point. Experimental methods for determining various 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 the 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

Max. Marks : 22 Marks
Internal Assessment : 03 Marks

ORGANIC CHEMISTRY AND GREEN CHEMISTRY PRACTICALS :
Crystallization and determination of melting points
Concept of induction of Crystallization
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)

..........................
BOTANY

SEMESTER-I

First Semester

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<th>Theory Paper- A</th>
<th>Plant Diversity-I</th>
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<td>Theory Paper-B</td>
<td>Cell Biology</td>
<td></td>
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<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs.</td>
<td>3 hrs.</td>
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Second Semester

| Theory Paper –A                  | Plant Diversity-II |            |      |      |      |
| Theory Paper-B                  | Genetics           |            |      |      |      |
| One practical pertaining to entire syllabus included in both theory papers | 3 hrs. | 3 hrs. | 3 hrs. | 3 hrs. | 3 hrs. |

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>
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<tbody>
<tr>
<td>Identify and write illustrated morphological note on specimens A and B.</td>
<td>05</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>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.</td>
<td>05</td>
<td></td>
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<tr>
<td>Identify and the slides D and E giving at least two reasons for each.</td>
<td>04</td>
<td></td>
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<tr>
<td>Practical Note-book</td>
<td>02</td>
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<tr>
<td>Viva-voce</td>
<td>02</td>
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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.


2+2= 04
ZOOLOGY

FIRST SEMESTER

<table>
<thead>
<tr>
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<th>Time</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
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<td><strong>Paper-I</strong></td>
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<td>36</td>
<td>4</td>
<td>40</td>
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<tr>
<td><strong>Paper-II</strong></td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td><strong>Practical</strong></td>
<td>4 hrs.</td>
<td>18</td>
<td>2</td>
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<td><strong>Total marks</strong></td>
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Note: The number of hours for Theory and Practical per week shall be 6 and 4 hours, respectively.

SECOND SEMESTER

<table>
<thead>
<tr>
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<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
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<tbody>
<tr>
<td><strong>Paper-I</strong></td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td><strong>Paper-II</strong></td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
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</tr>
<tr>
<td><strong>Practical</strong></td>
<td>4 hrs.</td>
<td>18</td>
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</tr>
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<td><strong>Total marks</strong></td>
<td></td>
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<td></td>
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</table>

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 up to 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, Vellella, 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 :

PAPER–II : BIODIVERSITY & CELL BIOLOGY - II (ZOO. 102)

Max. Marks : 40 marks
Theory : 36 marks
Internal Assessment : 4 marks
Time : 3 Hrs.

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 : *Neris, 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 upto orders with ecological notes and economic importance, if any, of the following animals:
   Slides : Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramoeicum (Binary fission and conjugation), Opalina, Vorticella, Balantidium, Nyctotherus & Polystomella.
   Parazoa (Porifera) : Specimens: Sycon, Grantia, Euplectella, Hyalonema, Spongilla, Euspongia.

   Cnidaria (Coelenterata) (a) Specimens : Porpita, Velella, Physalia, Aurelia, Rhizostoma Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia and Astrangia.
   (b) Slides : Hydra (W.M.) Hydra with buds. Obelia (colony and medusa). Sertularia, Plumularia, Tubularia, Bougainvillea and Aurelia larva.

   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).

   Annelida : Pheretima, Nereis, Heteronereis, Polynoe, Eunice, Aphrodite, Chaetopterus, Arenicola, Tubifex and Pontobdella.
3. Study of the following permanent stained preparations:
   • L.S. and T.S. *Sycon*, gemmules, spicules and spongin 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

<table>
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<td>Practical Exam.</td>
<td>18 marks</td>
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<td>Internal Assessment</td>
<td>2 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
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</table>

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
ZOOOLOGY
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 up to orders with brief ecological note and economic importance (if any) of the following:

Arthropoda: Apis, Lepisma (Silver Fish), Schistocerca (Locust), Poecilocerus (Ak Grasshopper), Gryllus (Cricket), Mantis (Preying Mantis), Cicada, Forficula (Earwig), Cimex, Scarabaeus (Dung beetle), Agrian (Dragon fly), Odontotermes (Termite queen), Cimex (bed bug), Cicindela (Tiger beetle), Polistes (Wasp), Bombyx (Silk moth).

UNIT-II

Detailed study of the following animal types:

Arthropoda: Prawn (Palaemon)
Life cycle of Anopheles and Culex.

Classification up to 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, Aphis, 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), Cimex (bed bug), Cicindela (Tiger beetle), Polistes (Wasp), Bombyx (Silk moth), Julius (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, Ophiorthix and Antedon Cucumaria

   Hemichordata: Balanoglossus.

2. Study of the following permanent stained preparations:

   Trachea, mouth parts of Periplaneta
   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**

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</tr>
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<td>Time</td>
<td>3 hours</td>
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</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

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 Biochemistry 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 as have all necessary infrastructure of equipment and staff shall admit students to the subject of Biochemistry. The infrastructure must be approved by the University as per usual practice.

### Semester-I

<table>
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<th>Scheme of Examination</th>
<th>Duration</th>
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<tr>
<td>Theory Paper- A: Carbohydrates and Lipids</td>
<td>3 hrs.</td>
<td>45 +5</td>
</tr>
<tr>
<td>Theory Paper-B: Nitrogen containing Biomolecules</td>
<td>3 hrs.</td>
<td>45 +5</td>
</tr>
<tr>
<td>One Practical examination pertaining to the entire syllabus included in Theory Papers A &amp; B.</td>
<td>3 hrs.</td>
<td>22 +3</td>
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Total marks: **125**

### Semester-II

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<tbody>
<tr>
<td>Theory Paper- A: Biochemical Techniques</td>
<td>3 hrs.</td>
<td>45 +5</td>
</tr>
<tr>
<td>Theory Paper-B: Bioenergetics and Enzymes</td>
<td>3 hrs.</td>
<td>45 +5</td>
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<tr>
<td>One Practical examination pertaining to the entire syllabus included in Theory Papers A &amp; B.</td>
<td>3 hrs.</td>
<td>22 +3</td>
</tr>
</tbody>
</table>

Total marks: **125**
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 No. 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 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

(Lecture: 8)

SECTION-IV (Lectures: 6)

Lipoproteins– Composition, classification and biological functions. Liposomes.
Structure and properties of Eicosanoids-Prostaglandins, Leukotrienes, Thromboxanes, Prostacyclins

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 Lowry’s method
   (c) DNA by diphenylamine method
   (d) RNA by orcinol method
4. Spectrophotometric measurements of DNA and RNA solutions

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BIOCHEMISTRY

SEMESTER-II

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:

1. Total No. of questions will be nine. All question carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question No. 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 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

Credit: 3+0+0
Objective: To learn various biochemical techniques

Section-I

(Lectures: 7)


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. TLC, GLC, HPLC.

Section-III

(Lectures: 7)

Various centrifugation techniques and their applications in Biochemistry. Preparative and analytical ultra-centrifugation procedures. Application of partial specific volume, diffusion coefficient and viscosity measurements in the study of macromolecules of biochemical importance

Section-IV

(Lectures: 8)

Electrophoresis: General principle, support media, types of electrophoresis.
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

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)

Introduction to enzymes. General characteristics of enzymes. IUB system of nomenclature and classification of enzymes. Prosthetic group. Holoenzyme, apoenzyme, cofactors, isozymes and zymogens, Coenzymes (NAD/NADP,FMN/FAD, coenzyme A,TPP, pyridoxal phosphate, tetrahydrofolate) and their biochemical functions, Assay of enzyme activity, units of enzyme activity. Active site(s) of enzymes.

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
Monomeric enzymes, oligomeric enzymes & multienzyme complexes. Mechanism of action of chymotrypsin and pyruvate dehydrogenase

SECTION-III (Lectures: 8)

SECTION-IV

(Lectures: 8)

Concepts of bioenergetics, principles of thermodynamics & their application in Biochemistry, concept of free energy. Biological oxidations. Redox potential. ATP and High energy phosphate compounds: introduction, phosphate group transfer potential Enzymes and co-enzymes involved in oxidations and reductions. Mitochondrial electron transport chain and oxidative phosphorylation. Substrate level phosphorylation, Mechanism of oxidative phosphorylation.

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.

Books Suggested:

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

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<th>Sr. No.</th>
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<th>Name of Paper</th>
<th>Lecturers per week</th>
<th>Max. Marks</th>
<th>Exam Hours</th>
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<tr>
<td>1</td>
<td>A</td>
<td>Fundamentals of Information Technology</td>
<td>6</td>
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<td>Second Semester</td>
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<td>Computer Programming Using C</td>
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SEMESTER I

Paper A  
Paper Title: Fundamentals Of Information Technology  
Max. Marks : 25  
Time : 3 Hrs.

Total Periods (6 Periods/week): 60

i. The Question Paper will consist of Four Sections.

ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Section and the Compulsory question.

iv. All questions carry equal marks unless specified.

SECTION – A

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.

SECTION – B

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.

**SECTION – C**

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

**SECTION - D**

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**:

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<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>
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**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

i. The Question Paper will consist of Four Sections.

ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Section and the Compulsory question.

iv. All questions carry equal marks unless specified.

SECTION – A

1. **Problem Solving**: Problem Identification, Analysis, Flow charts, Decision Tables, Pseudo code and algorithms, Program Coding, Program Testing and Execution.

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)

SECTION – B

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

SECTION – C

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

SECTION – D

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>
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<tr>
<th></th>
<th>Author</th>
<th>Title</th>
<th>Publisher, Location, Edition</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>
<tr>
<td>3</td>
<td>Sinha, P.K.</td>
<td>Computer Fundamentals, BPB Publications</td>
<td></td>
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</tbody>
</table>

**Paper – D : Practical on Paper - B**

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, 2016-17

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>
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<th>Scheme of Examination</th>
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<tr>
<td>Theory</td>
<td>6 hrs.</td>
<td>75 (60+15*)</td>
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<tr>
<td>MIC 101: Fundamentals of Microbiology-I</td>
<td>3 hrs.</td>
<td>37.5 (30+7.5*)</td>
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<tr>
<td>MIC 102: Microbial Physiology—Metabolism-I</td>
<td>3 hrs.</td>
<td>37.5 (30+7.5*)</td>
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</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>
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<tr>
<td>Theory</td>
<td>6 hrs.</td>
<td>75 (60+15*)</td>
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<tr>
<td>MIC 201: Fundamentals of Microbiology-II</td>
<td>3 hrs.</td>
<td>37.5 (30+7.5*)</td>
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<tr>
<td>MIC 202: Microbial Physiology—Metabolism-II</td>
<td>3 hrs.</td>
<td>37.5 (30+7.5*)</td>
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</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

MAX. MARKS : 25 MARKS
THEORY : 20 MARKS
INTERNAL ASSESSMENT : 5 MARKS
TIME : 3 HOURS

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

MAX. MARKS : 37.5 MARKS
THEORY : 30 MARKS
INTERNAL ASSESSMENT : 7.5 MARKS
TIME : 3 HOURS

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**

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**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

<table>
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<th>THEORY</th>
<th>INTERNAL ASSESSMENT</th>
<th>TIME</th>
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<tbody>
<tr>
<td>25 MARKS</td>
<td>20 MARKS</td>
<td>5 MARKS</td>
<td>3 HOURS</td>
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</table>

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 ABYANCE FOR THE EXAMINATION, 2016-17)

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SYLLABI

FOR

B.A. & B.Sc. (GENERAL) SECOND YEAR
(SEMESTER SYSTEM)
EXAMINATIONS, 2016-2017

(SEMESTER : THIRD AND FOURTH)

i.e

Third Semester : November/December, 2016
Fourth Semester : April/May, 2017

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<td>12.</td>
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<td>14.</td>
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</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.)

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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

(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.)

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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**

Q.4. **Short Survey Report** (150-200 words) with internal choice.  

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

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प्रथम (साधारण)
(यह बी.ए. और बी.एच. विज्ञानीय रूप से)

समेत विषय

खंडवाल

1. वस्त्राचार्य (साधारण) वास्तविक परीक्षण से आधिकारिक
2. सिंपी भंडार
3. वाणी भाषा
4. विविधता :शिक्षा और विज्ञान

वेसम

1. वस्त्र-आय, (मैंना) पु. विबंध प्रमित, विज्ञानीय विचार, वस्त्र विद्यालय, इंडियन डे, वस्त्र विज्ञान विद्यालय,

पूर्तित अंश वीम

1. (१) ‘वस्त्र -आय’ पुमड़ी डिज़ाने किसे दिवर जीतर दूरान हेम ब्राव मूर विभिन्न (विभिन्न किसे दिवर)
(२) ‘वस्त्र -आय’ पुमड़ी में धारण किसे दिवर दूरान हेम ब्राव मूर विभिन्न (विभिन्न किसे दिवर बांटन)
1+6=10 मूर

2. ‘वस्त्र-आय’ पुमड़ी डिज़ाने में धारण किसे दिवर दूरान हेम ब्राव मूर विभिन्न (विभिन्न किसे दिवर बांटन)
(अ) पुमड़ी पुमड़ी बांटन
3. सिंपी भंडार (संडी, ब्रुज़र, मधवर दे मेंडराचार्य मालिका वाले मधवर भंडार)
4. वस्त्राचार्य एवं संडी, विविधता दे रुग्मरत (िे पुमड़ी डिजा दिवर बांटन)
5. विविधता शिक्षा और विज्ञान
(i) संडी दे संडी उपरत:विभिन्न दे उपरत, उपरत:संडी दे संडी, पुमड़ी दे रुग्मरत (िे पुमड़ी डिजा दिवर दूरान)
(ii) विविधता पुमड़ी

ेत: हेत: विविधता पुमड़ी दिवर दूरान हेम ब्राव मूर विभिन्न (विभिन्न किसे दिवर दूरान हेम)

1. टेस्ट तत्काल उड़ाएं दे हे पीढ़ीमता।
2. वीमानी लड़ाई 25-30 विभिन्न विभिन्न दे चारंग हेत उड़ाएं दे हेत उड़ा वीमानी।
3. उड़ाएं दे 6+3 = 9 पीढ़ीमता।

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पंजीकृत (सामाजिक)
(भिन्न सी.ए., दे दिशियारपोषी भागी)

समस्त वेळा

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प्लेग

1. दिल्ली तथा तटक
2. भेदः एक भारती (अधिवेशकी दो भारती)
3. भारती दिल्ली भारतीयता
4. दिल्लीवासियों: निर्माण एवं परित्याग

विकास

1. देवलं (मंगल)। भारतीय निर्मित, भक्तिवृद्धि विद्युत, भारत पूरीवरिष्ठी, चंडीगढ़।
2. विलास, महायान, तेलंगाना, चंडीगढ़।

योजना भागी

1. (i) 'देवलं' दिल्ली समूह दे 'विलास' तटक दिव्य दिव्य दिव्य दिव्य दिव्य (मार्ग लिखत) (दिव्य दिव्य दिव्य दिव्य)
2. (ii) 'देवलं' दे 'विलास' तटक दिव्य दिव्य दिव्य दिव्य दिव्य (मार्ग लिखत) (दिव्य दिव्य दिव्य दिव्य दिव्य)
3. भारती दो भारती भारती (लंकड़ा 100 मार्ग दिन)
4. दिल्ली दिल्ली भारतीयता

केंद्र: दिल्ली भारतीयता अस्थायी भारतीयता अस्थायी भारतीयता (भारती, महायान, चंडीगढ़ के पूर्वोत्तरी से आपात बंद दे वी पूर्वी भागी)

5. दिल्लीवासियों: निर्माण दे विद्युत

(अ) साध साधनों : विलास के दिल्लीवासियों मार्ग, दिल्ली के अद्वितीय साध, मार्गवाट, मार्गवाट के भारतीय, मार्गवाट के भारतीय, चंडीगढ़, 1981.

(ब) साध साधन : विद्युत विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(व) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(ह) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(क) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(ल) साध साधन : विद्युत विद्युत विद्युत विद्युत (�िव्य दिव्य दिव्य दिव्य)

(म) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(न) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(ो) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(को) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(प्र) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(क्ष) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(आ) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

(स्त्री) साध साधन : विद्युत विद्युत विद्युत विद्युत (दिव्य दिव्य दिव्य दिव्य)

रेट: 1. टेक्निकल लसी 25-30 विदितारोगि जान जान जान जान जान (प्रति किलोग्राम)
2. टेक्निकल लसी 25-30 विदितारोगि जान जान जान जान जान (प्रति किलोग्राम)
3. टेक्निकल लसी 25-30 विदितारोगि जान जान जान जान जान (प्रति किलोग्राम)

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HISTORY AND CULTURE OF PUNJAB

(For B.A. candidates only)

SEMESTER-III

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).


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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  
      5 marks
   ii. Complete the incomplete sentences  
      5 marks
   iii. One word substitution  
      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
   \(\text{The examiner will set ten different lines with an instruction to identify the figure(s) of speech in each sentence. The sentences should be examples of different figures of speech as mentioned above. The students are required to answer all. There will be no choice.)}\)
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
   \(\text{The examiner will set an unseen passage of about 1000 word for comprehension. The passage will be followed by 5 questions to be answered in not more than 20-30 words each.)}\)
हिंदी (आधिकारिक द्वितीय वर्ष)

सेमेस्टर - 3

पूर्णक : 90+10=100
समय : 3 घण्टे

1. तरंगिणी - मनोहर लाल आनन्द, पंजाब विश्व विद्यालय पब्लिकेशन व्यूस०, चण्डीगढ़।

विज्ञापित कवि पाठ्यक्रम में लिख रित हैं:-

मैथिलीशारण गुप्त, जयशंकर प्रसाद, सूर्यकान्त त्रिपाठी निराला, सुमित्रानन्द पट्टा

क) 5-5 अंकों की दो संदर्भ-सहित व्याख्याएँ करनी होगी। कुल चार व्याख्याएँ पूरी जाएंगी।

अंक - 10

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 हरिश्चंद्र- देवो लक्ष्मीनारायण लाल, राजपाल एण्ड सन्झ, नई दिल्ली।

क) संदर्भ सहित व्याख्या के लिए दो प्रश्न पूछे जाएंगे;

अंक - 05

उत्तर एक का ही देना होगा।

ख) पाठ के चरित्र-विचार, तत्वों के आधार पर नाटक की समीक्षा तथा समस्ता संबंधी दो प्रश्न पूछे जायेंगे।

अंक - 08

8 अंकों का एक ही प्रश्न करना होगा। (शब्द-सीमा 200)

3. इस खण्ड में 3-3 अंकों के तीन लघुतरी प्रश्नों के उत्तर देने होंगे। कुल 6 प्रश्न पूछे जायेंगे। ये प्रश्न इस पत्र के पूर्वांक्त दो खण्डों (तरंगिणी व एक सत्य हरिश्चंद्र) पर आधारित होंगे। (शब्द-सीमा 50)

अंक - 09

4. हिंदी साहित्य का इतिहास - रीतिकाल : (केवल काव्य-खण्ड)

रीतिकाल की परिभाषाओं, नामकरण, सीमा-निर्धारण, प्रवृत्तियाँ रीतिबद्ध 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 जाएंगे। (शब्द-सीमा 200-250)

अंक - 08
5. वस्तुनिष्ठ प्रश्न
इस पत्र के पूर्वोक्त तीनों खण्डों के आधार पर 1-1 अंक के दस वस्तुनिष्ठ प्रश्नों के उत्तर देने होंगे। कुल पद्धत प्रश्न पूछे जाएँगे।

अंक-10

6. समीक्षा सिद्धान्त- केवल ‘नाटक’
परिभाषा, तत्त्व और वर्णास्त्रण पर आधरित नाटक से संबंधित दो प्रश्न पूछे जायेंगे। जिनमें से 7 अंकों का एक प्रश्न करना होगा। (शब्द सीमा 200)

अंक-07

7. व्यावहारिक व्याकरणः
क) समाकृति, भिन्नार्थक शब्द-युग्म 3) (चार में से तीन)
ख) स्वर-संवध एवं व्यंजन-संधि 3)
ग) सविध-विचित्र(केवल व्यावहारिक) 3) (चार में से तीन)
घ) वाक्य-शोधन 3) (चार में से तीन)
ड) वितरण-विहिन 3)

अंक-15

8. तकनीकी शब्दावली (केवल प्रशासकीय शब्दावली)
(सलगन शब्दावली)
15 में से 10 का उत्तर देना होगा।

अंक-10

आंतरिक मूल्यांकनः
निर्देश :- छह लेखाएँ Text के और तीन लेखाएँ व्याकरण के अनिवार्य होंगे।

प्रशासनिक शब्दावली

1. Acceptance स्वीकृति
2. Account लेखा, खाता, हिसाब
3. Accuse अभियोग लगाना
4. Acknowledge (fact etc.) अभिस्वीकार करना, मानना कबूल करना
5. Acknowledgement due रसीद, पावती सहित
6. Addressee पाने वाला
7. Adjournment स्थगन
8. Administration प्रशासन
9. Admissible ज्ञाय, स्वीकार्य
<table>
<thead>
<tr>
<th>No.</th>
<th>Word</th>
<th>Meaning</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>भलता</td>
</tr>
<tr>
<td>15</td>
<td>Amenity</td>
<td>सुख-सुविधा</td>
</tr>
<tr>
<td>16</td>
<td>Anti-Corruption Officer</td>
<td>श्रद्धालु 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>
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<td>19</td>
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<td>नियुक्ति करना</td>
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<td>Approval</td>
<td>अनुमोदन</td>
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<td>21</td>
<td>Article</td>
<td>अनुष्ठान, नियम, वस्तु</td>
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<td>22</td>
<td>Association</td>
<td>संघ, समाज, संगम</td>
</tr>
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<td>23</td>
<td>At Par</td>
<td>समस्त मूल्य पर</td>
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<tr>
<td>24</td>
<td>Attendant</td>
<td>परिचर</td>
</tr>
<tr>
<td>25</td>
<td>Attestation</td>
<td>साक्ष्यांकन, अनुमूल्यांकन</td>
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<td>26</td>
<td>Audit</td>
<td>लेखा परीक्षा</td>
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<tr>
<td>27</td>
<td>Ballot Paper</td>
<td>मतपत्र, मतपत्री</td>
</tr>
<tr>
<td>28</td>
<td>Ban</td>
<td>प्रतिबंध, रोक, पाबंदी</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>
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<td>32</td>
<td>Cabinet</td>
<td>मंत्री मंडल</td>
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<td>33</td>
<td>Candidate</td>
<td>अभ्य प्रदी, प्राची, उम्मीदवार</td>
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<td>34</td>
<td>Care-taker</td>
<td>रखवाला, अवधायक</td>
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<td>Cashier</td>
<td>रोकोड़िया</td>
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<td>36</td>
<td>Censure</td>
<td>बिडा प्रस्ताव, परिविधा</td>
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<tr>
<td>37</td>
<td>Certificate of Medical Fitness</td>
<td>आरोग्य प्रमाण-पत्र</td>
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<tr>
<td>38</td>
<td>Character Certificate</td>
<td>चरित्र प्रमाण-पत्र</td>
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<tr>
<td>39</td>
<td>Charge Sheet</td>
<td>आरोप पत्र, फर्ड, जुर्म</td>
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<td>42</td>
<td>Circus</td>
<td>क्रीडा रंग, रंगमंडप</td>
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<td>43</td>
<td>Citation</td>
<td>प्रशासित, उद्दरण, अनुलेखन</td>
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<td>44</td>
<td>City Booking Office</td>
<td>नगर टिकट घर, नगर बुकिंग-कार्यालय</td>
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<tr>
<td>No.</td>
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<td>50</td>
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<td>दावेदार, दावी</td>
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हिंदी (ऐच्छिक द्वितीय वर्ष)
सेमेस्टर-4

पूर्णांक : 90+10-100
समय : 3 घण्टे

1. तंगनी-मनोहर लाल आनंद, पंजाब विश्व विद्यालय, पब्लिकेशन व्यूरो, चण्डीगढ़ से प्रकाशित निम्न कवि पाठ्यक्रम में निर्देशित है:-
महादेवी वर्मा, अज्ञेय, धर्मवीर भारती।

क) 5-5 अंकों की दो संदर्भ सहित व्याख्याएँ करनी होगी।
अंक-10
कुल चार व्याख्याएँ पूरी जाएंगी।

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।
अंक-08

2. आदर्श एकांकी संग्रह - सं. डेणो संसार चन्द्र, पंजाब विश्व विद्यालय पब्लिकेशन व्यूरो चण्डीगढ़ द्वारा प्रकाशित

क) एकांकी के तत्त्वों के आधार पर सामीशात्मक प्रश्न
अंक-08
(सार-लेखन, चरित्र-चित्रण, उद्देश्य संबंधी) दो प्रश्न पूछे जायेंगे। 8 अंकों का एक प्रश्न करना होगा।

ख) संदर्भ सहित व्याख्या नहीं पूरी जाएंगी।

3. हिंदी साहित्य का इतिहास : आधुनिक काल (केवल काव्य-खण्ड)
आधुनिक काल के भारतेन्दु-युग, द्वितीय युग, छायावाद, प्रगतिवाद, प्रयोगवाद और नई कविता की केवल प्रमुख प्रवृत्तियों से संबंधित 10 अंकों का एक प्रश्न करना होगा। कुल दो प्रश्न पूछे जाएँगे।
(शब्द सीमा-सीमा 250)
अंक-10

4. वस्तूनिष्ठ प्रश्न
इस पत्र के पूर्वांक पत्रों के आधार पर एक-एक अंक के दस वस्तूनिष्ठ प्रश्न करने होंगे। कुल पन्नह प्रश्न पूछे जाएँगे।
अंक-10
5. संलग्न 50 टिप्पणियों का अभ्यास : अंक-10
पूछी गई दस टिप्पणियों में से पाँच का उत्तर देना होगा।

6. समीक्षा सिध्दांत : केवल ‘अंकाकी’ अंक-10
एकांकी के तत्त्व, परिभाषा और वर्णिकरण से संबंधित दो प्रश्न पूछे जाएंगे। 10 अंकों का केवल एक प्रश्न करना होगा।
शब्द–सीमा 250)

7. सार लेखन अंक-8

8. शासकीय पत्र लेखन (दो में से एक) अंक-8

9. विस्तारण अंक-8

अंतरिक मूल्यांकन अंक-10

निर्देश : 6 लेखक Text के और 3 लेखक व्यक्तरण के अनिवार्य होंगे।

50 टिप्पणियों

1. A brief note is placed below सशिष्ट टिप्पणी नीचे प्रस्तुत है।
2. Acknowledge receipt of this इसकी पावती भेजिए।
3. Action as proposed may be taken यथा प्रस्तावित कार्यवाही की जाए।
4. Agenda of the meeting is put up बैठक की कार्यसूची प्रस्तुत है।
5. Application may be rejected आवेदन अस्वीकार कर दिया जाए।
6. Approved as proposed प्रस्ताव के अनुसार अनुमोदित
7. Administrative approval may be obtained प्रशासनिक अनुमोदन प्राप्त किया जाए।
8. Await reply उत्तर की प्रतीक्षा करें।
9. Await further report और विवरण की प्रतीक्षा करें।
10. Ascertain this position please कृपया स्थिति का पता लगायें।
11. Amended draft is submitted for approval संशोधित प्रारूप अवलोकनार्थ प्रस्तुत है।
12. Brief resume of the case is given below मामले का संशिष्ट सार नीचे दिया गया है।
13. Call for explanation स्पष्टीकरण अंगे।
14. Call for report रिपोर्ट भेजिए।
15. Comply with the orders आदेशों का पालन करें।
16. Clarify the position please कृपया स्थिति का स्पष्ट करें।
17- Copy enclosed for ready reference सुलभ संदर्भ के लिए प्रतिलिपि संलग्न है।
18. Copy is enclosed प्रतिलिपि संलग्न है।
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

prasiritip sravanarth evam avashyak karyavahi ke liye prabhita hai ।
mamalo ko abhi abhinirnait rkh jaaye ।
vilomh n kiya jaaye ।
aabushasainik karyavahi shru ki jaaye ।
utter ka marsidh prastut hai ।
jaanch ki jaaye ।
shri k karyavahi kare ।
strapatkar mna ga jaye ।
mamalo ke tatha prastut kare ।
dekhkar lootpae ke liye
kupya tipanii de ।
shahuntraippーン viyar ke liye
prapti aur prastut ।
mee is prastav se apneh sahahati prakat karta hoon ।
muxe koii tipanii nahi kareni hain ।
sahii saharhita vyaktiyon ko souchit kare ।
paipatra jaare kare ।
sirph ke liye roke rakh ।
kupya shreekrti deejaye ।
kupya pusti kare ।
mamala viwaradhye hain ।
koei karyavahi apanasht nahi hain ।
avekshak karyavahi ki gai hain ।
advad shari kiyaa jaye ।
kupya picchli tipaniiysa dekh le ।
saharpita karan prastut kare ।
anusmarak abeja jaye ।
anupalan karke durust souchit kare ।
vishish karana diya jaye ।
suchar ka liye prastut hai ।
isse gopiniy samjha jaye ।
jhaacha aur sahii paya ।
पाठ्यक्रम (टिलेविजन)
श्री.चे. (नमवल डाक) दूरा रामवंश 2016 दे तिथिवर्ग लष्टी
समाप्तव शीर्ष

<table>
<thead>
<tr>
<th>नंबर</th>
<th>पाठ्यक्रम</th>
<th>पूर्वांश</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>भववानी की वैज्ञानिकी (सर.)</td>
<td>25 लंब</td>
</tr>
<tr>
<td>2.</td>
<td>मंदिरमें आचारीयता</td>
<td>25 लंब</td>
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<tr>
<td>3.</td>
<td>पैसाबी मानित दर फिलिफाम (1701 ईं 1900 ईं)</td>
<td>20 लंब</td>
</tr>
<tr>
<td>4.</td>
<td>बानी विषय समाप्त</td>
<td>10 लंब</td>
</tr>
<tr>
<td>5.</td>
<td>बानी विषयवांश</td>
<td>10 लंब</td>
</tr>
</tbody>
</table>

वेतन

1. भववानी की वैज्ञानिकी (सर.) इ. यथा संबंध, यथावत मिलता विचित्र, भववानी पुरोवर्तित, चंद्रीवाण।
2. मंदिरमें संबंध, आचारीयता मंदिरमें, तिरंगा भववान, चंद्रीवाण, चंद्रीवाण।

पुस्तित भव बीमा

1. (अ) ‘भववानी वैज्ञानिकी’ पुस्तक विषय पूर्वता मात्र विशालधिश (हे विद्यार्थी विचित्र)
   (प) वैज्ञानिक पुस्तक विषय विश्वसनीय -समुद्र/ वेब सर्वनाश विज्ञान (हे विद्यार्थी विचित्र)
2. (अ) ‘मंदिरमें संबंध’ आचारीयता मंदिरमें ने आपने हुई पूर्वता विज्ञान 2 पाठपत्रों
   (हे विद्यार्थी विचित्र)
   (प) मंदिरमें संबंध विज्ञान विज्ञान (पूर्वता विचित्र – 2 पाठपत्रों)
3. वानी माता दे मंदिरमें विषय लघु तिंडर 10 वानी (अंत मुस्तां मैटचेट पृष्ठ)
   (पूर्वता विचित्र विज्ञान विज्ञान 50 पाठपत्र और तिंडर)
4. पैसाबी मानित दर फिलिफाम (1701 ईं 1900 ईं) इ. एंड मूडी वैज्ञानिकी वाणी – 5 x 4=20 लंब
   (पूर्वता विचित्र विज्ञान विज्ञान 50 पाठपत्र और तिंडर)
5. बानी विषय-संबंध: (भूविज्ञान यान, अंतरराष्ट्रीय विज्ञान, लघु वाणी, विज्ञान, विज्ञान
   (हे पूर्वता विचित्र विज्ञान विज्ञान)
6. बानी इंटरनेट: बानी इंटरनेट, बानी इंटरनेट, अंतरराष्ट्रीय बानी, बानी इंटरनेट, विज्ञान
   (पूर्वता विचित्र विज्ञान विज्ञान)

पैसा : मात्रे पाठ्यक्रम लष्टी पृष्ठ विचित्र 6 + 6 = 12 पीचित्र।

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नेपाली (वित्तविद्या)
श्र. (2 अर्धवर्षीय) 2017 में दिखाया गया दूसरी सीमित रेखा
मैथिली भाषा

पठ्यभूमि
1. मेधवत्र दी चेतरी बस्ताड़ा
2. चर्ची मंगली
3. पनाङ्गी मांडव डा फिटिङ्गम (1701 ढे 1900 ढेख)
4. मांडव आफ्षामा
5. टाइपमा दिबिराला

वेला
1. मेधवत्री बाथी मुम्मीभर (संघ.,) राव मिसि, भवलिवेमंत विज्ञ, पंचाय धूलीचम्प्टी, चंडीगढ़।
(विविघटन वशी: छात्र छात्रा, छात्रा संपर्क, नियम विविघट, नियम धूलीचम्प्टी वशी बाहर मिसि)
2. चंड कै (संघ.,) मुहित धुम वेमट, वॉलिवेमंत विज्ञ, पंचाय धूलीचम्प्टी, चंडीगढ़।

पहिला मास वेला
1. (ई) मेधवत्री बाथी मुम्मीभर (पारम्परिक) पुस्तक प्रेम विभागितम (ई विभागितम प्रेम)
2. (अ) विविघटन वशी-पुस्तक प्रेम विभागितम विभागितम (ई विभागितम प्रेम)
3. (ई) चंडी कै दी पुस्तक प्रेम विभागितम (ई विभागितम प्रेम)
4. (अ) चंड के विभागितम विभागितम (ई विभागितम प्रेम)
5. पुस्तक प्रेम विभागितम: पुस्तक प्रेम विभागितम (ई विभागितम प्रेम)
6. टाइपमा दिबिराला: टाइपमा दी दिबिराला, दिबिराला दी दिबिराला, दिबिराला दी दिबिराला}

गणित पुस्तक:
1. पनाङ्गी मांडव डा फिटिङ्गम (1701-1900), पंचाय धूलीचम्प्टी, चंडीगढ़।
2. पनाङ्गी मांडव डा फिटिङ्गम (1701-1900), पंचाय धूलीचम्प्टी, पटिअला।
3. पनाङ्गी मांडव डा फिटिङ्गम (1701-1900), पंचाय धूलीचम्प्टी, पटिअला।
4. मांडव आफ्षामा (रा.), मांडव वित्तविद्या द्वारा दिबिराला, धूलीचम्प्टी विज्ञ, पंचाय धूलीचम्प्टी, पटिअला, 1998。
5. मांडव, सुबहविद्या भाषा (संघ.), पंचाय धूलीचम्प्टी, पंचाय धूलीचम्प्टी, पटिअला।
6. मांडव, सुबहविद्या भाषा (संघ.), पंचाय धूलीचम्प्टी, पंचाय धूलीचम्प्टी, पटिअला।
7. मांडव, सुबहविद्या भाषा (संघ.), पंचाय धूलीचम्प्टी विद्यालय, पंचाय धूलीचम्प्टी, पटिअला, 2002।
8. हिंदी, 'पनाङ्गी मांडव वित्तविद्या', भारत पंचाय धूलीचम्प्टी, पटिअला, 2002
9. त्रि, त्रि, त्रि (रा.), 'पनाङ्गी मांडव वित्तविद्या', भारत पंचाय धूलीचम्प्टी, भारत 2012।
10. त्रि, त्रि, त्रि (रा.), 'पनाङ्गी मांडव वित्तविद्या', भारत पंचाय धूलीचम्प्टी, भारत 2012।

प्रमित्र विशेष: मुंचु पठ्यभूमि रहित उठे प्रेम 6+6=12 विज्ञ।
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संस्कृत (इलेक्ट्रॉम)
बी.ए.(जनरल) द्वितीय वर्ष, 2016

SEMESTER-III

Paper - Sanskrit : श्रीमदभगवद्गीता एवं व्याकरण

पूर्णांक: 90+10=100
समय-3 घण्टे

निदेश तथा उद्देश्य -

• प्रश्नपत्र का माध्यम हिन्दी होगा। उत्तरों का माध्यम संस्कृत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
• विद्यार्थियों को भारतीय दर्शन के अद्वितीय धर्म रचना श्रीमदभगवद्गीता (सत्तुर्य अध्याय) में प्रतिपादित निष्पादन कर्मयोग, समतल योग में स्थित योगी पुराणों का आचरण एवं उनकी महिमा, विभिन्न प्रकार के झान्याज्ञ तथा झान का महत्व इत्यादि विषयों का अध्ययन कराना।
• इसके अतिरिक्त व्याकरणिक अभ्यास को में विद्यार्थियों की संस्कृत के प्रति रुचि जागृत करना।
• संस्कृत पूर्ण वैज्ञानिक एवं व्याकरणनिष्ठ भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के प्रमुख नियमों का योग कराना।
• पत्र का अध्ययन समय नीं पीरियड(प्रतिष्ठण) प्रतिसतात होगा, जिसमें तीन और वर्चस्व कम्पोजिशन के होंगे।
• सभी प्रश्नों में शतप्रतिशत अध्ययन निदेश विकल्प आवश्यक है।

(क) गीता (चतुर्थ - अध्याय) (तीन सूक्ति/खंड : सस्त्रसंगन्ध अनुवाद पद्म व्याख्या)

3x10= 30 अंक

(ख) गीता (चतुर्थ अध्याय) पर आधारित समीक्षात्मक लघुप्रबन्ध

05 अंक

(ग) व्याकरणिक संस्कृत शब्दावली : वक्ता, आभूषण एवं श्रमार्थक (15 में से 10 शब्दों की संस्कृत)

10x1= 10 अंक

1. क्षेत्र-कक्ष: 2. कृतां-कर्मचुक: 3. कोट-प्राचार:
4. चार्द-चत्रद: शर्यष्ट्रादमम 5. जूताः-उपमानाः 6. तकिना-उपाधामम,
7. दुरी-आस्तरणाः 8. कुर्मा-उत्तरीयम 9. घोटी-अपोथकम, नमासिकः
10. नाधो-पिराकम् उपानीकम् 11. पर्यास्त-धनिका 12. पायमासा-पायमाः
13. पौड़-आभभीनमम 14. समालक-कर्ममम 15. शर्यष्ट्रान्त-वारकम
16. सादो-सतिका 17. स्वेषार-उपालमकम 18. कपड़ा-कक्षमु, सस्त्रम, चीरम
19. अग्रुद्ध-अकुलीयफम, युद्धक 20. कंगनाम-कक्रणः 21. कान की वादी-कुर्मालमम
22. महान-अलिज्रार, आभरणम् 23. चुंबुरु-मनिक्री 24. बुद्धि-काचबालम, काचवलम
25. नाना-नानिका 26. पानी-पुराः, पुरुस 27. बाजुंद (वेंस लेट)-केमानम
28. भार-हरः 29. सोने का रक्षा-कटकः 30. आयुक्त (शीर्षा)-दण्डः, अद्यताः
31. इतिहास (सांत) - गणतेरलम्
32. उद्भन्न - उद्भतनम्
33. कंची-प्रसाधनी
34. काज़ल-अहर्नम, काज़लम्
35. क्रीम-शरण
36. द्रेकिंग टेक्ट-श्रीगारपनकम्
37. तिलक-तिलक
38. दौत का बुश-दल्लधावनम,दल्लधूः
39. नेट-पौलिसा-नकर्णजनम्
40. बिन्दी-बिन्द
41. पाउर्च-पूर्णकम्
42. मंजन-दल्लधूमणम्
43. मेहन्दी-माटा
44. शिल्पसिंह-ओहरणजनम्
45. सांडन-पेनिलम, पेनकम्
46. सिंहर-सिन्हरम्
47. दौत कुर्णने की सूई-दल्लधूपणी
48. महावर-अलकका
49. रूज-कपोटरजनम्
50. सिंगराज-श्रीगाराणम, श्रीगारपितकम्

(च) ब्रजबंध सभि

(ह) तस्मान- समास

(च) लक्ष्य प्रतिपाद : अनु, मतुप, तरप, तमप - केवल उद्धारण ही प्रत्यय हैं।

(क) दक्षिणः - तत, पति, यत् (तीनो लिंगो मं) राजन तथा चन्द्रमास।

(ज) पारुषः : अत्र, दा, कुप, श, प्रच, भिंत्र (केवल लट, लोट, लट, लट, विपिनिक्ष) लक्षम में

(ह) छंदः : अनुपुरुष, बंवार्थ, इन्द्रज्ञा, उपेन्द्रज्ञा, उपज्ञति (दों के ही सोदा वह हिर्मण प्रत्यय हैं)

सहायक पुस्तक:- श्रीप्रभोष, चौलस्या प्रकाशन, वाराणसी
संस्कृत (इलेक्ट्रॉनिक)
बी.ए.(जनरल) द्वितीय वर्ष, 2016
SEMMTER-IV

Paper - Sanskrit :
नाटक एवं व्याकरण (अन्तर्गत परीक्षा- 10, लिखित परीक्षा- 90)
पूर्णक: 90+10=100

निदेश तथा उद्देश्य:

- प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
- संस्कृत नाट्यविद्या के स्वरूप और प्रूढ़ियों से परिचित कराना।
- इसके अतिरिक्त व्याख्यानिक शब्दावली द्वारा विद्यार्थियों की संस्कृत के प्रति रूसी जागृत करना।
- संस्कृत पूर्ण वैज्ञानिक एवं व्याकरणिनिष्ठ भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के प्रमुख नियमों का योग कराना।
- पत्र का अध्ययन समग्र नीं पीरियड(प्रतिवर्ष) प्रतिसापाह होगा, जिसमें तीन पीरियड कम्पोजिशन के होंगे।
- सभी प्रश्नों में व्याख्यानित अवस्था निदेश विकल्प आवश्यक हैं।

(क) दृढ़वाचक - भास (तीन सुकृत/शोक : सप्रसम्बंधित एवं यथायथ व्याख्या) 3x10=30 अंक

(ख) समीक्षात्मक लघु प्रश्न, पात्र चरित्र विश्लेषण, लेखक परिचय, रचनाएँ व दृढ़वाचक की विषयवस्तु 5 अंक

(ग) व्याख्यात्मक संस्कृत शब्दावली : अ, भोजन एवं तत्सम्बद पत्र (15 में से 10 शब्दों की संस्कृत) 10x1=10 अंक

1. अनार-आड़की 2. उड़ा-मान: 3. गो-गोरूम:
(८) तत्सृषु - समास

(९) कृदन्तानुप्रयोग : क, कित्तू, कल्य, तथा तथा तत्सृषु कृदन्त

(१०) शब्दकृत्य : किम् व सर्वे (तीनों रिमों में), महत् व बलवत् (पृथिवी में) पतं कति

(११) दातृत्य : क, कीज, ग्रह, झा, शु मधु मधु (केवल लट, घोट, गट, गट, विपिलिखण्ड लक्षार में)

(१२) कारक (केवल सामान्य नियम-असुद्ध वाक्यों को शुद्ध करना)

(१३) छन्द : विविधारण, मन्द्राकाल, माणिक, वस्मलीलका तथाभूमिग्राम्य (दो के ही सोदाहरण द्वारा प्रश्न में है)

सहायक पुस्तक : शीघ्रभोग, चौखंड प्रकाशन, बाराणसी

***************
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):

ii. Explanation of Nazms:
   Allama Iqbal - Chand aur Tare, Mulla aur Bahisht
   Nazir Akbrabadi - Mele ki SaIr
   Brij Narayan Chakbast - Ramayan ka ek Scene

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

Unit-III

Central idea of a lesson or nazm (from Unit I & II above)

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

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 2016-17.

**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.

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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 2016-17.

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 Afroz 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.

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FRENCH(ELECTIVE)
SEMESTER-III
EXAMINATION:- WRITTEN COMPREHENSION AND EXPRESSION, GRAMMAR IN CONTEXT AND CREATIVE WRITING

French Civilization & Literature

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>100</th>
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</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>

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 (easier than the prescribed textbook).
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

Text Book:

(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 a Marie

2. Alphonse De LAMARTINE 1790-1869- Harmonie poétique et religieuse
   Au rossignol

3. Alfred De MUSSET (1810-1857)-Poésies nouvelles
   Tristesse

4. Theodore 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.

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FRENCH(ELECTIVE)

SEMESTER-IV

EXAMINATION:- 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

   Théophile GAUTIER (1811-1872)- Emaux et camées

   Noël
2. Charles BAUDELAIRE (1821-1867) Les fleurs du mal
   La vie antérieure

3. Paul VERLAINE (1844-1896) Sagesse
   D’une prison

   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”: Chapters1-17 upto page 87 50 marks
   (5 questions)

    Chapters 1-17 upto page 87 20 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 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: Chapters1-17
# GERMAN (Elective)

## SEMESTER-IV

### Summary

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>100 marks (Total)</th>
</tr>
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<tbody>
<tr>
<td>End Semester Exam Paper-B (Theory)</td>
<td>60 marks</td>
</tr>
<tr>
<td>Oral (viva-voce) examination</td>
<td>30 marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10 marks</td>
</tr>
</tbody>
</table>

#### Paper B-Theory

- **Time**: 3 hours
- **Note**: Use of dictionary is allowed

1. Questions in applied grammar (including fill in the blanks) conforming to prescribed text-book “Lagune-2”: Chapters 18-34 (5 questions) 30 marks
2. Questions on “Culture & Civilization” from the prescribed text-book “Lagune-2”: Chapters 18-34 (4 out of 5 questions to be attempted) 15 marks
3. 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

- **Time**: 30 marks (Total)

1. Conversation in German
2. Reading of a simple unseen text and answering questions there-on

#### Internal Assessment

- **Time**: 10 marks (Total)

1. Continuous Evaluation
2. 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:

5. “Lagune-2” Arbeitsbuch by Hartmut Aufderstraße a.o: Chapters 18-34

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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

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RUSSIAN (Elective)

SEMESTER-IV

Paper-B (General Translation, Grammar, Composition and Comprehension): Written

Maximum Time : 3 hrs. Max. Marks : 70

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
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<tbody>
<tr>
<td>Theory</td>
<td>60</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10</td>
</tr>
</tbody>
</table>

(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 08 marks
   (2 marks each)
   (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)

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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

***************
PHYSICAL EDUCATION

B.A. (GENERAL) THIRD SEMESTER EXAMINATION, 2016

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

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**

**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.
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

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

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 fulfill 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.

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EDUCATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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:


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EDUCATION
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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:**


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ADULT EDUCATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-2017
Semester –III

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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, 2016-2017
Semester –IV

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<td>Internal Assessment</td>
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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.
THEREY

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, 2016-17

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 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 to 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. Brief knowledge of Gram.
2. Gun and Dosh of Gayak.
3. Gharana: definition and importance
Unit–II

1  Knowledge of Alap, and its various forms.
2  Explain the following: - Upaj, Mukhda, Bol-Baant, Khatka.
3  Knowledge of Ten Lakshans of Raga

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 one bada khyal in any prescribed ragas of the syllabus with Alap and Taans
   (iii)  To write the notation of Tala :- Tilwada, 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 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 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: Malkauns, Bhairav.

2. One Dhrupad in any prescribed raga

3. One lakshana geet/ Sargam geet in any prescribed ragas

4. Ability to play Jhaptala on Tabla

5. Ability to recite following talas by hand: Tilwada, Chartala

6. Ability to play on Harmonium at least three alankaras based on Shudh swaras and sing along with it.

7. Ability to recognize the prescribed ragas sung by the examiner

8. Knowledge of the following Non-detailed Raga: Ability to sing Aroh, Avroh and Pakad with Tanpura: Chandrakauns, Kalingda.

9. Ability to sing one Drut khayal of your course with harmonium.
**Books Recommended:**

8. *Sangeet Shastra Vigyan*
   - Sangeet Kala ka Itihas : Panna Lal Madan

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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 with Tabla.

6. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper should also to 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. Knowledge of Tanas and its various forms
3. Explain the following: - Meend, Bol-Alap, Gamak, Murki

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: - Bhimplasi, Bageshwari
   ii) To write in notation a vilambit khyal in any prescribed raga of the syllabus.
   iii) To write the notations of Talas: Roopak, Jhaptala (Single & Double)
   iv) To write the description of Ragas: - Non detailed: Patdeep, 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: Bhimplasi and Bageshwari
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: Patdeep, Rageshwari
8. Ability to sing one Drut khayal of your course with harmonium
Books Recommended:

1. **Sangeet Visharad**: Sangeet Karyalaya, Hathras (U.P.).
3. **Sangeet Kaumudi Part IV (Punjabi)**: S.S. Kareer, published by Punjabi University, Patiala.
5. **Sangeet Sar Part II**: Mrs. Veena Mankaran, Raj Publishers (Regd.) Adda Tanda, Jalandhar City.
8. **Sangeet Shastra Vigyan Sangeet Kala ka Itihas**: Panna Lal Madan

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MUSIC (Instrumental)
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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 should not be more than eight students in a batch for practical examination.**

3. Harmonium can be used while singing Alankars.

4. 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.**

5. 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.

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

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

8. There would be up to 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. 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 Maseetkhani Gat (in any prescribed raga of your course with Toras)
2. To write the notation of Raga:- Bihag, Bhiplasi with todas
3. Notation of Ektal and Rupak tala with dugun layakaries
4. Description of non detail raga :- Bilawal, Patdeep

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 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 : Bilawal, 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:


8. *Sangeet Shastra Vigyan*  
   *Sangeet Kala ka Itihas* : Panna Lal Madan
MUSIC (Instrumental)
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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 can be used while singing Alankars.

4. 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.

5. 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.

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

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

8. There would be up to 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 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 Toras: Raga Madhuwanti, Hamir
iii) To write the notation of Tivra and Jhaptal with dugun
iv) To write the description of non detailed ragas: Multani, Kedar

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 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: Ability to sing 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, Jhaptal
**Books Recommended:**

8. *Sangeet Shastra Vigyan Sangeet Kala ka Itihas* : Panna Lal Madan

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

2. 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.

3. There should not be more than eight students in a batch for practical examination.
4. There would be up to 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 Table
(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

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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 table.
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 table.
(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 Charkradaar 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 : Yogmaya Shukla
7. Tabla Vadan Part-I : Jagmohan Sharma
8. Taal Parichay Part-I : G.C. Srivastava

Ten Books recommended other than already recommended
Aakrosh By : G.C. Srivastava
INDIAN CLASSICAL DANCE

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-2017

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. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
3. 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 which should not contain more than three technical terms 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.
4. Separate Practial paper shall be set for each semester from the syllabus prescribed for Practical Paper-B.
5. There should not be more than eight students in a batch for practical examination.
6. There would be up to ten students in one section in practical class.
7. No electronic instruments will be allowed for lehra in practical examination.

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. History of Kathak in detail.
3. Survey and essential characteristics of Bharta Natyam.
4. Survey of 13 Samyukta Mudras based on Abinaya Darpan

Unit-II

1. Life Sketch of Pt. Shambhu Maharaj
2. Importance of Gayan and Vadan in Kathak Dance
3. Guru Shishya Prampra
4. Definition of Bhava
Unit-III

1. Theka and Bol tatkar in Ekgun, Dwigun and Chaugun Layakar of Ada Chautal.
2. Notation of Salami, Amad and Tora in adachautaal.
3. Notation of Amad, Tora and Paran in Teentaal.
4. Write Nagma in Teen taal and Adachautaal.

Paper-B: PRACTICAL

I. Adachautal

1. Tatkar with Ekgun, Dwigun and Chaugun Layakari
2. Salami : 1
3. Tora : 2
4. Amad : 1
5. Nagma : 1
6. Tihai

II. Teentaal

1. Tatkar with Ekgun, Dwigun and Chaugun Layakari
2. Amad : 1
3. Tora : 2
4. Paran : 2
5. Nagma : 1

III. One Gat of Ghunghat

IV. Padhant of above mentioned material on hand in teen taal and Adachautaal

V. Ability of play Nagma in teentaal

VI. Theka of Ektaal in Ekgun Layakari on hand

VII. Practical Demonstration of Gidha.

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INDIAN CLASSICAL DANCE
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
3. 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 which should not contain more than three technical terms 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.
4. Separate Practical paper shall be set for each semester from the syllabus prescribed for Practical Paper-B.
5. There should not be more than eight students in a batch for practical examination.
6. There would be upto ten students in one section in practical class.
7. No electronic instruments will be allowed for lehra in practical examination.

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, Tisarjati Paran, Chatusrajati Paran.
2. Brief knowledge of Mohini Attam
3. Importance of Ghungroo in Kathak Dance
4. Knowledge of folk dance of Himachal Prades

Unit-II

1. Gharanas and their comparison
2. Merits and demerits of Kathak Dance
3. Contribution of Pt. Rajender Gangani ji in the field of Kathak Dance
4. Knowledge of Thumri
Unit-III

1. Notation of Theka and Bol-tatkar in Ekgun, Dugun and Chaugun Layakaries in Adachautaal and Teen Taal.
2. Notation of Paran, Chakardar Paran and Thaat in Adachautaal
3. Notation of Chakardar Tora and Kavit in Teen Taal and Nagma
4. Write Tihai in Teen Taal and Adachautaal
5. Theka of Ektaal in Ekgun and Dwigun Layakari

Paper-B: PRACTICAL

I. Adachautal
   1. Tatkar with Ekgun, Dwigun and Chaugun Layakari
   2. Paran: 1
   3. Chakardar Paran: 1
   4. Thaat: 1
   5. Tihai: 1

II. Teentaal
   1. Tatkar with Ekgun, Dwigun, Chaugun and Athgun
   2. Kavit: 1
   3. Chakardar Tora: 1
   4. Tihai: 1
   5. Nagma: 1

III. One Gat Nikas of Mataki

IV. Padhant of above mention material in teen taal and Ada Chautaal on hand

V. Ability to play Nagma in Ada Chautaal

VI. Theka in Ekgun and Dwigun Layakari of Ektal on hand

VII. Practical Demonstration of a Bhangra steps.

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FINE ARTS

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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 Miniaure 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></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: 90 marks</td>
<td></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. × 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).
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>Max. Marks</th>
<th>Max. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<td>30</td>
<td>5 hours</td>
</tr>
<tr>
<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)

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, 2016-17

SEMESTER-III

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 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, 2016-17
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:


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ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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:

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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:


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DEFENCE & STRATEGIC STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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

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 Tarraion, 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:

11. Sharma, Gautam, Indian Army through the Ages, University of Michigan, 1966.

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 Marks : 5

2. Viva Voce Marks : 5
DEFENCE & STRATEGIC STUDIES

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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 Compas 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

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HISTORY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

SEMESTER-III

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.

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 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; commercialization of agriculture; rural indebtedness; deindustrialization and 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: Gandhi’s emergence; circumstances leading to the non-cooperation movement and its significance; demand for complete independence; 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, Pondicherry, 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:

7. Gopal, S, (Pbi)
HISTORY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-2017

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 Khalsa and its significance; the new injunctions and symbols of the Khalsa.
5. Establishment of independent rule under Banda Bahadur; socio-economic transformation.
6. Role of Rakhi, Gurmata and Dal Khalsa 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:


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POLITICAL SCIENCE
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
SEMESTER-III

INDIAN GOVERNMENT AND POLITICS

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

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 (Art14-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:


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POLITICAL SCIENCE

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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:

1. Rajiv Sikri, Challenge and Strategy : Rethinking India’s Foreign Policy, Sage Publications, New Delhi, 2009.


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ECONOMICS

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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, 2016-17

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 × 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. Time Series Analysis: Components of Time Series, Determination of Trend, Least Square and Moving Average Method.
Books Recommended


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SOCIOMETRY
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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:


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SOCIOLOGY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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 × 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 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, Changing Trends.
Family – Meaning, Types, Structure, Function; Development Cycle and 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 – Features and Functions, Property, Division of Labour (Emile Durkheim).
Unit-IV

Cultural Institutions – Religion : Meaning, Types, Functions (Emile Durkheim & Max Weber).

**Essential Readings :**


**Further Readings :**

PUBLIC ADMINISTRATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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.
Civil Service: Meaning, Features, Classification and Functions.
Bureaucracy: Meaning, Characteristics, Demerits and Remedies.

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:

5. Government of India 2nd ARC : 10th Report (Refurbishing of Personal Administration – Scaling New Height)
PUBLIC ADMINISTRATION
B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
SEMESTER-IV

PAPER : FINANCIAL ADMINISTRATION (WITH SPECIAL REFERENCE TO INDIA)

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

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
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.
Estimates Committee.

Essential Readings

1. G.S. Lall : *Financial Administration in India* (Delhi: H.P.J.Kapoor, 4th ed.).

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, 2016-17
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:

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 Nervous System, Psychophysics, Learning and Memory. 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

Psychophysics
Thresholds; Psychophysical Methods of Limits, Constant stimuli and Average Error.

Unit III

Learning
Concept, Classical Conditioning, Operant Conditioning, Observational Learning.
Unit IV

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.

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. Maze Learning
4. Comparing Recall and Recognition as Measures of Memory
5. Retroactive Interference
6. Bilateral Transfer of Training

Books Recommended:

Essential Readings:


Reference Books:

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 them to the elementary statistics.

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

Paper: EXPERIMENTAL PSYCHOLOGY

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Time</th>
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<tr>
<td></td>
<td>70 marks</td>
<td>10 marks</td>
<td>3 Hours</td>
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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

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 II

Perception
Attentional Processes: Perception of Form, Space and Movement.

Unit III

Thinking and Problem Solving: Concept formation and Processes. 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

Four practicals have to be performed out of the following:

1. Division of Attention
2. Span of Attention
3. Effect of Mental set on Perception
4. Problem Solving
5. Familiarization with Passi’s Creativity Test
6. Concept Formation.

Books Recommended:

Essential Readings:


Reference Books:


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GEOGRAPHY

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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.
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, 2016-17
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:


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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

7. Mishra, Anil Dutta : Reading Gandhi, New Delhi (Dorling Kindersley, Pearson), 2012
Further Readings:


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JOURNALISM & MASS COMMUNICATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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 file of different types of news & features : 10 Marks
2. Design a page dummy of either a daily newspaper or a Sunday paper : 10 Marks
Books Recommended:

ESSENTIAL READING


ADDITIONAL READING

| 14 | Bell, James Scott, (2008), *Revision and Self Editing (Write great Fiction)*, Writers Digest Books, New York, |
| 17 | K. Tim Walkmeyer, (2009), *Online News Writing*, Wiley Blackwell, |
JOURNALISM & MASS COMMUNICATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
SEMESTER- IV

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. 10 Marks
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


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POLICE ADMINISTRATION

B.A. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

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, 2016-17

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, 2016-17

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:

- Bhasin, K. and Khan, N.S., Feminism and its Relevance in South Asia, Women Unlimited, New Delhi, 2013
- Chatterjee, Mohini, Feminism and Gender Equality, Aavishkar, Jaipur, 2005.
- Geetha, V., Theorizing Feminism, Stree, Kolkata, 2012.
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, 2016-17

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, 2016-17

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:


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ENVIRONMENT CONSERVATION
B.A. /B.Sc.(GENERAL) SECOND YEAR EXAMINATION, 2016-17
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>
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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

Section-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.

Section-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.

Section-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).

Section-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, 2016-17

SEMESTER-IV

Paper : SOLID WASTE AND DISASTER MANAGEMENT

<table>
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<tr>
<th>Theory Hours</th>
<th>Practical Hours</th>
<th>Theory Marks</th>
<th>Internal Assessment Marks</th>
<th>Practical Marks</th>
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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.

Section-I


Section-II

Disaster management: Natural disasters: floods, earthquakes, Tsunami, land slides, drought, forest fire and Tropical cyclones.

Disaster management: pre-disaster phase, actual disaster phase, post- disaster phase.

Section-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.

Section-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


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**HOME SCIENCE**

**B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17**

**SEMESTER- III**

### Scheme of Examination

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<th>Paper</th>
<th>Time in hrs.</th>
<th>Marks Adjusted</th>
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<th>Total Marks</th>
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<td></td>
<td>6</td>
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**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
2. Manufacture and Properties of fibres:
   Cotton, Silk, Wool, Nylon.

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)

Maximum Marks : 50
Paper : 40
Internal Assessment : 10
Time : 6 periods/week

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.
SEMESTER-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.


AGRICULTURE (ELECTIVE)

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATIONS, 2016-17

SEMESTER-III

Paper – A : 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 have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Section B, C, D and E shall have two questions each from respective Units, out of which one from each section is to be permitted. 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 Gentically 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:


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AGRICULTURE (ELECTIVE)

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATIONS, 2016-17
SEMESTER-IV

Paper – B : 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 have five sections.
3 Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4 Section B, C, D and E shall have two questions each from respective Units, out of which one from each section is to be permitted. 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
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, 2016-17
SEMESTER-III

Paper-I : ADVANCED CALCULUS-I

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 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
9. Shanti Narayan : A Course of Mathematical Analysis, S. Chand and Company, New Delhi

**Paper II : DIFFERENTIAL EQUATIONS- I**

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**


**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. 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

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
MATHEMATICS

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

SEMESTER-IV

Paper I: ADVANCED CALCULUS II

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
<tr>
<td>Int. Assesment</td>
<td>4 Marks</td>
</tr>
</tbody>
</table>

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

Paper II: DIFFERENTIAL EQUATIONS- II

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


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 Transformation-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. 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

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

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COMPUTER SCIENCE

B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

SEMIESTER-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>
<th>Lectures per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-A03</td>
<td>Theory</td>
<td>Object Oriented Programming (Using C++)</td>
<td>3</td>
<td>65</td>
<td>10</td>
</tr>
<tr>
<td>Paper-PA03</td>
<td>Practical</td>
<td>Practical Based on Paper-A03</td>
<td>3</td>
<td>25</td>
<td>--</td>
</tr>
</tbody>
</table>

Note: Practical marks will include the appropriate weightage for proper maintenance of lab. record.

Paper-A03: Object Oriented Programming (Using C++)

Objective:
This course enables students to appreciate the concepts of OOP using C++ and to understand linear & non-linear DS.

Note:
(i) The question paper will consist of four sections & a compulsory question.
(ii) Examiner will set total of nine questions comprising two questions from each section and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each section and the compulsory question.
(iv) All questions carry equal marks unless specified.

SECTION-A


2. Structure of a C++ Program: Include files, Declaration of an object, Main function, I/O streams.

3. 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, Arrays of Objects, Objects as function arguments: Pass by value, Pass by Reference, Pointers to Objects.
SECTION-B

4. *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.


SECTION-C


7. *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.

SECTION-D

8. *Polymorphism*: Definition, early binding, virtual functions, late binding, pure virtual functions.

9. *File handling*: Opening and closing a file, stream state member function, binary file operations, structures and file operators.

References:

3. E. Balaguruswamy : *Object Oriented Programming with C++*, TMH.
4. Herbert Schildt : *Schildt’s Advanced Win 95 Prog. in C & C++*, TMH.
5. Herbert Schildt : *C++ The Complete Reference*, TMH.

Paper-PA03: Practical: Practical based on Paper-A03
COMPUTER SCIENCE
B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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>
<th>Lectures per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-A04 Theory Computer Organization &amp; Architecture</td>
<td>3</td>
<td>65</td>
<td>10</td>
<td>75</td>
<td>6</td>
</tr>
<tr>
<td>Paper-PA04 Practical Practical Based on Paper-A04</td>
<td>3</td>
<td>25</td>
<td>--</td>
<td>25</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:** Practical marks will include the appropriate weightage for proper maintenance of lab. record.

**Paper-A04 : Computer Organization & Architecture**

Objective: The course is designed to provide inside details of computer system including processor, memory card & I/O devices and to solve problems using Assembly Language Programming.

**Note:**
(i) The question paper will consist of four sections & a compulsory questions.
(ii) Examiner will set total of nine questions comprising two questions from each section and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each section and the compulsory question.
(iv) All questions carry equal marks unless specified.

**SECTION-A**

1. **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.

**SECTION-B**


**SECTION-C**

4. **Microprocessor**: Architecture of 8086/8088 Processor Model; Instruction Set; Addressing Modes: Registers used in Microprocessor.

5. **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.
SECTION-D

6. **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.

**References**:


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

STATISTICS
B.A./B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
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 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 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

SECTION-I


Statements and sampling distributions of chi-square, t & F distributions and their relationships.
SECTION-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 = p0.

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, 2016-17
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

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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

SECTION-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.

SECTION-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)

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. 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.
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 are two papers code named Papers A and B in the subject of Applied Statistics in B.A./B.Sc., each of one credit and having a total of 100 marks. These are to be taught simultaneously throughout the year.
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.

**Paper-A : MATHEMATICAL METHODS-II**

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

**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 section. The candidates will be required to attempt five (5) questions in all including the compulsory first question and two questions from each section.

**SECTION-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).

**SECTION-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 :

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 are two papers code named Papers A and B in the subject of Applied Statistics in B.A./B.Sc., each of one credit and having a total of 100 marks. These are to be taught simultaneously throughout the year.
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.

Paper-B: STATISTICAL METHODS

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

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 section. The candidates will be required to attempt five (5) questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

SECTION-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.
SECTION-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).


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PHYSICS

B.Sc. (GENERAL) SECOND YEAR (3rd and 4th Semester) EXAMINATION, 2016-17

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the papers is allocated 25 marks including 3 marks for the Internal Assessment.

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 be 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:

<table>
<thead>
<tr>
<th>Paper</th>
<th>Topic</th>
<th>Total Teaching hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper A</td>
<td>Statistical Physics and Thermodynamics – I</td>
<td>30</td>
</tr>
<tr>
<td>Paper B</td>
<td>Optics and Lasers – I</td>
<td>30</td>
</tr>
<tr>
<td>Paper C</td>
<td>Quantum Physics-I</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Physics Practical</td>
<td>45</td>
</tr>
</tbody>
</table>

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


Books Suggested:

Essential Readings:


Further Readings:

Paper-B : OPTICS AND LASERS-I

(30 Hrs.)

UNIT-I

Interference : Concept of coherence, spatial and temporal coherence, coherence time, coherence length, area of coherence. Conditions for observing interference fringes. Interference by wavefront division and amplitude division. Young’s double slit experiment. Lloyd’s mirror and Fresnel’s biprism, phase change on reflection. Michelson interferometer—working, principle and nature of fringes. Interference in thin films, Role of interference in anti-reflection and high reflection dielectric coatings. Multiple beam interference, Fabry-Perot interferometer, nature of fringes, finesse.

UNIT-II

Diffraction : Huygen-Fresnal theory half period zones, zone plates. Distinction between Fresnel and Fraunhofer diffraction. Fraunhofer diffraction at rectangular and circular apertures. Effects of diffraction in optical imaging, resolving power of microscope, telescope, Fabry-Perot interferometer. The diffraction grating, its use as a spectroscopic element, resolving power, Moire’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.
**Paper-C : QUANTUM PHYSICS-I**  

**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 Brogile waves, wave pocket, 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.

(iii) Fundamental postulates of quantum mechanics. Eigenvalues and eigenfunctions. Operator  
formalism, Position, momentum and energy operators, expectation values, Ehrenfest theorem,  
Hermitian operators.  
(Chapter 5 of book 1 and book 2)

**UNIT-II**

**Problems in One and Three Dimensions :**

(i) 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.

(ii) Schrodinger equation for spherically symmetric potential, spherical harmonics, hydrogen atom  
ergy 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 Nine experiments choosing either of the Units I or Unit II in each semester. The unit of experiments allocated in the third semester cannot be repeated in fourth semester. The college must keep a record of the unit allocated to each student. In the fourth semester examination, the students are expected to bring their Practical Note books of both the semesters.

General Guidelines for Physics Practical Examinations :

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). 10
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 4
   (iii) Viva-Voce 5
   (iv) Record (Practical file) 3
   (v) Internal Assessment 3

   Total : 25 marks

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 wave length 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 wave length 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>Subject</th>
<th>Total Teaching hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Statistical Physics and Thermodynamics – II</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>Optics and Lasers –II</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>Quantum Physics-II</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Physics Practical</td>
<td>45</td>
</tr>
</tbody>
</table>

Paper A : STATISTICAL PHYSICS AND THERMODYNAMICS-II  
(30 Hrs.)

UNIT-I

Statistical definition of entropy, change of entropy of a system, additive nature of entropy, law of increase of entropy, reversible and irreversible processes with examples. Work done in a reversible process. Examples of increase of entropy in natural processes. Entropy and disorder. 

UNIT-II

Derivation of Maxwell’s thermodynamical relations, cooling produced by adiabatic stretching, adiabatic compression, change of internal energy with volume. Expression for \( (C_p - C_v) \), change of state and Clayperon Equation. Thermodynamical treatment of Joule-Thomson effect. Use of Joule-Thomson effect for liquification of helium. Production of very low temperature by adiabatic demagnetisation.

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* : Mechanism of light emission, Wave mechanical explanation, Concept of spontaneous and stimulated emission, Properties of Spectral lines, Temporal and spatial coherence, Qualitative account of Collisional broadening, Doppler broadening & Natural broadening, Mechanism of Luminescence.


UNIT-II


*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.

(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 :


Further Readings :

2. *Atomic and Molecular Spectra*, Rajkumar (Kedarnath Ramnath Prakashan, Meerut).
PHYSICS PRACTICALS

The students are required to perform Nine experiments choosing either of the Units I or Unit II in each semester. The unit of experiments allocated in the third semester cannot be repeated in fourth semester. The college must keep a record of the Unit allocated to each student. In the fourth semester examination, the students are expected to bring their Practical note books of both the semesters.

General Guidelines for Physics Practical Examinations:

<table>
<thead>
<tr>
<th>Component</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>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>10</td>
</tr>
<tr>
<td>One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester</td>
<td>4</td>
</tr>
<tr>
<td>Viva-Voce</td>
<td>5</td>
</tr>
<tr>
<td>Record (Practical file)</td>
<td>3</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 25 marks

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.
   XII. To determine the wave length 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 wave length 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. Motion of a projective using computer simulation.

Text and Reference Books:
2. B.Sc. Practical Physics, C.L. Arora (S. Chand) & Co. (2014)
4. Programming with C, Schaum series by Byron Gottfried & Jitender Chhabra

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CHEMISTRY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

Scheme of Teaching and Examination

SEMIESTER-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

SEMIESTER-IV

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
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<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>
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</tr>
<tr>
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<td>Physical Chemistry-B</td>
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</table>

Total 15 periods/week 100

Total Marks

<table>
<thead>
<tr>
<th>SEMESTER-III-</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMESTER-IV-</td>
<td>100</td>
</tr>
</tbody>
</table>

200
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. magentic 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  

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.

UNIT-II  

Alcohols and Phenols:
Classification and nomenclature


UNIT-III  

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-IV  

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, LiAIH$_4$ and NaBH$_4$ reductions.

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 (8 Hrs.)

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 (7 Hrs.)

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 (8 Hrs.)

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 ΔH 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)


SEMESTER-IV

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
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<th>Max. Marks</th>
</tr>
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</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

(7 Hrs.)

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 Acids:

Method of formation and chemical reactions of unsaturated monocarboxylic acids.

Dicarboxylic Acids: Methods of formation and effect of heat and hydrating agents.

UNIT-II

(7 Hrs.)

Carboxylic Acid Derivatives:

Preparation of carboxylic acid derivatives, chemical reactions. Mechanisms of esterification and hydrolysis (acidic and basic).

UNIT-III

(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-IV

(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.

**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

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

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.


UNIT-II

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

Electrochemistry-II:
UNIT-IV (7 Hrs.)

Electrolytic and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells.


**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 $R_f$ 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, 2016-17

Third Semester

Theory Paper-A: Diversity of Seed Plants and their Systematics-I
3 hrs. 36 04 40

Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-I
3 hrs 36 04 40

One practical pertaining to entire syllabus included in both theory papers
3 hrs. 18 02 20

Fourth Semester

Theory Paper-A: Diversity of Seed Plants and their Systematics-II
3 hrs. 36 04 40

Theory Paper-B: Structure, Development and Reproduction in Flowering Plants-II
3 hrs 36 04 40

One practical pertaining to entire syllabus included in both theory papers
3 hrs. 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.
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

Max. Marks: 20
Practical : 18
Int. Assess. 02
Time : 3 hours

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

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

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

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ZOOLOGY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

SEMESTER-III

<table>
<thead>
<tr>
<th>Paper-I</th>
<th>Biodiversity (Chordates) &amp; Evolution-I</th>
<th>40 (36+ 4 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-II</td>
<td>Biochemistry &amp; Animal Physiology-I</td>
<td>40 (36 + 4 marks)</td>
</tr>
<tr>
<td>Practical</td>
<td>(Covering the entire syllabus) of 4 hours duration</td>
<td>20 (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)

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

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, Doliolum, 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 : Zygiaena (Hammer headed shark), Pristis (saw fish), Narcine (electric ray), Trygon, Rhinobatis and Chimaera (rabbit fish).
Actinopterygii : Polypterus, Acipenser, Lepisosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.
Dipneusti (Dipnoi) : 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 : Zygaena (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. Familarity 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 labeled 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)
ZOOLOGY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17
SEMESTER-IV

Paper I: Biodiversity (Chordates) & Evolution – II 40 (36 + 4) marks
Paper II: Biochemistry & Animal Physiology-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) 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, Crocodilus, 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)

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BIOCHEMISTRY

B.Sc. (GENERAL) SECOND YEAR EXAMINATION, 2016-17

Scheme of Examination

SEMESTER-III

<table>
<thead>
<tr>
<th>Paper</th>
<th>Duration</th>
<th>Marks + internal assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Carbohydrates and Lipid Metabolism</td>
<td>3 hrs.</td>
<td>45 + 5</td>
</tr>
<tr>
<td>Theory Paper B: Protein &amp; Nucleic acid metabolism</td>
<td>3 hrs.</td>
<td>45 + 5</td>
</tr>
<tr>
<td>One Practical examination pertaining to the entire syllabus included in Theory Papers A and B</td>
<td>3 hrs.</td>
<td>22 + 3</td>
</tr>
</tbody>
</table>

Total marks: 125

SEMESTER-IV

<table>
<thead>
<tr>
<th>Paper</th>
<th>Duration</th>
<th>Marks + internal assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper-A: Advanced Biochemical Techniques</td>
<td>3 hrs.</td>
<td>45 + 5</td>
</tr>
<tr>
<td>Theory Paper-B: Membrane Biochemistry</td>
<td>3 hrs.</td>
<td>45 + 5</td>
</tr>
<tr>
<td>One Practical examination pertaining to the entire syllabus included in Theory Papers A and B</td>
<td>3 hrs.</td>
<td>22 + 3</td>
</tr>
</tbody>
</table>

Total marks: 125

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, Biosynthesis of Ascorbic acid.
SECTION-II

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

Lipid biosynthesis
Biosynthesis of saturated and unsaturated fatty acids. Biosynthesis of triglycerides and phospholipids

SECTION-IV

Biosynthesis of Cholesterol and other lipids
Cholesterol biosynthetic pathway. Biosynthesis of cerebrosides; sulfatides and gangliosides. Biosynthesis of Prostaglandins, Thromboxanes, Leukotrienes, Lipoxins and Prostacyclins.

Books:

Paper B: Protein & Nucleic acid metabolism
Marks: 45+5

Objective: To learn about digestion and absorption of protein & nucleic acid and major metabolic pathways pertaining to them.

SECTION-I

Digestion of Proteins

SECTION-II

Catabolism of Carbon skeletons of Amino acids
Glycine and 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

Biosynthesis of Nutritionally non-essential amino acids and polyamines
Glutamate and Glutamine, Aspartate and Asparagine, Proline, Alanine, Cysteine & Selenocysteine, Tyrosine, Serine, Glycine. Biosynthesis of glutathione, creatinine, nitric oxide and polyamines
SECTION-IV

( Lectures 9)

Nucleic Acids

Books:


PRACTICALS: Marks : 25
One Practical of three hours per week

2. Isolation and assay of glycogen from rat liver.
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

Objective: To understand the principles and applications of cell biology techniques, spectroscopic, radioisotopic & spectrometry techniques.

SECTION-I

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

Fluorescence spectroscopy: Principle, applications of Fluorescence activated Cell Sorting (FACS), Fluorescence in situ hybridization (FISH), Fluorescence immunoassay.

SECTION-III

Radio isotopic Techniques:


SECTION-IV

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, Benzamin Cummings, 1985
5. Various review articles.

**PRACTICALS:**

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, 2016-17

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>
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<tr>
<td>THEORY</td>
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<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>
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<tr>
<td>One Practical pertaining to the entire syllabus included in Theory Papers MIC 301 and MIC 302</td>
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<td>25(20+5*)</td>
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SEMESTER-IV

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<tr>
<td>MIC 401 : Introduction to Medical Microbiology-II</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
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<tr>
<td>MIC 402 : Introductory Immunology-II</td>
<td>3 hrs.</td>
<td>37.5(33+4.5*)</td>
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<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>
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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 ABYANCE)
SYLLABI

FOR

B.A. & B.Sc. (GENERAL) THIRD YEAR (SEMESTER SYSTEM) EXAMINATIONS, 2016-2017
(SEMESTER : FIFTH AND SIX)

i.e

Fifth Semester : November/December, 2016
Sixth Semester : April/May, 2017

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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 2016 AND SIXTH SEMESTER APRIL/MAY 2017, 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, Ed., K. Elango, Hyderabad:
Orient Blackswan, 2009:

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. 10Marks

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.  

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  

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.

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.

Q.5 (a) Idioms and Phrases to be used in sentences. **ten out of fifteen**  

(b) One word substitution – **ten out of fifteen**
भाषाई (कलामी)
(बी दे जय दीनत 2016 दे सिक्किम रक्षक)
(बी दे विद्यालय विधान)

मान्यता पानर्ण

प्रतिभाघन

1. मंदिराचार्य भाषाई विषय छा अभ्यासक 20

2. पैदा उत्तर

3. लिखी 

4. विश्लेषण नो निर्देश

वेळा

1. मंदिराचार्य भाषाई वाचा घट वा (मंड) अभ्यास, मिश्रित विषयांना  बियरूळे, भाषानु चूकिटभित्ती, चूकिटभीता।

पुनित प्रश्न प्रपन

1. (ढ) मंदिराचार्य भाषाई वाचा घट पूर्ण (वेळ किंवा विषय) (वेळ किंवा विषय) 5 अंक

(ए) विषय छा नाही ची अभ्यास अने (वेळ किंवा विषय) 5+5=10 अंक

2. वाचा-अभ्यास वेळ संपूर्ण पूर्ण (पूर्ण किंवा मार्ग दोन वेळ नाही)
(अंक पूर्ण किंवा वेळ दोन पूर्ण किंवा)

3. पैदा उत्तर (कर्नका 250 सप्ताहाने विषय)
(अतीती गूढम, नीति तपास अधिकी नीति दे उत्तरे इतरं विषय ताल संपूर्ण)
(विषय विषय विषय वेळी विषय विषय विषय विषय)

4. लिखी संध्याकाळी नाहीमुळे घटात:
लिखी संध्याकाळी, नाही दे विश्लेषण,

5. विश्लेषण: निर्देश ने विश्लेषण

(i) राचिस, नंदराचिस ने विषय काळांच्या घटात वेळां वाचा 6 अंक
(वेळ पूर्ण किंवा वेळी विषय पूर्ण वेळ)

(ii) विश्लेषण पूर्ण (वेळ पूर्ण किंवा वेळी वेळी वेळ पूर्ण वेळ)
2+2=4 अंक

हेट: पेपर नीट्टी दर्शने पुनितभवत मार्गांना दे अभ्यास ने वी मिश्रित सप्ताह पूर्ण नाही।

.........................
विश्वविद्यालय (पश्चिमी)  
वी दे ब्रह्मचर्य अधिवेशन 2017 के विबंधक रचना  
(वी.पी. दे विद्यालयकी रचना)  
माननीय संस्थान छात्रां  

पपस्कूल  

1. संवाद दा अध्यापक 20 मंच  
2. अध्याद्वेशन लड़ी पूम रेट 10 मंच  
3. गृहनयी शिष्य 5 मंच  
4. विभागकर्ता : मिश्रित अंतर रेट 10 मंच  

वेक्का  

1. अंदु बजी दा रात, गुरुमुखी शिख, लेखकी दुर्गा लड़ा, चंद्रीचुंड।  

युक्तिः अंदु शीष  

1. (ए) अंदु बजी दा रात पूमाव विचे पूमा मौड़ विशेष विभागकर्ता (दे विचे दिचा) 5 मंच  

(प) संवाद दा मंच, दिचा दे पूमाव दिचा (दे विचे दिचा) 10 मंच  

2. संवाद दे संवाद वृक्षां दे पूमाव (छुट्टिया संवाद दे हमला दे वेद  

(अंदु पूम दिचे भन्न दे छुट्टिया दिचा) 5x1 = 5 मंच  

3. अध्याद्वेशन लड़ी पूम रेट विभागकर्ता : वर्णक दीया मौड़, विभागकर्ता, 8 मंच  

नेलँ अंदु अध्याद्वेशन लड़ा समेत मौड़ मंचकीली घरेलु। (संवाद 200  

स्वर्ण दिचा)  

रेट : मिश्रित विचे पूम रेट विभागकर्ता लड़ा दी दिचा दे  

4. गृहनयी शिष्य दी भंडारी वर- वडा़: 7 मंच  

गृहनयी शिष्य दा संवादक, गृहनयी शिष्य दी भंडारी ब्रह्मचर्य लड़ी अत्युप,  

पूमाव विभागकर्ता, संवादक दी विभागीय दब । (दिचा दिचे दिचा मौड़)  

5. विभागकर्ता : मिश्रित अंतर देवाव  

(1) दब दे दुपुरक दी विभागीय दब: दब लड़ा दे चावन  

वर-वडाँ: मौड़, मंचकीली दे मौड़ दब  

वर-वडाँ: पूमावानी, अध्याद्वेशन दे विभागीय दब 6 मंच  

(दे पूमाव दिचे बही दिचा पूमाव चावन)  

(2) दिचा दिचा दब: (दब पूमाव दिचे बही दे पूमाव चावन) 2+2=4 मंच  

रेट : भंडारी दे दुपुरक दब: दुपुरक दब दे चावन मौड़ मंचकीली दा आधार चावन दे ची  

संवाद मंचके पूले मौड़।
संगठित ध्यानदायिका:

1. उपवीड ग्रंथ (डा.), 'बालक भाषागत विभाग', धनात्मक मेट ओलिवियामटी टेलमाट । वेब, 2012.
2. मुख्यविद्युत ग्रंथ (डा.), भाषागत विभाग, धनात्मक भाषा अध्ययन, नालापुर, 1997.
3. संस्थान वर्कशी, 'भाषागत विभाग के लिए बुध ध्यान', उपरीत मार्क, धनात्मक, 2012.
4. भाषागत मंचन पोलिस भाषागत, धनात्मक मेट ओलिवियामटी टेलमाट । वेब, 2012.
5. अध्ययन ज्ञान (डा.), 'भाषागत विभाग, निर्माण एवं हिंदी', वेब, 2008.
6. वार्षिक मेट ध्यानमंथ ग्रंथ (डा.) 'निर्माण भाषा विभाग', भाषा ध्यानमंथ, पटियाला, 2002.
7. भाषागत पुस्तक, केंद्र, धनात्मक विभाग विभाग, इतिहास ध्यानमंथ, नालापुर, 1981.

रेट: 1. टेलमाट नहीं उद्ध दे ये ही पीढ़ीबाट।
2. वेबपीढ़ीमा उद्ध 25-30 विभागाबाट के गाउँ नहीं उद्ध दे ये विन ओलिवियामट।
3. उद्ध दे 6+3=9 पीढ़ीबाट।

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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 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: Namdharis; 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.

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 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:


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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)

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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
हिंदी (एचसी)

बी0 ए70 (सामाजिक तृतीय वर्ष) सेमेस्टर-5

पूर्णांक 90+10=100
समय- 3 घंटे

1. कुरूक्षेत्र

रामधारी सिंह ‘दिनकर’ प्रकाशक-राजपाल एण्ड संस्करण, नई दिल्ली।

(क) 6-6 अंकों की दो संदर्भ सहित व्याख्याएं करनी होगी।
कुल चार काफ्यांश दिए जायेंगे।
(ख) 15 अंकों का एक आलोचनात्मक प्रश्न करना होगा। कुल
dो प्रश्न पूछे जाएंगे।
अंक-27

2. सामीला सिस्टम:

क. काव्य की परिभाषा तथा भेद, महाकाव्य, संस्कृतकाव्य, गीतिकाव्य
की परिभाषा तथा विशेषताएं
ख. गह विधाएं-विधि, संस्करण, जीवनी तथा आलमकाय के
स्वरूप और तत्त्व का सामाजिक परिचय।
अंक-30

उपर्युक्त खंडों क ख में से संबंधित 15-15 अंकों के चार प्रश्न
पूछे जाएंगे इतने से केवल दो उत्तर देने होंगे।

3. अलंकार:

केवल निझनलिखित अलंकार नियमित है।
अनुप्रास, यमक, श्लेष, वकोफिल, उपभा, रूफक, अतिशयोफिल,
विशोधभास, उद्रोक्त, वस्ती ।
6 x 3 =18

4. लघुसाहित्यपेशी:

प्रश्न दो खंडों (कुरूक्षेत्र एवं सामीला सिस्टम)
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 पुस्तकें:

1. हिंदी का आलमका-साहित्य, विश्वबंधु, व्यित्र राय पाहलकेश्व, नई दिल्ली
2. काव्य के तत्त्व, आचार्य देवेंद्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद

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पूर्णांक 90+10=100
समय- 3 घंटे

1. विनिय संबंध (केंद्र साहित्य और सामाजिक विषयों पर)
कुल आठ विषयों में से किसी एक विषय पर लिखने के लिए कहा जाएगा।
अंक-20

2. ग्रां फुलवारी, समाप्ति शंकर शहीदुद्दीन शेखा, प्रकाश-राजपाल एंड ग्या सम्बन्ध, नई दिल्ली।
केंद्र ज्ञान्वित पाठ विश्वासित है।
अंक-16

'आयुधों का होली' (प्रेमकृत), 'अकेली' (भावर), 'चीफ की दांत' (भीमबर नानजी)  
'सुनामी' (रामबुध बेंजीपुरी) 'भाव' (भावकारी वर्मा), 'सरायर का साथी' (बारनकर  
परिसर), महाल्मा गांधी' (रामकुमार वर्मा), 'मैं दीवार हूँ' शिवपुरजन सहाय, 'ग्रां-शा'  
(नामय रंग), 'जनम जी' का वाण' (विजय भाऊ)

(क) 6 अंकों की एक सांभर सहित व्याख्या करनी होगी। कुल दो व्याख्याएं पूरी जाएंगी।
(ख) 10 अंकों का एक समीक्षात्मक प्रश्न जरूरी होगा। कुल दो प्रश्न पूछे जाएंगे।

3. हिंदी साहित्य का इतिहास
केंद्र ज्ञान्वित ग्रां-विषयों का उद्धव और विकास : उपन्यास, कहानी,  
नाटक, निबंध, आलंकार, जीवनी, संस्कृत, रेखाचित्र।
इन ग्रां-विषयों में से 12-12 अंकों के कम से कम चार प्रश्न पूछे जाएंगे,
छात्रों को केंद्र दो प्रश्नों के उत्तर लिखने होगे।
अंक-24

4. छंद-परिवर्तन- ज्ञान्वित छंद निःशरीरित है।
दोहा, सोनरखका, चीर्य, रोटा, कुंडलित चम्का, संबंध, दुरविरुध्द, हरिगृहित, उपन्यास, इद्देश्वर।
पंडे छन्दों के लक्षण और उद्देश्य पूछे जाएंगे, जिनमें से तीन का उत्तर देना होगा।
अंक-15

5. हिंदी भाषा और उसकी लिपि  
देवनागरी लिपि : विकास, कुच दोष, सुधार के उपाय 10 अंकों के सुन दो प्रश्न पूछे जाएंगे, जिनमें से  
केंद्र एक प्रश्न का उत्तर देना होगा।
अंक-10

6. विशेष योजना, प्रेस, विज्ञापन, विज्ञापन का प्रायोजन तैयार करना।
दो प्रश्न पूछे जाएंगे, छात्रों को एक प्रश्न का उत्तर देना होगा।
अंक-5

आंतरिक सूचीकरण
अंक-10

सहायक पुस्तकों:
1. हिंदी का आलमकाना-साहित्य, विश्वभूमि, व्यविध राचा परिचयांक, नई दिल्ली
2. काल्पनिक तत्त्व, आचार्य देवेन्द्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद
प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिन्दी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।

- ईश्वर, त्याग, कर्म, किर्ष, अन्नयोग, अन्नयोग, अन्नयोग आदि अन्तर्दोभीत कायाकल्पना का अध्ययन कराना।
- आदि कायाकल्पना रामायण तथा लोकीकृत कायाकल्पना के संस्कृत का दिर्दर्शन कराना।
- संस्कृत के समुद्र शब्दमण्डल द्वारा छात्रों में संस्कृत के प्रति रुचि उत्पन्न कराना।
- पत्र का अध्ययन सम्पन्न नी मीरिया प्रत्यक्षारो (प्रत्यक्षारो) प्रति सतत होगा, जिसमें तीन मीरिया कम्प्यूटरिक्षण के होंगे।
- सभी प्रश्नों में शाला-प्रशान्त अथवा नीतिद्वारा विश्लेषण आवश्यक है।

ईशोपनिषद्

(1) मन्त्र/मन्त्रांश का अनुवाद एवं व्यास्त्रा 1x10=10अंक
(2) समीक्षात्मक प्रश्न सुत्र तथा व्यास्त्रा 1x10=10अंक

(ड) वाचनिक रामायण (सुन्दरकाण्ड, सर्ग-15, गीता प्रेस गोरखपुर) ओळक व्यास्त्रा 2x7½=15अंक
(ए) वाक्याश्रित संस्कृत शब्दावली: वाच्य, व्यक्ति एवं युद्ध सम्बन्धी (15 में से 10 शब्दों की संस्कृत
1x10=10अंक

1. उत्तर – अवरोह:
2. चतुरा-आरोह
3. जलतरंग-जलततरंग
4. हिटोरा - दिव्यन्त
5. दोल - ददह:
6. दोलक: - दोलक
7. तवता - मुतजः
8. तानपुरो - तानपुरोः
9. तुर्ती (शहनाई) - तुर्ती
10. नगण्डा - नुड़ुभि:
11. पिपानो - तन्त्रावधामः
12. बांसुरी - मुर्ती
13. मेंजीरा-मंजीरीमः
14. सांग्री (तपक्यन्त)-सांग्री
15. सितारा-वीणा
16. हरमानोधम-मनोहरावधामः
17. गैंड़-गैंड़कः
18. तेनिस का खेल-टेनिस-क्रोड़ा
19. नेट्-जालमः
20. फुटबॉल-पार्कनुकः
21. बैड मिंटन-पत्रिक्रोड़ा
22. मैच-क्रोड़ाकायतियोगिता
23. रेकर्ड-नियाण्यकः
24. रेलवे-कायपरिवर्तकः
25. वादीवालेक्ष्यन्तुकः
26. हाली का खेल-पार्कनुकः
27. विमुख-संहारस्त्र
28. फॉलोवर-मन्त्र: स्वरः
29. तीव्रता-तारः-स्वरः
30. मध्यमन्त्र- मध्यमन्त्र: मध्यमन्त्र:
31. पद्मम-परमाणु अन्तःमः
32. कर्म-वर्मनः
33. कृष्ण-अतिः
34. गण्डासा-तीमः
35. गदा- गदा
36. गोली-गुलिका
37. खाली-नितिवर्मः
38. टीपर गेंड-पुरावधामः
39. तेप-शालसी
40. जल सेनानिति-मूर्तिनायकः 41. धल सेनानिति- मूर्तिनायकः 42. वायुसेनानिति-वायुसेनानायकः
43. घणुपु- घणुपु, कोटुण्डः, चापम, कामुकमः 44. पिल्लीत-लघुभुजुणिनः 45. बनृक-भुजुणिनः
46. दम-आरायणः 47. हाथ्यायजन दम-जलपरामणवधमः 48. बाहुद-अभियुक्तः
49. लडाई का जहाज-युद्धपोतः 50. लडाई का विमान-युद्धविमानः

(च) विस्मृति सभ्य्य 5x1=5अंक
(ड) अवयेविभाव समास 5x1=5अंक
(च) अर्थाकार : उपमा, उल्लेख, रुपक, विभावना, विशेषणिकी तथा विशेषार्थसमास 2x7½=15 अंक
(तीन में से दो के रक्षण, उद्भारण व उपरीतकरण प्रश्न है।)
(छ) वैदिक इतिहास (लघु प्रश्न/टिप्पणिः) 2x5=10अंक
(i) वेदों का सामान्य परिचय 2x5=10अंक
(ii) वेदांग साहित्य का सामान्य परिचय
(ज) हिन्दी से संस्कृत में अनुवाद (10 में से 5 वाक्य) 5x2=10अंक

……………………
संकृत (इलेक्ट्रिव)
6th Semester

Paper - Sanskrit :
लोकिक भाषा, शिक्षा, निकल्य व व्यक्तरण
(आंतरिक परीक्षा- 10, लिखित परीक्षा- 90)

पूर्णक: 90+10=100 अंक
समय-3 घण्टे

निदेश तथा उद्देश्य-
• प्रश्न पत्र का माध्यम हिंदी होगा। उत्तर का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
• लोकिक काल्पन के रचनासीमा से परिचय कराना।
• संस्कृत के समूह शाखामंडल से छात्रों में संस्कृत के प्रति रुचि उत्पन्न करना।
• पत्र का अध्ययन समय नी पीरियड (प्रतिवर्ष) प्रति सत्रां होगा, जिसमें तीन पीरियड कम्पनी शासक के होंगे।
• सभी प्रश्नों में वात-प्रतिक अथवा निदित्त्र विकल्प आवश्यक हैं।

(क) रघुवंश (पथ्य संग्रह) - काफिदास
i) शोधनों का सामान्य अनुवाद व व्याख्या 2x10=20अंक
ii) सूक्ष्म-संस्करण व्याख्या (तीन में से एक) 1x10=10अंक
(iii) सामाजिक प्रश्न लेखकपरिचय, रचनाएं व रघुवंश (पथ्यसंग्रह) में प्रतिपादित बिषय 1x5=5अंक

(क) संस्कृत शब्दावली : सम्बन्धकृतक एवं प्रदाशसनिक शब्द 10x1=10अंक

1. पिता/माता - जनक:, /जमनी 2. चाचा, चाची-पितृतव्य:, पितृतव्य
3. पति, पत्नी-पति:, पत्नी (भाभी, जाया) 4. नाना, नानी-मातामह:, मातामही
5. छोटा भाई, बड़ा भाई-अजुन:, अजज़: 6. दादा, दादी-पितामह:, पितामही
7. पुत्र, पुत्री-पुत्र:./आतंज़:, पुत्री/आतंज़ा 8. जीजा-भगिनीपतिह: 9. जेवाई (दामाद)-जामाता 10. देव, देवरानी-देवर: याता
11. मामा, मामी-मातूल:, मातूली 12. साता, साती-स्याल: (स्यालः), स्याली (स्याली)
13. सात, सतत्र-वधुः, वधुर: 14. समस्री (क्रुडम), समस्रीन (क्रुडमनी) -समस्री, समस्रीनी
15. पोता, पोती-पित्र:, पितृ 16. भातीजा, भातीजी-आतुपुत्र(आतुपुत्रा) /आतुपुत्रा; आतुपुत्रा /आतुपुत्रा
17. भानुजा, भानूनी-भागिनीय:, भागिनीयी 18. चचेता भाई, चचेती पितृतव्यपुत्र, पितृतव्यपुत्री
19. भाभी-आतुपुत्रा 20. Administration-प्रशासनम
23. Ban-प्रतिबन्धः 24. Cabinet-मक्षिकाधल्म्
25. Corporation-निगमः 26. Director-निदेशकः
27. Employment-अनुपूर्ति, वृत्ति:

28. Initials-आचार्यरूप

29. Judgement-निर्णय:

30. Gazetted Officer-राजविभागाध्यक्ष

31. Notification-घोषणा/अधिसूचना

32. Procedure-कार्यक्रम

33. Receipt-प्रमाण

34. Senior-विचार

35. Subordinate-अधीनस्थ

36. Transfer-स्थानान्तरण

37. Vacancy-रिश्ता

38. Character Certificate-चरित्रप्रमाणपत्र

39. Civic-नागरिक:

(ii) पंजाबी में प्रयुक्त संस्कृत के तत्सम तथा तदाव 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>1. चिरस्म-(विलथ, दे, दीर्घकाल)</td>
<td>पिर</td>
<td>21. रतिमस (राहुल)</td>
<td>रतें</td>
</tr>
<tr>
<td>2. बेला (समय, अवसर)</td>
<td>बेला</td>
<td>22. लोहितम (सूरत)</td>
<td>लहुं</td>
</tr>
<tr>
<td>3. शाक: (हरि संजी)</td>
<td>साह</td>
<td>23. वसिततम, बसित: (वास्ती)</td>
<td>बसु, बसों</td>
</tr>
<tr>
<td>4. कैमस्म (ढला, कंकर)</td>
<td>कंकर</td>
<td>24. हुदयम (हदय, दिल)</td>
<td>हिंदी, हियान</td>
</tr>
<tr>
<td>5. चूँकम</td>
<td>चौंक, चौंका</td>
<td>25. श्रेष्ठ: (सास)</td>
<td>सरसू</td>
</tr>
<tr>
<td>6. हप्मन (डो, जोडा)</td>
<td>दोह</td>
<td>26. वल्ह. (बहु)</td>
<td>बहू</td>
</tr>
<tr>
<td>7. पावम्म (पोना)</td>
<td>पावण</td>
<td>27. अब्द (आज)</td>
<td>अज</td>
</tr>
<tr>
<td>8. नमम (नान्हुन)</td>
<td>नउह, नहु, निह</td>
<td>28. अर्थ (आधा)</td>
<td>अधा</td>
</tr>
<tr>
<td>9. निषिद्धम (बुरा, अर्थवत्त)</td>
<td>निषिचं</td>
<td>29. उचि: (उच्चा)</td>
<td>उचा</td>
</tr>
<tr>
<td>10. नीलम (एक रब)</td>
<td>नीलम, लीलम</td>
<td>30. कद्या (कब)</td>
<td>कद</td>
</tr>
<tr>
<td>11. पदम</td>
<td>पउं</td>
<td>31. तदम (तब)</td>
<td>तद</td>
</tr>
<tr>
<td>12. नममन (नेत्र)</td>
<td>नेण्वु</td>
<td>32. यदा (जब)</td>
<td>जद</td>
</tr>
<tr>
<td>13. पुष्चम (पुंछ)</td>
<td>पूंछ</td>
<td>33. कृत: (किया)</td>
<td>कियता</td>
</tr>
<tr>
<td>14. बालम (बच्चन)</td>
<td>बालम</td>
<td>34. चनः (चांद)</td>
<td>चन्द</td>
</tr>
<tr>
<td>15. बीजम (बीज)</td>
<td>बी, बीउ</td>
<td>35. लम्म (लम)</td>
<td>तौं</td>
</tr>
<tr>
<td>16. भयम (बर)</td>
<td>भें, भउ, भंऊ</td>
<td>36. निम्म: (नीम)</td>
<td>निमम</td>
</tr>
<tr>
<td>17. मायम (उडद)</td>
<td>माणं, महां</td>
<td>37. पिप्पल: (पीप</td>
<td>पिप्पल</td>
</tr>
<tr>
<td>18. मन:ःषितम (स्वकल्पित)</td>
<td>मनढोडत</td>
<td>38. बर्द: (बैल)</td>
<td>बर्दः, बैलद</td>
</tr>
<tr>
<td>19. मुलम (मुंह)</td>
<td>मुंह, मूं</td>
<td>39. हस्त: (हाथ)</td>
<td>हस्त्य</td>
</tr>
<tr>
<td>20. मुळम (जोडा)</td>
<td>मुगलां</td>
<td>40. सर्व: (सब)</td>
<td>सभ्य</td>
</tr>
</tbody>
</table>
(ख) बहुवीहि समास 5x1= 5 अंक
(ग) अलकार : अनुपास, यमक, अर्थान्तरन्यास, श्लेष, अतिशयोक्तिः व द्रष्टान्तः 2x7½=15 अंक
(तीन में से दो के लक्षण, उदाहरण व स्पष्टीकरण प्रश्न प्रत्येक 1.5 अंक)
(घ) लौंगिक संस्कृत साहित्य के निर्मातिक लेखकों की कृतियों का परिचय 2x5= 10 अंक
(आस. कालिदास, भवभूति, बाणभूष, माघ, भृतृहरि व दण्डी)
(ड) संस्कृत निबन्ध (तीन में से एक विषय पर दस पंक्तियों में) 1x10=10अंक

विषय – संस्कृतभाषाया महत्त्वम्, मम प्रयं कवि:, मम प्रियं पुस्तकम्, दीपावली, सत्संगति: तथा पर्यावरणात्मकारिता)
(घ) गिजन्त व सन्तन्त प्रयोग (प्रथम पुरुष का एकवचन ही प्रश्नप्रत्येक 1.5 अंक)
(i) गिजच प्रत्यय केवल भू, पद, हस, गम, कृ, अधिक्र, खाद, चल, नश, व नम् धातु से ही प्रश्न प्रत्येक 1.5 अंक
(ii) सन् प्रत्यय केवल स्वपं, घ्र, पठ, कृ, गम्, मृ, मुच, द्र, तृ तथा भू धातु से ही प्रश्न प्रत्येक 1.5 अंक
B.A./B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

जेलिपेस्ट (जेलिपेस्ट)

बीजेन्ड जेलिपेस्ट रस्सी 2016 के जेलिपेस्ट बक्सी

मोडल पंजीकरण

= तेलूत ऊपर 100
= शिखरी 90
= जीतकला मिलाने 10
= मज़हर 3 घण्टे

शास्त्र

1. बुझोल जेलिपेस्ट बक्सी 25 ऊपर
2. जेलिपेस्ट लेटर डे जोयरपूर 25 ऊपर
3. जेलिपेस्ट मापित डे के जेटिलग्राम (आधि जल 3 1700 ढील वेब) 20 ऊपर
4. बुझोल जेलिपेस्ट मापित 10 ऊपर
5. मापित डे के हुन 10 ऊपर

वेबम

1. मध्य में, (मध्य,) विविध तत्त्व, विविध तत्त्व, विविध तत्त्व, विविध तत्त्व, विविध तत्त्व

(विविध तत्त्व : मध्य उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी)

2. इलेक्ट्रो माप त वर्षी, मंडल में पूँजी, मंडल में पूँजी, मंडल में पूँजी, मंडल में पूँजी, मंडल में पूँजी

(विविध तत्त्व बक्सी : मध्य उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी, उत्तर उत्तरी)

3. बुझोल मापित डे के जेटिलग्राम 25 ऊपर

(बुझोल मापित डे के हुन वेब)

4. जेलिपेस्ट मापित डे के जेटिलग्राम (आधि जल 3 1700 ढील वेब) 5 x 4 = 20

(बुझोल मापित डे के हुन वेब, बुझोल मापित डे के हुन वेब, बुझोल मापित डे के हुन वेब)

5. बुझोल मापित-मापित: इलेक्ट्रो मापित, बुझोल मापित (बुझोल मापित वेब)

6. मापित डे के हुन: नामांकन, मध्य, मध्य, मध्य, मध्य, मध्य, मध्य,
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<th>Sl. No.</th>
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<td>1</td>
<td>भाषा परिवर्तनः (B.A./B.SC.(General) Third Year (Semester System) Syllabus)</td>
<td>25 मार्क्स</td>
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<td>2</td>
<td>भाषा परिवर्तनः (B.A./B.SC.(General) Third Year (Semester System) Syllabus) (किर्कार)</td>
<td>25 मार्क्स</td>
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<td>3</td>
<td>भाषा परिवर्तनः (B.A./B.SC.(General) Third Year (Semester System) Syllabus) (अन्य भाषा वाणी)</td>
<td>20 मार्क्स</td>
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<td>4</td>
<td>भाषा परिवर्तनः (B.A./B.SC.(General) Third Year (Semester System) Syllabus)</td>
<td>10 मार्क्स</td>
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<td>5</td>
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<td>10 मार्क्स</td>
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</tbody>
</table>
विषयों की पूर्ति:
1. पंजाबी माध्यम से क्रिकेट, पंजाबी कृत्रिम शिर।
2. पंजाबी माध्यम से क्रिकेट, पंजाबी कृत्रिम शिर।
3. पंजाबी माध्यम से विभिन्न मिश्र वर्तमान, 'पंजाबी माध्यम से विभिन्न वर्तमान' से विबंध', लेखन युक्त माध्यम, पुस्तिकात।
4. शीतल मिश्र उच्च, पंजाबी स्थानिक शिक्षा के विषय, तीह पुस्तक, अंकाना माध्यम।
5. सिमु, धर्मनीति मिश्र (डॉ.), 'धर्म विविधता रामा विविधता', पंजाबी विविधता विद्वान, पंजाबी कृत्रिम शिर, पुस्तिकात, 1998।
6. रंगिन मिश्र, अधिवक्ता डॉ. अधिवक्ता, अदुर समारोह पंजाबी कृत्रिम शिर, अधिवक्ता।
7. पंजाबी, धर्म मिश्र (डॉ.), पंजाबी विविधता में पंजाबी मध्यरात्रि, भारत पंजाबी शिक्षण, पंजाबी कृत्रिम शिर, पुस्तिकात, 2002।
8. पंजाबी,धर्म पंजाबी मिश्र डॉ. 'विभिन्न वाणिज्य विविधता', महाराष्ट्र पंजाबी शिक्षण, पुस्तिकात, 2002।
9. बाजार, बूढ़ा मिश्र (डॉ.), 'पंजाबी गोल्मा गोल्मा' से मिलूं', बाजार माध्यम पुस्तिकात, अंकितवाड़ 2012।

विषयों के समाप्त होने के बाद, उल्लेख 6+6=12 वीं कक्षा।

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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. o Ek khuda parast shahzadi (Meer Amman)
   o Shahzade ke pahle safar ka aaghaaz (Rajab Ali Baig Suroor)
   o Guzra hua zamana (Sir Syed Ahmed Khan)
   o 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)
   • Tamannahon 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

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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
- Bholu
- 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.

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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     20 Marks
Or Persian.

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

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FRENCH (ELECTIVE)
SEMESTER-5TH

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

INTRODUCTION TO FRENCH DRAMA, POETRY AND PROSE

I Literary Master Pieces Drama, La Femme du Boulanger 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 Boulanger, 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:


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

- Continuous Evaluation
- Attendance

10 marks (Total)

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

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

i. Conversation in German
ii. Reading of a simple unseen text and answering questions there-on.

Internal Assessment

- Continuous Evaluation
- Attendance

10 marks (Total)

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)
Paper – Option (i) (General Translation & Grammar): Written
Maximum Time : 3 hrs.

Maximum Marks: 100
Theory : 90 Marks
Internal Assessment : 10 Marks
(For regular students)

1. Translation from simple Russian into English/Hindi/Punjabi. (about 120 words) 35 Marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words) 35 Marks
3. Applied grammar: 4 questions out of 6 (5 marks each) Cases (Nouns, Pronouns, 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).

Note: Use of dictionaries is allowed.

OR

Paper: Option (ii) (Scientific & technical Translation & Grammar): written
Maximum Time : 3 hrs.

Maximum Marks: 100
Theory : 90 Marks
Internal Assessment : 10 Marks
(For regular students)

1. Translation from simple Russian (Scientific & technical material) into English/Hindi/Punjabi. (about 120 words) 35 Marks
2. Translation from simple English/Hindi/Punjabi into Russian (about 100 words) 35 Marks
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).

Note: Use of dictionaries is allowed.

Extra material to be provided by the department.
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:

Tolsti 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):

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):

Tolsti 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 Abeyance

1. Arabic (Elective)
2. Bengali (Elective)
3. Tamil (Elective)
4. Kannada (Elective)
5. Malayalam (Elective)
6. Telugu (Elective)
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

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
- 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.
B.A./B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS

PHYSICAL EDUCATION

B.A. (GENERAL) SIXTH SEMESTER EXAMINATION

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 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

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 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) THAT VIOLATES THE ABOVE INSTRUCTIONS.

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1. EDUCATION : (Pending)

2. ADULT EDUCATION : (Pending)
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 up to ten students in one section in practical class

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

(Duratio 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, Thumri, 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 Gat / Drut khayal 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 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 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: Vrindavani Sarang & Asavari
2. One Vilambit Khayals in any two of the prescribed Ragas in the course with extempore –alaps and taanas.
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 Jhaptal on Tabla.
7. Ability to recite the following Talas in Thah, Dugun by hand: Jhumra, Sultala
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: Des, Jaunpuri.
10. 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 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

(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 Taanas/ Toras

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)
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
   taanas.
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 & hamar
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.
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 can be used while singing Alankars.

4. 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.**

5. 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.

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

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

8. There would be up to ten students in one section in practical class.

**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. Panna Lal Ghosh

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 :- Dhamar, 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 02 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 : Dhamar, 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 : Panna Lal Madan
   SangeetShastra Vigyan
3. Folk Instruments of Punjab : Prof. Anil Narula (Published by Punjabi University, Patiala).
5. Sangeet SAR Part III : Mrs. Veena Mankaran.
6. 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 should not be more than eight students in a batch for practical examination.

3. Harmonium can be used while singing Alankars.

4. 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.

5. 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.

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

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

8. There would be up to ten students in one section in practical class.

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) Pt. Nikhil Banerji
   (ii) Pt. Uma Shankar Mishra
   (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 (Music & Finearts)

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 maseetkhnai 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 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 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 gat in Madhya laya other than teen tala 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:

2. *Folk Instruments of Punjab* : Prof. Anil Narula (Published by Punjabi University, Patiala).
4. *Sangeet Granth atey Bharti Sangeet Da Itihas* : Chander Kanta, Khosla
5. *Sangeet SAR Part III* : Mrs. Veena Mankaran

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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  

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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 upto eight students in one section.
3) Candidate can take any other instruments alongwith 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
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

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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. In all, nine 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 two questions each, out of which the candidates are to attempt one question from each unit, fifth unit based on notation will be compulsory. Thus in all, the candidates are required to attempt five questions.

3. No electronic instruments will be allowed for practical examination.

4. Practical paper shall be set from the syllabus prescribed for Practical Paper- B.

5. There would be up to ten students in one section in practical class.

Paper-A: THEORY (3 hours. duration) : 45 Marks

(Duration 45 minutes, 02 Theory periods per week)

PAPER-A THEORY

Unit –I

1. Origin of Dance and its development up to Mughal period.
2. Study of Rasas and its importance in dance
3. Origin of Taal and its various aspects.
4. Important characteristics of Kathakali Dance

Unit-II

1. Dance and Religion
2. Brief study of Natya Shastra
3. Brief study of Natak Bheda
4. Life sketch of Birju Maharaj ji

Unit-III

1. Description of Teen Taal and Sawari
2. Notation of Bol, Tatkar, thaat, aamad, Chakkardar, Tora in Teen Taal.
3. Notation of Bol, Tatkar, tihai, aamad, paran and Chakardar Paran in Sawari Taal
4. Nagma, Thekaa in Teen Taal and Sawari
PAPER-B  PRACTICAL (Duration 45 minutes 06 periods per week)

Unit -I

I. Swari Taal (Matra 15)
   a) Theka
   b) Bol Tatkar
   c) Thaat-1
   d) Aamad-1
   e) Chakkardar Paran-1
   f) Tihai-1
   g) Paran-1
   h) Nagma-1

II. Tentaal (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Thaat-1
   d) Aamad-1
   e) Chakkardar Tora-1
   f) Nagma-1

III. a) Knowledge of Rajasthani Folk Dance practically
     b) Play Theka of Swari 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. In all, nine 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 two questions each, out of which the candidates are to attempt one question from each unit, fifth unit based on notation will be compulsory. Thus in all, the candidates are required to attempt five questions.

3. No electronic instruments will be allowed for practical examination.

4. Practical paper shall be set from the syllabus prescribed for Practical Paper- B.

5. There would be upto ten students in one section in practical class.

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

(Duration 45 minutes, 02 Theory periods per week)

Paper-A Theory

Unit- I

1. Development of Dance after Independence
2. Brief study of Nayika Bheda
3. Knowledge of Dakshini Taal System
4. Essential characteristics of Manipuri Dance

Unit-II

1. Dance and other Fine Arts
2. Loka Dharmi and Natya Dharmi
3. Life sketch of Achhan Maharaj Ji
4. Essay on “Nritya and Roopsaundarya

Unit III

1. Description of Dhamar with Theka and two Toras
2. Notation of Theka, Aamad, Tihai, Tora, Kavittin Teentaal
3. Notation of Theka, Paran, Chakkardar Paran, Tisarjati Paran, Kavittin Swari Taal
4. Nagma, Bol Tatkar in Dhamar, Teen Taal and Sawari
PAPER-B PRACTICAL (Duration 45 minutes, 06 periods per week)

UNIT-I

I. Dhamar (Matra 14)
   a) Bol Tatkar
   b) Theka
   c) Toras-2
   d) Tihai-1

II. Swari taal (Matra 15)
   a) Theka
   b) Bol Tatkar
   c) Paran-1
   d) Chakardar Paran-1
   e) Tisarjati Paran-1
   f) Kavit-1

III. Teen Taal (Matra 16)
   a) Theka
   b) Bol Tatkar
   c) Aamad-1
   d) Tihai-1
   e) Tora-2
   f) Kavit-1

IV. 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
FINE ARTS

SEMESTER V

Paper-A : Theory (History of Art) Max. Marks : 60

Written Paper : 54 marks
Internal Assessment : 06 marks
TOTAL : 60 marks

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 Composition</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. Illustration in Advertising or Clay Modelling</td>
<td>30</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

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

TOTAL : 140

Note : Minimum of 9 hours teaching per week be assigned and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week).

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 the 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 Naika 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

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

PRACTICAL

Paper-B : Practical

This paper consists of three sections:

<table>
<thead>
<tr>
<th>Section</th>
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</tr>
</thead>
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<td>5 hours</td>
</tr>
<tr>
<td>3. Illustration in Advertising or Clay Modelling</td>
<td>30</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

**Total : 90**

Note: The same paper setter will be requested to set papers in all the options in Section-III.

**SECTION-I**

**Landscape Composition**

**Landscape Composition:** By Imagination or on the spot. Emphasis should be on linear perspective, aerial perspective, colour, tones and textures as visible.

Medium : Oil, Water or Pastel colours
Size : ½ Imperial sheet

**SECTION-II**

**Life Sketching**

**Life Sketching:** From live model, coloured in any medium on ½ Imperial Sheet.
Approach to work should be academic relating to proportion, structure, tonal values, volume and perspective and Individuality of the model.

**SECTION-III**

**Illustration in Advertising or Clay Modelling**

**Illustration in Advertising:** To launch and promote a product and campaign advertisement, understanding of modern technique.
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 : Poster & Ink
Size : Half Imperial sheet

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 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 VI

Paper-A : Theory (History of Art)          Max. Marks : 60

Written Paper                                : 54 marks
Internal Assessment                          : 06 marks

**TOTAL**                                    : **60 marks**

Paper-B : Practical                          
This paper consists of three sections:

<table>
<thead>
<tr>
<th>Section</th>
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<th>Max. Time</th>
</tr>
</thead>
<tbody>
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<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. Illustration in Advertising or Clay Modelling</td>
<td>30</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

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

**TOTAL**                                       : **140**

**Note**: Minimum of 9 hours teaching per week be assigned and out of nine hours, six hours be earmarked for practical classes and three hours for theory classes (per week).

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 TO THE PAPER-SETTERS**

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

- Neo Impressionism – Seurat
- Post Impressionism – Van Gogh
- Expressionism – Edvard Munch

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

1. Majumdar, R.C. (editor) : The History and Culture of Indian People, Vols. I, II and III (Sculpture and Painting Sections only), Bhartiya Vidya Bhawan, Bombay, 1988, 1990, 1996.
PRACTICAL

Paper-B: Practical

This paper consists of three sections:

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Max. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Landscape Composition</td>
<td>30</td>
</tr>
<tr>
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<td>30</td>
</tr>
<tr>
<td>3. Illustration in Advertising or Clay Modelling</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong>: 90</td>
<td></td>
</tr>
</tbody>
</table>

Note: The same paper setter will be requested to set papers in all the options in Section-III.

SECTION-I

Landscape Composition

Landscape Composition: By Imagination or on the spot. Emphasis should be on linear perspective, aerial perspective, colour, tones and textures as visible.

Medium: Oil, Water or Pastel colours
Size: ½ Imperial sheet

SECTION-II

Life Sketching

Life Sketching: From live model, coloured in any medium on ½ Imperial Sheet. Approach to work should be academic relating to proportion, structure, tonal values, volume and perspective and Individuality of the model.

SECTION-III

Illustration in Advertising or Clay Modelling

Illustration in Advertising: To launch and promote a product and campaign advertisement, understanding of modern technique.

Concept of lettering: Block lettering, Roman lettering, Script lettering and free hand brush lettering. To design a book cover with illustration and title, author’s name etc. in three colours (excluding the background colour)

Medium: Poster & Ink
Size: Half Imperial sheet

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 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-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.


- 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, Jamgaon, Atranjikhera, Sisupalgarh, Nagarjunkonda.

UNIT-II:
UNIT-III:  
**Sculptures**: Stone-Harappan, Rampurva Ashokan Bull, Didarganj Yakshi, Katra Buddha, Sarnath Seated Buddha, Gomatesvara at Sravanabelagola, Maheshamurti, (Elephanta), Krishna holding Govardhana (Halebid), Sun Image of Konark, Kasia reclining Buddha (Mahaparinirvana).

UNIT-IV:  
**Bronze**: Sultanganj Buddha, Nalanda Image of Balarama and Buddha, Kurkihar Avalokitesvara, Indra and Padmapani from Nepal, Tanjore (Chola), Nataraja, Balakrishna Kaliyadama 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:

DEFENCE & STRATEGIC STUDIES

SEMESTER – V

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

M. Marks: 70
Time: 3 hours

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 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 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

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

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: Jallianwala 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:

1. Fauja Singh (ed.)

2. Fauja Singh

3. J.S. Grewal

4. Khushwant Singh

5. Satya, M. Rai

6. P.N. Chopra, B.N.

: Haryana Aitihasik Simhavalokan (Hindi), Haryana Sahitya Akademy, Chandigarh, 1991.
7. K.C. Yadav and S.M. Fogat

8. R.S. Johar, and J.S Khanna

9. Monica Das Gupta, T.N. Krishna & Lincon C. Chen

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HISTORY
SEMESTER-VI

PAPER: WORLD HISTORY 18\textsuperscript{TH}-20\textsuperscript{TH} 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.

   \textbf{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:

   \begin{itemize}
   \item Map : 10 Marks
   \item Explanatory Note : 08 Marks
   \end{itemize}

   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.

\textbf{Paper: World History 1761-1956}

\begin{itemize}
\item Max. Marks : 100
\item Theory : 90
\item Internal Assessment : 10
\item Time : 3 Hours
\end{itemize}

\textbf{Objectives:} To introduce the students to the modern period in World history.

\textbf{Pedagogy:} Lectures, library work and discussions.

\textbf{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:

1. The Industrial Era-causes of origin, new inventions, impact on society
2. Unification of Italy and Germany
3. New Imperialism 1871-1914

UNIT-III:

4. World War I: Division of Europe into two blocks, causes, Paris Peace Conference
5. Russian Revolution 1917- causes and impact
6. Nationalism and Communism in China- causes of revolution of 1911 and its impact; causes and consequences of revolution of 1949

UNIT –IV:

7. Mejie restoration and modernization in Japan
8. World War II; causes and consequences

Suggested Readings

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.

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:


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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. Cold War and Post Cold War era of International Politics.
2. Bipolar, Unipolar and Nature of Emerging World Order.

Unit-IV

1. Regional Organisations : SAARC and EU.
Books Recommended:

ECONOMICS
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:

<table>
<thead>
<tr>
<th>No.</th>
<th>Author(s)</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Higgins, Benjamin</td>
<td>Economic Development: Principles, Problems and Policies</td>
<td>Norton Publisher, New York</td>
</tr>
<tr>
<td>2</td>
<td>Meier, G.M.</td>
<td>Leading Issues in Economic Development</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>4</td>
<td>Nurkse, R.</td>
<td>Problems of Capital Formation in Underdeveloped Countries</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>5</td>
<td>Rostow, W. W.</td>
<td>Stages of Economic Growth</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>6</td>
<td>Thirlwal, A P</td>
<td>Economics of Development</td>
<td>Palgrave Macmillan Publishers, UK</td>
</tr>
</tbody>
</table>

Supplementary Readings:

ECONOMICS
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

Indian Economy on the Eve of Independence. Features and Characteristics of Indian Economy since Independence: Agriculture; Importance of Agriculture; Causes of Backwardness and Low productivity; New Agricultural Strategy, Green Revolution and Critical Evaluation with Special Reference to Environmental Degradation; Land Reforms; Need, Implementation and Evaluation.

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:**

SOCIOLOGY
SEMESTER - V

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. $9 \times 2 = 18$ 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

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:


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SOCIOLOGY

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; Communal Conflicts, Problems of the Aged.
Essential Readings:


Further Readings:

PUBLIC ADMINISTRATION
SEMESTER -V

PAPER: LOCAL GOVERNMENT (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 understanding of the concept, significance and evolution of
tlocal 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
Role of Divisional Commissioner

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:

1. K.K.Puri and G.S.Barara : *Local Government in India*  
   (Jalandhar: Bharat Prakashan, 2008)
2. S.R.Maheshwari : *Local Government in India*  
   (Agra: L.N.Aggawal, 2002)
3. S.L.Goel & Shalini Ramesh : *Panchayati Raj in India*  
4. Sahib Singh & Swinder Singh : *Local Government in India*  

Further Readings:

1. B.S.Khanna : *Rural Developments in South Asia*  
2. Government of India, : *6th Report – Local Governance*
3. H.B.Singh : *Revitalised Urban Administration in India*  
   (Delhi: Kalpaz Publishers, 2003)
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
Evolution of Planning Machinery in India at National, State Level and Local Level

Unit-III

Public Enterprises: Concept and Forms
Role of Public Enterprises in Economic Development
Managerial Problems of Public Enterprises
Public Enterprise Reforms since 1991; Privatisation: Concept
Unit-IV

Union Ministry of Human Resource Development – Organisation, functions and Role
Union Ministry of Rural Development – Organisation, functions and Role
Union Ministry of Health and Family Welfare – Organisation, functions and Role

Essential Readings

1. B.P. Mathur : Public Enterprise Management
   (Macmillan India: New Delhi, 1999)

2. R.K. Sapru : Development Administration


Further Readings

1. Indian Development Report 2002 : Indira Gandhi Institute of Development Research
   (New Delhi: Oxford University Press, 2002)

2. R.B. Jain : Public Administration in India – 21st Century Challenges for Good Governance

   The Associated Publishers, Ambala 2007

4. S.L. Goel : Advanced Public Administration

5. S.P. Srivastava (ed.) : The Development Debate: Critical Perspectives

6. Vijay Rattan : Women and Child Development Programme Administration
   (New Delhi: S. Chand, 1997)

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PHILOSOPHY

SEMESTER – V

Paper : INDIAN EPISTEMOLOGY AND METAPHYSICS

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:


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PHILOSOPHY

SEMESTER – VI

Paper: WESTERN EPISTEMOLOGY AND METAPHYSICS

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Time</th>
<th>Lectures</th>
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<tr>
<td></td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>75</td>
</tr>
</tbody>
</table>

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:


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PSYCHOLOGY

SEMESTER - V

Objectives:

(I) This course will enable the students to get an introductory knowledge about abnormal 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.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:
The syllabus has been divided into four units.

(a) There shall be 9 questions in all. 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 with 14 marks for each.

(b) The practical will be of 20 marks.

PAPER: ABNORMAL PSYCHOLOGY

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours

UNIT-I : Viewpoints Regarding Abnormality : Historical, Psychodynamic, Behavioural, Cognitive Behavioural, Humanistic and Interpersonal; Current Classifications of Abnormality as per DSM -V.

UNIT-II : Stress : Concept of Stress; Types of Stressors; Etiology of Stress; Coping Strategies: Problem Focussed and Emotion Focussed.

UNIT-III : Causes of Abnormal Behaviour : Biological, Psychological and Sociocultural Causes.


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

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. Dener’s SWB
6. Oxford Happiness Inventory

Books Recommended:

Essential Readings:


Reference Books


Max. Marks : 20
Time : 3 Hours.
Objectives:

(I) This course will enable the students to get an introductory knowledge about abnormal 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.

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

The syllabus has been divided into four units.

(a) There shall be 9 questions in all. 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 with 14 marks for each.

(b) The practical will be of 20 marks.

PAPER: BEHAVIOURAL DISORDERS

Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours

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

Max. Marks : 20
Time : 3 Hours

Four practicals have to be performed out of the following:

1. Clinical Interview.
2. TAT.
3. Depression Inventory (Beck).
4. Spielberger’s State Trait Anxiety Inventory
5. Self Efficacy
6. Buss and Durkee’s Aggression Scale
Books Recommended:

Essential Readings:


Reference Books


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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.

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 - 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, reappraisal/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**

**Essential Readings**


**Essential Readings**


**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 (20 lectures)

UNIT-II
(ii) South East Asia (iii) South Asia. (30 lectures)

UNIT-III
(iv) Middle East and North Africa (20 lectures)

UNIT-IV
(v) Africa South of Sahara (20 lectures)

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, (5 marks) (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.

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GANDHIAN STUDIES
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 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-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
SEMESTER-VI

Peace and Conflict Resolution

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 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 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- 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:

MEDIA MANAGEMENT, ETHICS AND LAWS

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; brief overview of newspapers, radio and television organizations.

Unit II : Basic principles of Management given by Henry Fayol.

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

1. Make a presentation regarding the violation and the adherence to the ethical code by the media (the medium of presentation can be a clippings file, posters, photographs, documentary or a street play). - 10 Marks

2. Case study of any one ownership pattern of Indian media - 10 Marks
Books Recommended

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 Restraining 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:**


5. The Indian Penal Code : Bare Act with Short Notes, Universal Law Publishing Co. Pvt. Ltd., Delhi, 2008.

**Further Readings**

1. Lal, Rattan and Dhiraj Lal : Indian Penal Code


WOMEN'S STUDIES

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)
   e) Beijing +5 (2000)
   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.


Rajput, Pam & Swarup, 1994.


U.K, Kushwah, K.J, (eds),

Readings in Hindi:


Sarawat, Sawapnal : Mahila Vikas AK Paridrashay, Nayanprakashan, New Delhi,
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. Hrs</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 – A05</td>
<td>Practical</td>
<td>Practical Based on Paper – A05</td>
<td>3</td>
<td>25</td>
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</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 sections & a compulsory questions.
(ii) Examiner will set total of nine questions comprising two questions from each Section and one compulsory question of short answer type covering the whole syllabi.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks unless specified.

SECTION-A

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)

SECTION-B


SECTION-C

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.
SECTION-D

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.

References

10. Black Book: *Oracle 10g Database Administration Little Book*.

PAPER-PA05: Practical: Practical based on Paper A05.
COMPUTER SCIENCE
B.A./B.Sc. (GENERAL) SIXTH SEMESTER
SCHEME OF EXAMINATION

<table>
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<th>Ext.</th>
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<tbody>
<tr>
<td>Paper – A06</td>
<td>Theory</td>
<td>Web Programming</td>
<td>3</td>
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<tr>
<td>Paper – A06</td>
<td>Practical</td>
<td>Practical Based on Paper – A06</td>
<td>3</td>
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</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, JavaScript, and Java.

**Note:**

1. The question paper will consist of four sections & a compulsory question.
2. Examiner will set *nine* questions comprising of *two* questions from each Section and *one* compulsory question of short answer type covering the whole syllabi.
3. The students are required to attempt *one* question from each Section and the entire Compulsory question.
4. All questions carry equal marks unless specified.

**SECTION-A**

1. **Internet:** Evolution of Internet, Future of Internet, Services provided on the Internet, Internet Access Methods.


3. **Web Browser and Web Server:** Architecture, Working with Examples.

4. **Hypertext Markup Language:** Introduction to HTML, Building Blocks of HTML, HTML Lists, HTML Links, Images in HTML.

**SECTION-B**

5. **Advanced HTML:** HTML Tables, Frames, Forms, Editors.

6. **Cascading Style Sheets:** Introduction to CSS, Limitation of HTML, CSS Positioning, Layers.

7. **Developing Simple Website:** Website development using latest website development open source tool.
SECTION-C

8. **Dynamic HTML** : Moving elements and images, changing colors and hiding elements, moving between layers, mouse rollovers.

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.

SECTION-D

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.

References

7. DHTML (Any Book).

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>Pracitcal 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>
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<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 Practia 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. 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 questions.

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.
SEMESTER -VI

ENVIRONMENT CONSERVATION (ELECTIVE)

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>
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<td>4</td>
<td>65</td>
<td>10</td>
<td>20</td>
<td>05</td>
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</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, ralamination 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, 2016-17**

**SEMESTER- V**

## 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</th>
<th>Int. Ass.</th>
<th>Total Marks</th>
</tr>
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<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>

**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
- 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

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HOME SCIENCE

B.A./B.Sc. (GENERAL) THIRD YEAR EXAMINATION, 2016-17
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>
<th>Total Marks</th>
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<tbody>
<tr>
<td>1</td>
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<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 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—Bedwetting, 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

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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 have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Section B, C, D and E shall have two questions each from respective Units, out of which one from each section is to be permitted. 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

<table>
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<tr>
<th></th>
<th>Max. Marks</th>
<th>Practical</th>
<th>Internal Assessment</th>
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<tbody>
<tr>
<td></td>
<td>: 25 Marks</td>
<td>: 20 Marks</td>
<td>: 05 Marks</td>
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</table>

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

SEMESTER-VI

Paper-VI: Insect and Crop Diseases

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 have five sections.
3. Section A shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Section B, C, D and E shall have two questions each from respective Units, out of which one from each section is to be permitted. 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 Piricularia 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 theobromae
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>Guignardia citricarpa</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Citrus canker</td>
<td>Xanthomonas citri</td>
</tr>
<tr>
<td>Viral</td>
<td>Citrus Yellow Mosaic</td>
<td>Badnavirus</td>
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5. Crop-Grapes

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
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<tbody>
<tr>
<td>Fungal</td>
<td>Powdery Mildew of grapevine</td>
<td>Unicinula nectator</td>
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<tr>
<td>Bacterial</td>
<td>Crown gall</td>
<td>Agrobacterium tumifaciens</td>
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<tr>
<td>Viral</td>
<td>Cork bark</td>
<td>Grapevine virus B</td>
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</table>

6. Crop-Cotton

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>Name of Disease</th>
<th>Causal Organism</th>
</tr>
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<tbody>
<tr>
<td>Fungal</td>
<td>Cotton Rust</td>
<td>Puccinia shedonnardii</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial Blight of Cotton</td>
<td>Xanthomonas citri</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>Phytopthora infestans</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial canker of Tomato</td>
<td>Clavibacter michiganensis</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>Albugo candida</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Black rot of crucifers</td>
<td>Xanthomonas campestris</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>Cercospora sp.</td>
</tr>
<tr>
<td>Bacterial</td>
<td>Bacterial wilt</td>
<td>Pseudomonas solanacearum</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 diseases

Unit – IV

Insect and nematode diseases of Cereals crops; Oil crops; Fruit crops
Vegetable crops

**Rabi Crops**  **Kharif Crops**

- Green Peas
- Chick Peas (Cicer arietinum)
- Onion (Allium cepa)
- Tomato (Solanum lycopersicum)
- Potato (Solanum tuberosum)
- Chilli
- Okra
- Bitter Gourd
- Bottle Gourd
- Brinjal

**PRACTICAL**

<table>
<thead>
<tr>
<th>Max. Marks</th>
<th>Practical</th>
<th>Internal Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Marks</td>
<td>20 Marks</td>
<td>05 Marks</td>
</tr>
</tbody>
</table>

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

STATISTICS
SEMESTER - V

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 in all per week for theory and practical, shall be allotted for teaching.

Semester- V
Paper 301: DEMOGRAPHY AND ECONOMIC STATISTICS

Maximum 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Section-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.

Section-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

........................
STATISTICS
SEMESTER - VI

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 -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 in all per week for theory and practical, shall be allotted for teaching.

Semester- VI
Paper 303: STATISTICAL QUALITY CONTROL AND COMPUTATIONAL TECHNIQUES

Maximum 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 section. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each section.

2. Simple non-programmable calculator is allowed.

3. Statistical tables and log tables will be provided on request.

Section-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, subgrouping summary of out of control criteria. Charts for variables - $\bar{X}$ 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.

Section-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 (Pending)
PHYSICS

B.Sc. (GENERAL) THIRD YEAR (5th and 6th Semester) EXAMINATION, 2016-17

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the papers is allocated 25 marks including 3 marks for the Internal assessment.

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 A:</th>
<th>Condensed Matter Physics - I</th>
<th>Total Teaching hours 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper B:</td>
<td>Electronics and Solid State Devices - I</td>
<td>Total Teaching hours 30</td>
</tr>
<tr>
<td>Paper C:</td>
<td>Nuclear &amp; Particle Physics - I</td>
<td>Total Teaching hours 30</td>
</tr>
<tr>
<td></td>
<td>Physics Practicals</td>
<td>Total Teaching hours 45</td>
</tr>
</tbody>
</table>

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.

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.

**PHYSICS PRACTICALS**

The students are required to perform Nine experiments choosing either of the Units I or Unit II in each semester. The unit of experiments allocated in the fifth semester cannot be repeated in sixth semester. The college must keep a record of the Unit allocated to each student. In the sixth semester examination, the students are expected to bring their Practical note books of both the semesters.

**General Guidelines for Physics Practical Examinations:**

Total: 25 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). 10
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester 4
   (iii) Viva-Voce 5
   (iv) Record (Practical file) 3
   (v) Internal Assessment 3

**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 4 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 $\pi$-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:
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>Paper A</td>
<td>Condensed Matter Physics - II</td>
<td>30</td>
</tr>
<tr>
<td>Paper B</td>
<td>Electronics and Solid State Devices - II</td>
<td>30</td>
</tr>
<tr>
<td>Paper 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 JEFT, characteristics, drain and transconductance curve, FET amplifier and its voltage gain, Structure and working of MOSFET. Feedback in amplifiers, voltage gain of negative feedback amplifier, advantages of negative voltage feedback, negative current feedback circuit, emitter follower. Theory of sinusoidal oscillations, loop gain and phase, Lead-lag RC circuit, Wein bridge oscillator. Barkhausen criterion of sustained oscillations, positive feedback amplifier, LC oscillators, Colpitts and Hartley oscillators. (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. 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)

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 (30 Hrs.)

UNIT-I
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, Gell-mann 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 Synchrotron, 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 students are required to perform Nine experiments choosing either of the Units I or Unit II in each semester. The unit of experiments allocated in the fifth semester cannot be repeated in sixth semester. The college must keep a record of the Unit allocated to each student. In the sixth semester examination, the students are expected to bring their Practical note books of both the semesters.

General Guidelines for Physics Practical Examinations:

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).
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester
   (iii) Viva-Voce
   (iv) Record (Practical file)
   (vi) Internal Assessment

Total: 25 marks
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 4 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:

(ix) Measurement of reverse saturation current in p-n junction diode at various temperatures and to find the approximate value of energy gap.

(x) To draw forward and reverse bias characteristics of a p-n junction diode and draw a load line.

(xi) Study of a diode as a clipping element.

(xii) To measure the magnetic susceptibility of FeCl₂ solution by Quincke’s method.

II ELECTRONICS AND SOLID STATE DEVICES:

(xiii) To study the response of RC-circuit to various input voltages (square, sine and triangular).

(xiv) To measure the efficiency and ripple factors for (a) Half-wave, (b) Full wave, and (c) Bridge rectifier circuits.

(xv) To study the reduction in the ripples in the rectified output with RC, LC and π-filters.

(xvi) 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:

2. Any one exercise based on the above given experiments.

Computer Based Activities: Elementary C language programs.

3. Print a 2D array in spiral form.

4. 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:

(iv) To trace the B-H curves for different materials using CRO and find the magnetic parameters from these.
(v) To find the conductivity of a given semi-conductor crystal using four probe method.
(vi) 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:

(x) To draw the Plateau of a GM counter and find its dead time.
(xi) 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:
6. “Numerical Analysis” by C. Dixon
7. Programming with C, Byron Gottfried & Jitender Chhabra, Schaum series

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### 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>
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<tbody>
<tr>
<td>XVII</td>
<td>Inorganic Chemistry-A</td>
<td>30</td>
<td>3 periods per week</td>
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<td></td>
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<tr>
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<td>Organic Chemistry-A</td>
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<tr>
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Total 15 periods/week 100

#### SEMESTER-6<sup>th</sup>

Scheme of Teaching and Examination

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</table>

Total 15 periods/week 100

Total Marks

- SEMESTER-5 100
- SEMESTER-6 100

200
CHEMISTRY

SEMESTER-5th

Scheme of Teaching and Examination

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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       (8 Hrs.)

Spectroscopy:

Nuclear magnetic resonance (NMR) spectroscopy.

Proton magnetic resonance \((^1\text{H} \text{ NMR})\) 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-II       (7 Hrs.)

Electromagnetic Spectrum: Absorption Spectra:

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.)

Carbohydrates:


Structure of ribose and deoxyribose.

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

UNIT-IV       (7 Hrs.)

Heterocyclic 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-XIX: PHYSICAL CHEMISTRY-A

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<th>Time</th>
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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.)

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

(7 Hrs.)

Elementary Quantum Mechanics-II:

Molecular orbital theory, basic ideas – criteria for forming M.O. from A.O., construction of M.O.’s by LCAO – $\text{H}_2^+$ ion. Calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of $\sigma, \sigma^*, \pi, \pi^*$ orbitals and their characteristics. Hybrid orbitals – sp, sp$^2$, sp$^3$; calculation of coefficients of A.O.’s used in these hybrid orbitals.

Introduction to valence bond model of $\text{H}_2$, comparison of M.O. and V.B. models.

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. Examiners 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

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**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:**

Types of electronic transitions, L – S coupling, selection rules for d-d transitions, spectroscopic ground states, Orgel – energy level diagram for $d^1$ and $d^{10}$ states, discussion of the electronic spectrum of $[\text{Ti(H}_2\text{O)}_6]^{3+}$ complex ion.
UNIT-IV (7 Hrs.)

Magnetic Properties of Transition Metal Complexes:

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. Correlation of $\chi_s$ and $\chi_{\text{eff}}$ values, orbital contribution to magnetic moments, application of magnetic moment data for $3d$-metal complexes.

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. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested


Paper-XXII: 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.)

**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 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:

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. 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.)
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 – 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-nitroacetonilide
Preparation of p-idoaniline from aniline.
Preparation of methyl orange from N,N-dimethyl aniline and sulphanilic acid.

Halogenation

Preparation of p-bromoacetonilide
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:

Q.No. 1*. Preparation of an organic compound : 7 marks

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.

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)**

**BOTANY**

**B.Sc. (General) Botany Fifth and Sixth Semester Syllabus**
*(Examinations, 2016-2017)*

<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>
<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>
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<table>
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<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>
<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.
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**

Max. Marks: 20
Practical: 18
Int. Assess. 02
Time: 3 hours

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
**B.A./B.SC.(GENERAL) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS**

**BOTANY**

**SEMESTER -VI**

**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) and oil-yielding plants (groundnut, mustard).

Guidelines for Botany Practical Examination

<table>
<thead>
<tr>
<th>Practical</th>
<th>Int. Assess.</th>
<th>Time</th>
</tr>
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<tbody>
<tr>
<td>18</td>
<td>02</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 write illustrated morphological notes on specimens B & C giving their economic importance. 6
3. Practical note-book 3
4. Viva-voce 3

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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 workshops/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

Life cycle, disease caused and control measures of arthropod vectors: Anopheles stephensi, A. culicifacies, Aedes aegypti A. albopictus, Culex fatigans C. tritaeniorhynchus, Mansonia sp., Xenopsylla cheopis, Pediculus.

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

Systematic position, habits and nature of damage of the following pests of crops and vegetables:

I. Sugarcane :
   1. Sugarcane leaf hopper (*Pyriliaperpusila*) along with life cycle and control measures.
   2. Sugarcane top borer (*Scirpophaganivella*)
   3. Sugarcane stem borer (*Chilotreainfuscatellus*)

II. Cotton :
   1. Pink bollworm (*Pectinophoragossypiella*) along with life cycle and control measures.
   2. Red cotton bug (*Dysdercuscinglulatus*)
   3. Cotton grey weevil (*Myllocerusmaculosus*)
   4. Surface grasshopper (*Chrotogonustrachypterus*)
   5. Cotton jassid (*Empoascadevastans*)

III. Paddy :
   1. Rice Gundhy Bug (*Leptocorisavaricornis*) along with life cycle and control measures.
   2. Rice grasshopper (*Hieroglyphyusbhanian*)
   3. Rice Hispa (*Dicladispaarmigera*)

UNIT-II

IV. Wheat :
   1. Wheat stem borer (*Sesamiainferens*) along with life cycle and control measures.
   2. Termites (*Microtermesobesi*)
   3. Aphids (*Macrosiphummiscanthi*) Jassids (*Amrasca sp.*)
V. **Vegetables**:
1. Red pumpkin beetle (*Aulacophora foveicollis*)
2. Pumpkin fruit fly (*Dacus cucurbitae*) along with life cycle and control measures.
3. Hadda beetle (*Epilachna vigintioctopunctata*)

**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 (*Rhizopertha dominica*)
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 surysternus*)
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 maculatus* (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*).

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, CatlaCatla, 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:

   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 idellaus, 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, 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.

PAPER I: GENETICS (ZOO-601)

UNIT-I

Modification of Mendelian ratios:
Non-allelic gene interaction, Modified F₂ 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).


Extranuclear inheritance: Kappa particles in Paramoecium.
UNIT-III


Regulation of gene expression in prokaryotes (Operon model) and in eukaryotes.

UNIT-IV

Population genetics: Equilibrium of gene frequencies and Hardy Weinberg Law.

Genetic recombination in bacteria (conjugation, transduction and transformation) plasmids.

Applied Genetics: Recombinant DNA, genetic cloning and its applications in medicine and agriculture, DNA finger printing.

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 mode.

**OPTION-II:ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT-II (ZOO-602B)**

**UNIT-I**

Development of Insects : Different types of metamorphosis along with a study of different kinds of larvae and pupae.

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; Rotenoneand 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 phosphate. 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.
3. A study of different types of larvae and pupae of insects through slides, charts etc.
6. 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

6. Identification of mouth parts/antennae/legs/wings from charts/slides/specimens

7. Mention the type of larva/pupa/stages of life history of silkworm, honeybees, lac insect. Write a note on its external morphology.

8. Name the apparatus provided. Draw its well labeled diagram and explain its structure and working.

Option-III

6. Identify the gear ‘A’ and draw its well labeled diagram.

7. Identify specimens B & C giving one identification feature of each.


9. 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 & 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.
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

Objective: To understand Aspects of storage and expression of genetic information. Membrane structure and function.

SECTION-I
(Lectures: 10)
Targetting of proteins to different cell organelles. Post & Co-translational modification of protein. DNA binding domains of Protein.
Regulation of procaryotes gene expression. Concept of operon, regulation of lac operon, trp-operon, phage infection (lysogenic & lytic mode)

SECTION-II
(Lectures: 10)
Regulation of encaryotic gene expression. Role of RNA regulators.

SECTION-III
(Lectures: 10)

SECTION-IV
(Lectures: 10)
Membranes : Structure and functions of biological membranes, various models of membrane structure.
Transport of solutes across membranes, Sodium-potassium pump.
Elementary aspects of the Molecular Biology of cancer and introduction to stem cells.
Molecular basis of the Origin and Evolution of Life.

Books Suggested:
Paper B: Applied Biochemistry – II
Objective: To understand General aspects of vitamins, hormones, nutrition, immunology, blood coagulation, muscle contraction and nerve impulse transmission.

SECTION-I
Brief discussion of various immunological techniques; Precipitation reactions in gels Haemagglutination, Immuno-fluorescence, radio-immunoassay (RIA), enzyme liked immunosorption assay (ELISA) and immunoblotting.

SECTION-II
Mechanism of Blood coagulation. Blood buffers and role of the kidneys in Acid Base regulation, Role of liver in detoxification of endogenous and exogenous substances.
Structure of voluntary muscle and mechanism of muscle contraction. Mechanism of nerve impulse transmission

SECTION-III
Muscle contraction – Various types of muscles, structure, contraction & role of calcium, calcium binding proteins in muscle contraction.

SECTION-IV

Books Suggested:

PRACTICALS:
Marks : 25
One Practical of three hours per week

1. Estimation of creatinine in urine.
2. Estimation of haemoglobin in blood.
3. Separation of proteins by SDS-Polyacrylamide Gel Electrophoresis.
4. Identification of Sugars in fruit juice using paper chromatography.
5. Determination of nature of inhibition of alkaline phosphatase by cysteine.

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MICROBIOLOGY

SEMESTER - V

THEORY

MIC 501: Pathogenic Microbiology-I  3 hrs.  37.5  (33+4.5*)

MIC 502: Food and Industrial Microbiology-I  3 hrs.  37.5  (33+4.5*)

PRACTICAL

One Practical pertaining to the entire syllabus included in  3 hrs  25 (20+5*)
Theory Papers MIC 501 and MIC 502

SEMESTER - VI

THEORY

MIC 601: Pathogenic Microbiology-II  3 hrs  37.5  (33+4.5*)

MIC 602: Food and Industrial Microbiology-II  3 hrs  37.5  (33+4.5*)

PRACTICAL

One Practical pertaining to the entire syllabus included in  3 hrs  25 (20+5*)
Theory Papers MIC 601 and MIC 602

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 Hook worm 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 2016-2017

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### SCHEME OF B.Com COURSE (General and Hons.)

#### Semester – I

<table>
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<td>BCM 504</td>
<td>PRODUCTION AND OPERATION MANAGEMENT</td>
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<td>BCM 505</td>
<td>ENTREPRENEURSHIP AND SMALL BUSINESS</td>
<td>100</td>
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<tr>
<td>BCM 506</td>
<td>FINANCIAL MARKETS AND SERVICES</td>
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</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>
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<tr>
<td>BCM 602</td>
<td>FINANCIAL MANAGEMENT</td>
<td>100</td>
<td>5</td>
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<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 2016-17 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
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Video Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acceptance</td>
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<td>2</td>
<td>Access</td>
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<td>3</td>
<td>Account</td>
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<td>4</td>
<td>Accountant</td>
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<td>5</td>
<td>Account Book</td>
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<td>6</td>
<td>Acknowledgement</td>
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<td>7</td>
<td>Advance</td>
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<td>8</td>
<td>Alternative Cost</td>
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<td>9</td>
<td>Amortization</td>
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<td>10</td>
<td>Amortization of Debts</td>
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<td>11</td>
<td>Amortization of fixed Assets</td>
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<td>12</td>
<td>Annuity</td>
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<td>13</td>
<td>Anticipated Prices</td>
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<td>14</td>
<td>Arbitration</td>
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<td>15</td>
<td>Assessed Tax</td>
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<td>16</td>
<td>Assets</td>
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<td>17</td>
<td>Assets and Liabilities</td>
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<td>18</td>
<td>Authorized Capital</td>
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<td>19</td>
<td>Audit</td>
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<td>20</td>
<td>Audit Staff</td>
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<td>21</td>
<td>Average</td>
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<td>22</td>
<td>Average Productivity</td>
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<td>23</td>
<td>Average Income</td>
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<td>24</td>
<td>Back Log</td>
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<td>25</td>
<td>Balance Sheet</td>
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<td>26</td>
<td>Bankrupt</td>
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<td>27</td>
<td>Barter</td>
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<td>28</td>
<td>Beneficial</td>
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<td>29</td>
<td>Bilateral Agreement</td>
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<td>30</td>
<td>Bill of Exchange</td>
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<td>31</td>
<td>Bond</td>
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<td>32</td>
<td>Book Value</td>
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<td>33</td>
<td>Book Keeping</td>
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<td>34</td>
<td>Break-Even Point</td>
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<td>35</td>
<td>Breach of Trust</td>
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<td>36</td>
<td>Broker</td>
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</table>
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
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Explanation</th>
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<tr>
<td>76.</td>
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<td>Excise Duty</td>
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<td>78.</td>
<td>Export Tax</td>
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<td>79.</td>
<td>Expenditure</td>
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<td>80.</td>
<td>Fair Trade</td>
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<td>Finance</td>
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<td>83.</td>
<td>Financial Penalty</td>
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<td>Fine Paper</td>
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<td>Firm Offer</td>
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<td>Fiscal Policy</td>
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<td>88.</td>
<td>Fiscal Year</td>
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<td>89.</td>
<td>Fixed Capital</td>
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<td>90.</td>
<td>Fixed Costs</td>
<td>; Elŋ hyou,</td>
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<td>91.</td>
<td>Floatation</td>
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<td>92.</td>
<td>Foreign Exchange</td>
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<td>93.</td>
<td>Fringe Benefits</td>
<td>TľoB/bİG</td>
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<td>94.</td>
<td>Glut</td>
<td>Gomko</td>
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<td>95.</td>
<td>Goods Account</td>
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<td>96.</td>
<td>Gross Profit</td>
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<td>97.</td>
<td>Hidden Tax</td>
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<tr>
<td>98.</td>
<td>Hoarding</td>
<td>yhokpk t</td>
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<tr>
<td>99.</td>
<td>Holding Company</td>
<td>Žfb: șoe egbľ</td>
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<tr>
<td>100.</td>
<td>Human Capital</td>
<td>wBľghőt</td>
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</table>

**HISTORY AND CULTURE OF PUNJAB**

For B.Sc./B.Sc. (Hons) Bio-Technology/B.Sc. (Hons) Bio-Informatics/B.Sc. 4 year agriculture/BCA/B.Sc. Fashion Disigning/B.Sc. Microbial and Food Technology / 4 year B.Ped./BFA/BBA/B.Com B.A Hons. (Education) B.Ed. etc. all courses that take this paper for ONE year only.

6 credit course

**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 carrying 05 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 : 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.

**BCM101 B 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. Vedic Age: socio-economic life; development of caste; position of women.
3. Religion: vedic religion; impact of Buddhism and Jainism on the region.
UNIT II

4. Society and Culture c. 1000 A.D.: Socio-economic life; religious life; education
5. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III

9. Institution of Khalsa: new baptism; significance

UNIT IV

11. Society and Culture under Maharaja Ranjit Singh: social mobility; painting and architecture; literature.

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, MunshiRam Manohar Lal, Delhi, 1966
7. Singh, Kirpal: History and Culture of the Punjab, Part II (Medieval Period), Publication Bureau, Punjabi University, Patiala.
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:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The Model Millionaire</td>
<td>Oscar Wilde</td>
</tr>
<tr>
<td>II.</td>
<td>The Gift of the Magi</td>
<td>O. Henry</td>
</tr>
<tr>
<td>III.</td>
<td>The Judgement-seat of Vikramaditya</td>
<td>Sister Nivedita</td>
</tr>
<tr>
<td>IV.</td>
<td>Fur</td>
<td>Saki</td>
</tr>
<tr>
<td>V.</td>
<td>A. Marriage Proposal</td>
<td>Anton Chekhov</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, 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 attempt any three. This question shall be based upon the prescribed text <em>Ten Mighty Pens.</em></th>
<th>12 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 2.</td>
<td>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 <em>Ten Mighty Pens.</em></td>
<td>10 Marks</td>
</tr>
</tbody>
</table>

**Note:** The questions 1 & 2 should be so designed as to cover all the chapters prescribed.

<table>
<thead>
<tr>
<th>Q. 3.</th>
<th>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.</th>
<th>12 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 4.</td>
<td>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.</td>
<td>6 Marks</td>
</tr>
</tbody>
</table>

**Section II (Based upon Unit II)**

<table>
<thead>
<tr>
<th>Q. 5.</th>
<th>This question shall test a students' ability to write business letter of various kinds (in not more than 250 words). There will be Internal Choice in the question.</th>
<th>10 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 6.</td>
<td>This question shall be on Memos, Tender Notices/Auction Notices/Public Notices/Advertisements. (have to attempt four of 5 marks each)</td>
<td>20 Marks 5x4=20</td>
</tr>
<tr>
<td>Q. 7.</td>
<td>Two short questions to test the students' understanding of various aspects of business communication.</td>
<td>10 Marks</td>
</tr>
</tbody>
</table>
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
BCM 107: PRINCIPLES AND PRACTICES OF MANAGEMENT

**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

<table>
<thead>
<tr>
<th>Number</th>
<th>Term</th>
<th>Shortened Form</th>
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<tbody>
<tr>
<td>1</td>
<td>Imperfect Market</td>
<td>ngD wa</td>
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<td>2</td>
<td>Imports</td>
<td>nk ls</td>
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<td>3</td>
<td>Import Duty</td>
<td>nk ls eo</td>
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<td>4</td>
<td>Imputed Income</td>
<td>n kofs nkwbB</td>
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<td>5</td>
<td>Imprest Account</td>
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<td>6</td>
<td>Income Statement</td>
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<td>7</td>
<td>Index of Profit</td>
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<td>8</td>
<td>Income Tax</td>
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<td>Inflation</td>
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<td>10</td>
<td>Intangible Assets</td>
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<td>11</td>
<td>Investment</td>
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<td>12</td>
<td>Invoice</td>
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<td>13</td>
<td>Jobber</td>
<td>; Ne nkV8l</td>
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<td>14</td>
<td>Job Casting</td>
<td>bks fBoXoD</td>
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<td>15</td>
<td>Joint Venture</td>
<td>; MktZw</td>
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<td>Labour</td>
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<td>17</td>
<td>Laissez Fair</td>
<td>ybQt ; Ek</td>
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<td>18</td>
<td>Lease Holding Building and Property</td>
<td>gZV s/j wos ns/s fdk</td>
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<td>Ledger</td>
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<td>20</td>
<td>Ledger Folio</td>
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<td>Liabilities</td>
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<td>22</td>
<td>Liquidator</td>
<td>fBoXoee</td>
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<td>23</td>
<td>Market</td>
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<td>24</td>
<td>Marketable Goods</td>
<td>fs eD : t ; s k</td>
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<td>25</td>
<td>Mechanization</td>
<td>w fBt eoB</td>
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<td>26</td>
<td>Mercantilism</td>
<td>t ghot kd</td>
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<td>27</td>
<td>Monetary System</td>
<td>wokgrZx</td>
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<td>28</td>
<td>Money of Account</td>
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<td>Monopoly</td>
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<td>30</td>
<td>Mortgage</td>
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<td>31</td>
<td>Net Investment</td>
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<td>32</td>
<td>Net Profit</td>
<td>fBb bG</td>
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<td>33</td>
<td>Notice of Stoppage</td>
<td>oE ; iBk</td>
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<td>34</td>
<td>Office Expenses Account</td>
<td>dš sdi ou býk</td>
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</table>
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
<table>
<thead>
<tr>
<th>No.</th>
<th>Term</th>
<th>Description</th>
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<tr>
<td>74.</td>
<td>Stock</td>
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<td>75.</td>
<td>Stock Exchange</td>
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<td>76.</td>
<td>Subsidiary Company</td>
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<td>77.</td>
<td>Surety</td>
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<td>78.</td>
<td>Tariff</td>
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<td>79.</td>
<td>Tax Exemption</td>
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<td>80.</td>
<td>Tax Base</td>
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<td>81.</td>
<td>Tax Evasion</td>
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<td>82.</td>
<td>Tax Equity</td>
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<td>83.</td>
<td>Tender</td>
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<td>84.</td>
<td>Tender money</td>
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<td>85.</td>
<td>Terms of Payment</td>
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<td>86.</td>
<td>Terms of Trade</td>
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<td>87.</td>
<td>Trademark</td>
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<td>88.</td>
<td>Transactions</td>
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<td>89.</td>
<td>Transfer Book</td>
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<td>90.</td>
<td>Under Value</td>
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<td>91.</td>
<td>Unproductive Expenditure</td>
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<td>92.</td>
<td>Unproductive Labour</td>
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<td>93.</td>
<td>Validity Period</td>
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<td>94.</td>
<td>Vertical Integration</td>
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<td>95.</td>
<td>Wages</td>
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<td>96.</td>
<td>Wages Account</td>
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<td>Wage Goods</td>
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<td>98.</td>
<td>Wage Book</td>
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<td>Wharf age</td>
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<td>100.</td>
<td>Write Off</td>
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<td>101.</td>
<td>Working Capital</td>
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<td>102.</td>
<td>Yield</td>
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<td>103.</td>
<td>Zero Rate of Interest</td>
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</table>
HISTORY AND CULTURE OF PUNJAB

For B.Sc. /B.Sc. (Hons) Bio-Technology/B.Sc. (Hons) Bio-Informatics/B.Sc. 4 year agriculture /BCA/B.Sc. Fashion Disigning/B.Sc. Microbial and Food Technology / 4 year B.PEd. /BFA/BBA/B.Com etc. all courses that take this paper for ONE year only.

6 credit course

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 : 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.
BCM201 B 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 ï 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 of the Punjab, Part II (Medieval Period)*, Publication Bureau, Punjabi University, Patiala 1990 (3rd edn.).


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**BCM 202: ENGLISH AND BUSINESS COMMUNICATION**

**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)

<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 attempt any three. This question shall be based upon the prescribed text Ten Mighty Pens.</th>
<th>12 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 2.</td>
<td>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.</td>
<td>10 marks</td>
</tr>
</tbody>
</table>

Note: The questions 1 & 2 should be so designed as to cover all the chapters prescribed.

<table>
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<tr>
<th>Q. 3.</th>
<th>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.</th>
<th>12 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 4.</td>
<td>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.</td>
<td>6 marks</td>
</tr>
</tbody>
</table>

Section II (Based upon Unit II)

<table>
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<tr>
<th>Q. 5.</th>
<th>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.</th>
<th>10 marks</th>
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<tbody>
<tr>
<td>Q. 6.</td>
<td>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).</td>
<td>10 marks</td>
</tr>
<tr>
<td>Q.7.</td>
<td>Definition/format of Modern forms of communication to be tested- Listening - Non verbal communication, e-mail, fax, teleconferencing etc.</td>
<td>10 marks</td>
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<tr>
<td>Q.8.</td>
<td>Curriculum Vitae</td>
<td>10 marks</td>
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</tbody>
</table>

**Suggested Reading:**

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, Interoperability and Intercompatibility.

Reference books:
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, Ricardian Theory of Rent, Modern Theory of Rent, Quasi- Rent.  

UNIT- II

Sayâ€œ 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, Leaks, Uses, Limitations of Multiplier, Multiplier and Under-Developed Countries.

Reference books:

1. Shapiro, E  
   Macroeconomic analysis Galotia publications, New Delhi.
2. Eugene Diulio  
4. Ackley, G.  
   Macroeconomics: Theory and Policy, Macmillan, New York
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:

**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.
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 UNDER-GRADUATE 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); 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://www.slideshare.net/HRLNIndia/a-life-free-from-violence)
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
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 ũ 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.
Share Capital ũ Kinds of Shares, Book Building Process, Information Memorandum,
Dematerialisation of Shares, ASBA System, Transfer & Transmission of Shares, Buyback of Shares.

UNIT- II
Members and Shareholders ũ Their Rights and Duties.
Management ũ 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: The objective of this paper is to help the students to acquire the knowledge of indirect tax laws prevailing in India.

UNIT – I


Value Added Tax – Basic Concepts and Historical Background, Levy of VAT, Difficulties in Administering VAT, Mode of Operation of VAT System, Variants of VAT and Methods of Computation of VAT Liability, Merits and Demerits of VAT. Set-Off/Input Tax Credit, Carrying over of Tax Credit, Registration, TIN.


UNIT – II


Service Tax: Nature of Service Tax, Meaning of Service, Negative List, Mega Exemption Notification, Registration, Computation of Service Tax Liability, Point of Taxation, Reverse Charge Mechanism, Small Service Provider, Service Tax Procedure.

Note: The paper setter will consider the changes upto 30th September of relevant year.

Practical Work: Fillings of Forms for Registration Returns, Assessment etc.

Reference books:

1. Indirect Tax Laws - Dr. Vinod K. Singhania & Dr. Monica Singhania (Taxmann Publications, New Delhi).

2. Indirect Taxes – Dr. H. C. Mehrotra & Dr. V.P. Agarwal (Sahitya Bhawan Publications, Agra)
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


Technical Analysis. Fundamental v/s Technical Analysis.

UNIT – II


Portfolio Performance Evaluation and Revision.
Global Investing – 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.
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  
Probability-Distribution: Binomial-Distribution, Poisson-Distribution, Normal-Distribution  
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  
SEMESTER-V

BCM 501: INCOME TAX LAW

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.
BCM 601: DIRECT TAX LAWS

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 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)
BCM 602: FINANCIAL MANAGEMENT

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

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 – 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
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.
BCH 308: DEVELOPMENT ECONOMICS

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:

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:**

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
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: -

BCH 408: INDUSTRIAL ECONOMICS

**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,
India’s 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:**

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.
B.Com. Honours
5th Semester

BCH 507: Strategic Financial Management

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, Iinet, 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:**

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 — Valuation of Bonds, Valuation of Debentures, Valuation of Preference Shares, Valuation of Equity Shares and Share Valuation: CAPM Model.

UNIT - II

Market Indices — Concept, Method of Computing India’s Leading Stock Indices, Overview of various Benchmark Indices, Market capitalization Indices, Sectoral Indices and Broad market Indices.


**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 Tarriffs, Quotas to Trade.

**Unit-II**


Exchange Rate: Meaning and Its determination; Fixed vs Flexible Exchange Rate, Theories of Exchange Rate: BoPs Theory, PPP Theory.
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 (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


UNIT–II


Suggested Readings:

1. Chacko, Oommen and Grewal, Rajendra, "Marketing of Banking Services". MacMillan India Ltd
2. Bank Marketing Association, "Bank Marketing". The Association

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FACULTY OF SCIENCE
SYLLABI

FOR
B.Sc. (HONOURS) BIOTECHNOLOGY
Semester System
EXAMINATIONS 2016-2017
--:O:--
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) (July 2016)

<table>
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<tr>
<th>S. No.</th>
<th>Course/Paper</th>
<th>Code</th>
<th>Theory</th>
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<tr>
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<td>2.</td>
<td>Genetics</td>
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<tr>
<td>3.</td>
<td>Immunology-I</td>
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<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>
<td>25</td>
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</table>

**Total Marks = 500**

### B.Sc. (Hons.) 2nd year (4th Semester) (January 2017)

<table>
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<th>S.No.</th>
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<td>Course No.</td>
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</tr>
<tr>
<td>1.</td>
<td>Immunology-II</td>
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<td>25</td>
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<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>
<td>25</td>
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<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>
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**Total Marks = 500**
### B.Sc. (Hons.) 3rd year (5th Semester) (July 2016)

<table>
<thead>
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<td>Course No.</td>
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<tr>
<td>1.</td>
<td>Molecular Biology</td>
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<td>2.</td>
<td>Enzymology</td>
<td>BIOT-Sem-V-II-T</td>
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<td>3.</td>
<td>Environmental Biotechnology</td>
<td>BIOT-Sem-V-III-T</td>
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<td>4.</td>
<td>Tools in Bioinformatics</td>
<td>BIOT-Sem-V-IV-T</td>
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<td>BIOT-Sem-V-IV-P</td>
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<td>5.</td>
<td>Intellectual property rights and Ethical Issues in Biotechnology and Entrepreneurship</td>
<td>BIOT-Sem-V-V-T</td>
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Total Marks = 500

### B.Sc. (Hons.) 3rd year (6th Semester) (January 2017)

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<td>Course No.</td>
<td>Marks</td>
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<tr>
<td>2.</td>
<td>Bioprocess Engineering and Technology</td>
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<td>3.</td>
<td>Food Biotechnology</td>
<td>BIOT-Sem-VI-III-T</td>
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<td>4.</td>
<td>Genomics and proteomics</td>
<td>BIOT-Sem-VI-IV-T</td>
<td>75</td>
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<tr>
<td>5.</td>
<td>On Job Training</td>
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<td>BIOT-Sem-VI-V-P</td>
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Total Marks = 500
B.Sc. (Hons.) 1st year (1st Semester)

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<th>Sr. No.</th>
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<th>Marks</th>
<th>Practical</th>
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<tr>
<td>1.</td>
<td>English</td>
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<tr>
<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT - Sem-I--II-T</td>
<td></td>
<td>50</td>
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<tr>
<td>5.</td>
<td>Physics</td>
<td>BIOT-Sem-I-V-T</td>
<td></td>
<td>75</td>
<td>BIOT-Sem-I-V-P</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Introduction to Biotechnology</td>
<td>BIOT-Sem-I-VI-T</td>
<td></td>
<td>75</td>
<td>BIOT-Sem-I-VI-P</td>
<td>25</td>
<td></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.**  

**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**

**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**
Course Title: PUNJABI  
Course Number: 111

अध्याय-अन्तराल (बिद्रोह के बाद मंगलवार),
मूलस्तृति: डा. सुंदरन्द्रशाही सिंध द्वारा डा. बहिष्कार सिंध मंगल पुनरीक्षण: गुप्त तरंग एवं पुलिसविज्ञान,
अभिलेख, 2006

अध्याय-अन्तराल प्रमुख के बिना बाद लिखें पूर्णता परिवर्तन विश्लेषण 5 अंक
(2 बिंदु 1)
आधुनिक-चिन्ता प्रमुख विश्लेषण के बिना योग दें देख प्रथा 3+5 = 8 अंक
विषय (2 बिंदु 1)
वेतन विश्लेषण प्रमुख चिन्ता-प्रमुख चिन्ता (आधुनिक-चिन्ता) द्वारा बिना राज 5 अंक
संयोजन प्रमुख विश्लेषण 7 अंक
प्रश्न प्रमुख चिन्ता (7 चौ 5)
सहायता अन्ये अध्याय दें संयोजन तै चिन्ता भाषिकों द्वारा प्रेस विषय 7 अंक
(7 चौ 7)
विश्लेषण: 3+3+4=10 अंक

(1) विकल्प प्रति बिंदु
अ) कार्यों, न करे पूरे में पूरे विषय
ह) भाषिकों ने कार्यों विश्लेषण
प्रमुख चिन्ता नातिन विश्लेषण द्वारा नीति, बिंदुओं दें विवाद
विश्लेषण हेतु: अनुसार प्रमुख चिन्ता उड़े विश्लेष 6 पीतीर्थ
BIOT - Sem-I--II-T

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 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 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. Vedic Age: socio-economic life; development of caste; position of women.
3. Religion: vedic religion; impact of Buddhism and Jainism on the region.

UNIT II

4. Society and Culture c. 1000 A.D.: Socio-economic life; religious life; education
5. Cultural Reorientation: main features of Bhakti; origin and development of Sufism

UNIT III
9. Institution of Khalsa: new baptism; significance

UNIT IV
11. Society and Culture under Maharaja Ranjit Singh: social mobility; painting and architecture; literature.

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, MunshiRam 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.
C. Foreigners
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: -
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, trigonometric, 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:**
   International, New Delhi).
   and Training, New Delhi).

**Mathematics (Practicals)**

<table>
<thead>
<tr>
<th>Practical : 22 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Ass.: 3 Marks</td>
</tr>
</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>BIOT-Sem-I-III-TB</th>
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<tr>
<td>Theory: 67 Marks</td>
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<tr>
<td>Internal Ass.: 8 Marks</td>
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</table>

**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.

**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, Werner’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,SN$_2$, and SN$_1$ reaction with energy diagram.


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
Code No: BIOT-Sem-I-VI-T                                  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; \textit{E. coli} as the model bacterium
Yeast and fungi in Biotechnology
Introduction to multicellular organisms as research models: *Drosophila melanogaster*, *Caenorhabditis elegans*, *Danio rerio*, *Mus musculus*  
*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:**
BIOT-Sem-I-VI-P

Introduction to Biotechnology (Practical)  Practical : 22 Marks
       Internal Ass.: 3 Marks

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>Theory</th>
<th>Practical</th>
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<td>2.</td>
<td>Punjabi/HCP</td>
<td>BIOT-Sem-II-II-T</td>
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<td>4.</td>
<td>Basic Biochemistry</td>
<td>BIOT-Sem-II-IV-T</td>
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<td>5.</td>
<td>Cell Biology</td>
<td>BIOT-Sem-II-V-T</td>
<td>75</td>
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<tr>
<td>6.</td>
<td>General Microbiology</td>
<td>BIOT-Sem-II-VI-T</td>
<td>75</td>
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**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
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 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
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 Emails, 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 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.  

**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.
ਸਮੇਤਤ ਦੁਆਨਾ
ਐਪ੍ਰੈਲ / ਮਹੀਨੀ 2017 ਦੇ ਸਿੰਘੀਤਾ ਜਾਂਤੀ

ਬੁੱਧ ਅੰਕ : 50
ਸੰਘਤ ਅੰਕ : 45
ਸਿੰਘੀਤਾ ਸਮੇਤਤ : 5
ਸਮੱਖ : 3 ਪੇਠੀ

ਪਾਲਿਕਾ

1. ਝੰਡੀ ਵਗਤੀ ਤਰਾਣ ਸਮੇਤਤ
2. ਪ੍ਰਗਤੀ-ਸੀਵਾਤ
3. ਸਿੱਖਾਚਾਰ

ਵੇਰੀ

ਆਉਧ-ਆਲਾਉਧ (ਵਿਭਾਗ ਦੇ ਵਾਂ ਮੰਗਾਣਾ)
ਸਮਪਨਣਾ : ਦਿਨ. ਸੁਵਿਧਾਕਲਰ ਸੰਧੀ ਦੇ ਦਿਨ, ਇਤਿਹਾਸ ਸੰਧੀ ਮੁੱਖ ਪੁਸਤਕਾਂ ਦੀ ਸੁਧਾ ਰਾਹੀਂ ਦੇਸ਼ ਪੁੱਤਰੀਕਾਮਿੱਟੀ, ਅਭਿਨਾਮ, 2006

1. ਆਉਧ-ਆਲਾਉਧ ਪੂਸਤਕ ਦੇ ਵਗਤੀ ਬਾਤ ਦਾਂ ਹਿਚੇ ਪੰਜ ਮੰਜੂਰ
 ਸਿੱਖਾਚਾਰ (2 ਹਿਚੇ 1) 5 ਅੰਕ
2. ਆਉਧ-ਆਲਾਉਧ ਪੂਸਤਕ ਸਿੱਖਾਚਾਰ ਵਗਤੀਆਂ ਦਾ ਹਿਸਾਬ ਟੇਸਤ ਦੇ ਸੌ
 ਸਿੱਖਾਚਾਰ (2 ਹਿਚੇ 1) 3+5 = 8 ਅੰਕ
3. ਵੇਰੀ ਸਿੱਖਾਚਾਰ ਪ੍ਰਗਤੀ-ਪੂਸਤਕ (ਆਲਾਉਧ-ਆਉਧ) ਦੀਆਂ ਵਗਤੀਆਂ ਰਾਹੀਂ
 ਸਮਾਜਿਤ ਪੂਸਤਕ ਵਿਸ਼ੇ ਹਿੰਦੇ ਪੁਸਤਕ ਦੇ ਬੀਬਾਂ (7 ਹਿਚੇ 5) 5 ਅੰਕ
4. ਸਮਾਜਿਤ ਅਧਾਰ ਅਧਾਰ ਦੇ ਸਕੀਪਸਤ ਹੂੰਦਾ ਸਬ ਅਸਿਕਾ ਸਾਰੀਆਂ ਦੇ ਪ੍ਰਗਤੀ-ਸਿੱਖਾਚਾਰ
 (2 ਹਿਚੇ 1) 7 ਅੰਕ
5. ਸਿੱਖਾਚਾਰ:
 (3+3+4=10 ਅੰਕ)
 ਹ) ਸਿੱਖਾਚਾਰ ਚਹੁੰਦਾ
 ਅ) ਕਾਰਜਾਂ ਤੋਂ ਉਤੋ ਪ੍ਰਭਾ ਵੇ ਸਿੱਖਾਚਾਰ
 ਰ) ਸਫਾਕੀਆਂ ਦੀ ਕਾਰਜਾਂ ਵਿਚ ਹਰਦਾਉ
6. ਪੂਸਤਕ ਵਿਚ ਸਕਾਕਸ ਵਗਤੀਆਂ ਦਾ ਸੀਹਟ, ਤਰਾਣ ਦੇ ਜੇਵਾਹਾਰ
 ਸਿੱਖਾਚਾਰ ਤੇ ਸਮਾਜਿਤ ਅਧਾਰ (6 ਅੰਕ)

ਸਿੰਘੀਤਾ ਤੇ ਸਮੱਖ ਲੱਖ ਦੁਆਨੇ ਦੇ ਹਿੰਦੇ 6 ਪੀਠੀਨਾਲ
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:

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:

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

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.).
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, cumulative 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:**
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:
BIOT-Sem-II-IV-P  Basic Biochemistry (Practical)  Practical: 25 Marks
Internal Ass.: 3 Marks

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  Theory: 67 Marks
Code No: BIOT-Sem-II-V-T  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.

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, ultrastructure 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
Basic 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:
   Lewis, Martin Raff, Keith Roberts, Peter Walter.

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 a 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 gluconeogenesis. 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)

Practical : 22 marks
Int. assessment : 03marks
Total : 25 marks
Time : 3 hours

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)**

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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

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 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)**

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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**

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**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)

Practical : 20 marks
Int. assessment : 05marks
Total : 25 marks
Time : 3 hours

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 Trypan blue
6. Determination of cell count

B.Sc. (Hons.) 2nd year (4th Semester)

Paper: Immunology-II
Course No.: BIOT-Sem-IV-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: 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 Thyroiditis, Insulin-dependent Diabetes Mellitus, Grave’s disease, Mysthenia Gravis.
8. **Systemic Autoimmune Disease:** Systemic lupus Erythematosuns (SLE).

Unit-IV
9. **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:
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.
Mass spectrometry: Physical basis; Instrument used; ionization modes; Applications
Collaboration of MS with other techniques: GCMS and LCMS.

Reference Books:

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

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)

Practical : 22 marks
Int. assessment : 03marks
Total : 25 marks
Time : 3 hours

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

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: 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)

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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)**

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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: ENZYMOLOGY (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 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.
Substitution matrices: Introduction to substitution matrices: PAM and BLOSUM matrices, concept of log odds ratio.
**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.

**Finding The Right Clone:** Gene identification, Nucleic acid hybridization, screening Procedure, Probe selection, immuno screening, functional complementation. Southern blotting, northern blotting.

**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 : 75marks
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

| Theory: 67 marks | Int. assessment: 08 marks | Total: 75 marks | Time: 3 hours |

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, pomato 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:**
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

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

(SEMESTER SYSTEM)

FOR

EXAMINATION 2016 - 2017

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Panjab University, Chandigarh

Scheme of Examination and Syllabus of BCA w.e.f. 2016 - 17

**Bachelor of Computer Applications Semester – I**

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* The Environment, Road Safety Education and Violence Against Women & Children is a compulsory qualifying paper, which the students have to study in the BCA 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.
### Third Semester

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subject</th>
<th>LT/ Week</th>
<th>Theory Marks</th>
<th>Internal Assessment</th>
<th>Exam. Hours</th>
<th>Paper Code</th>
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</thead>
<tbody>
<tr>
<td>10.</td>
<td>Computer Based Numerical Methods</td>
<td>6</td>
<td>90</td>
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<td>11.</td>
<td>Data Structures</td>
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<td>90</td>
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<td>12.</td>
<td>Implementation of Object Oriented concept through C++</td>
<td>6</td>
<td>90</td>
<td>10</td>
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<tr>
<td>13.</td>
<td>Computer Lab.: Based on BCA – 301, BCA – 302 and BCA – 303</td>
<td>1 2</td>
<td>45 05</td>
<td></td>
<td>4</td>
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### Fourth Semester

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<th>Exam. Hours</th>
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<tr>
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<td>Project Management &amp; System Development</td>
<td>6</td>
<td>90</td>
<td>10</td>
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<tr>
<td>15.</td>
<td>Client Server Computing using ORACLE</td>
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<td>Understanding UNIX</td>
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<tr>
<td>17.</td>
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<td>45</td>
<td>05</td>
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## Fifth Semester

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## Sixth Semester

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<td>P</td>
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<td>Int</td>
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<tr>
<td>BCA-16-103</td>
<td>Computer Fundamentals and Computing Software</td>
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<tr>
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**Bachelor of Computer Applications Semester – II**

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<td>4 Hrs</td>
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IRST SEMESTER
Outlines of Test, Syllabi and Courses of Reading for BCA, First Year (English Compulsory) Examination 2015-2016

M.Marks: 100
Theory: 90
Int.Assess: 10

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) 15 marks

II) **Prose** (1 to 3)
   Long essay type question on Summary/Theme
   (one out of two with internal choice) 15 marks

III) **Poetry** (1 to 6) 15 marks
    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) 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) 10 marks
   OR
   For Foreign Students (Paraphrase of Poetry Passage)

4) Official, Business and Letters to the Editors 15 marks
Objective: To teach the students the basic techniques of 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 Sections.
2. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt **ONE** question from each Section 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.**

SECTION-A

**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.

SECTION-B

**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
SECTION-C


SECTION-D


**Reference Books**:

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 computer fundamentals and the commonly used computing software.

Note:

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Section and the Compulsory question.
iv. All questions carry equal marks unless specified.

SECTION – A

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.

SECTION – B

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, DLTREE, DEFRAK, SCANDISK, UNDELETE. Batch Files: Introduction to simple batch files; Introduction to CONFIG.SYS and AUTOEXEC.BAT files.

SECTION-C

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.

SECTION-D

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, deactivated automatic changes, Speeding up data entry: using fill tool, fill series, defining fill series, Validating cell content, 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.

References:
4. OOoAuthors Team: Getting Started with OpenOffice.org 3.3, Friends of OpenDocument
Objective: The objective of this course is to make the student understand programming language concepts using ‘C’ language, 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 Sections.
2. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt ONE question from each Section and the Compulsory question.
4. All questions carry equal marks unless specified.

SECTION A
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.

SECTION B
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, goto 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.

SECTION 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. 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.

**SECTION D**

**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.

**References:**
SECOND SEMESTER
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](http://www.chandigarhpolice.nic.in)
(b) [www.punjabpolice.gov.in](http://www.punjabpolice.gov.in)
(c) [www.haryanapolice.gov.in](http://www.haryanapolice.gov.in)
(d) [www.hppolice.nic.in](http://www.hppolice.nic.in)
SYLLABUS ON “VIOLENCE AGAINST WOMEN & CHILDREN” AT UNDER-GRADUATE 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); 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
English (Compulsory) – B
BCA-16-201

M.Marks: 100

Theory: 90
Int.Assess:10

Semester II
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) 15 marks

2) Prose (4-5)
   Long essay type question on Summary/Theme
   (one out of two with internal choice) 15 marks

3) Poetry (7-11) 15 marks
   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) 10 marks
   OR
   For Foreign Students (Paraphrase of Poetry Passage)

4) Transformation of all types (15 out of 15) 15 marks
Computer Organization
BCA-16-202

L T P Cr External Marks: 65
6 - - 3 Internal Marks: 10

Time Duration: 3 Hrs.

Number of Lectures : 60

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 Sections.
   ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.
   iv. All questions carry equal marks unless specified.

SECTION-A


SECTION-B

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;

SECTION-C

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.

SECTION-D

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.

References:


Fundamentals of Web Programming

BCA-16-203

L T P Cr External Marks: 65
6 - -  3 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 Sections.

ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Section and the Compulsory question.

iv. All questions carry equal marks unless specified.

SECTION – A

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.
SECTION – B

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

SECTION – C

JavaScript: 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;

SECTION – D


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

References:

2. Bayross, Ivan : HTML, DHTML, Java Script by BPB, Latest reprint
4. 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:

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Section and the Compulsory question.
iv. All questions carry equal marks unless specified.

SECTION-A

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.

SECTION-B

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.

SECTION-C

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, Hierarchal 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.

**SECTION-D**

**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.

**References:**

2. E. Balaguruswamy, 2008 : Object Oriented Programming with C++, TMH.
THIRD SEMESTER
### Third Semester

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subject</th>
<th>LT/ Week</th>
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<th>Internal Assessment</th>
<th>Exam. Hours</th>
<th>Paper Code</th>
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<td>Computer Based Numerical Methods</td>
<td>6</td>
<td>90</td>
<td>10</td>
<td>3</td>
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<td>11.</td>
<td>Data Structures</td>
<td>6</td>
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<td>10</td>
<td>3</td>
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<td>12.</td>
<td>Implementation of Object Oriented concept through C++</td>
<td>6</td>
<td>90</td>
<td>10</td>
<td>3</td>
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<td>13.</td>
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<td>45</td>
<td>05</td>
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### Fourth Semester

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<td>14.</td>
<td>Project Management &amp; System Development</td>
<td>6</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-401</td>
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<tr>
<td>15.</td>
<td>Client Server Computing using ORACLE</td>
<td>6</td>
<td>90</td>
<td>10</td>
<td>3</td>
<td>BCA-402</td>
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<tr>
<td>16.</td>
<td>Understanding UNIX</td>
<td>6</td>
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<td>3</td>
<td>BCA-403</td>
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<tr>
<td>17.</td>
<td>Computer Lab.: Based on BCA-402 and BCA-403</td>
<td>6</td>
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<td>05</td>
<td>4</td>
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</tbody>
</table>
Objective: Discuss the basic techniques in Numerical & Statistical Methods

Note:

(i) The syllabus of this paper has been divided into four sections.

(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.

(iii) The students are required to attempt one question from each Section and the entire Compulsory question.

(iv) All questions carry equal marks, unless specified.

(v) The student can use only Non-programmable & Non-storage type

(vi) Note: Log table may be provided

SECTION-A

1. Computer Arithmetic:
   Floating Point Numbers, operations, normalizations and their consequences, Errors and its types.

2. Iterative Methods:

   (No. of Periods : 15)

SECTION-B


   (No. of Periods : 15)

SECTION-C

5. Measures of Central Tendency:
   Preparing Frequency distribution table, Arithmetic mean, Geometric mean, Harmonic mean, Median and Mode.

6. Measures of Dispersion, Skewness and Kurtosis, Range:
   Mean deviation, Standard deviation, Coefficient of variation, Moments, Skewness and Kurtosis. Development of Programs for above Statistical Methods using C

   (No. of Periods : 15)
SECTION-D

7. Correlation and Regression Analysis:
   Least square fit; Polynomial and curve fittings; Linear regression and non linear regression algorithms.

8. Development of Programs for above Statistical Methods using C.
   (No. of Periods : 15)

References:

Objectives: The basic algorithms related to handling data like arrays, stack, lists, queue, trees and graphs are introduced in this subject. The implementation of these algorithms will be done using previously learned C programming language.

Note: (i) The syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type Calculator.

SECTION-A

(No. of Periods : 15)

SECTION-B
2. Linked List: operations:-traversing, searching, inserting, deleting, operations on header linked list, circular linked list, doubly linked list, memory representation, Applications, polynomial manipulation.

( No. of Periods : 15)

SECTION-C
3. Trees – Definition and Basic concepts, Representation in Contiguous Storage, Binary Tree, Binary Tree Traversal, Searching, Insertion and deletion in Binary trees, Binary Search tree, AVL trees.

(No. of Periods : 15)

SECTION-D

(No. of Periods : 15)
References:


**Paper Code**: BCA-303
**Paper Title**: Implementation of Object Oriented Concept through C++

**Theory Marks**: 90  
**Number of Lectures**: 60 (45 minutes duration)

**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, exploit advanced C++ techniques.

**Note**: (i) The syllabus of this paper has been divided into four sections.

(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.

(iii) The students are required to attempt one question from each Section and the entire Compulsory question.

(iv) All questions carry equal marks, unless specified.

(v) The student can use only Non-programmable & Non-storage type

---

**SECTION-A**


Structure of a C++ Program and I/O streams. 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, friend function, inline function, static function.

(No. of Periods : 15)

**SECTION-B**


Function Overloading & Operator Overloading

(No. of Periods : 15)

**SECTION-C**

3. Inheritance - Concept of inheritance, Base class, Defining derived classes, Visibility modes :Public, Private, 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.

4. Polymorphism : Definition, Application and demonstration of Data Abstraction, Encapsulation and Polymorphism. Early Binding, Polymorphism with pointers, Virtual Functions, Late binding, pure virtual-functions

(No. of Periods : 15)
SECTION - D

5. Templates: Function Template, class template
Exception Handling: using try, throw and catch statements

(No. of Periods : 15)

References:


Paper Code : BCA-304
Paper Title : Computer Lab.-1: Based on BCA-301, BCA-302 and BCA-303
Marks : 50
FOURTH SEMESTER
aper Code : BCA -401  
Paper Title : Project Management and System Development  
Theory Marks : 90  
Number of Lectures: 60  
(45 minutes duration)

**Objectives:** To explain the need for project management, role of project managers in organizational environments. Further the course aims to describe the systems development cycle.

Note:

(i) The syllabus of this paper has been divided into four sections.

(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabi.

(iii) The students are required to attempt one question from each Section and the entire Compulsory question.

(iv) All questions carry equal marks, unless specified.

(v) The student can use only Non-programmable & Non-storage type

SECTION-A

   (Total No. of Periods – 15)

SECTION-B

   (Total No. of Periods – 15)

SECTION-C

   (Total No. of Periods – 15)
SECTION – D


Project Management Software Tools: Features, Different components of both licensed and Open Source Software.

(Total No. of Periods – 15)

References:


**Objectives:** This course aims at giving the students the insight of Client Server Computing and Creating Applications using the Oracle.

**Note:**
(i) The syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabi.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type

**SECTION-A**

1. Introduction to DBMS, Advantages and disadvantages of DBMS, introduction to RDBMS,
   Codd's Rule for RDBMS, Difference between DBMS and RDBMS, Normalization. Data Models and their types (Hierarchical, Networking, Relational).
   Introduction to SQL *Plus : Introduction to SQL, Oracle Data types, Starting SQL *Plus, Data Manipulation and Control-I : Data Definition Language (DDL), 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, ROLLUP Operation: Getting Sub Totals, CUBE Operation : Getting Cross Tabs, Command Summary of SQL *Plus Editor.

   (No. of Periods : 15)

**SECTION-B**

2. Functions : Arithmetic Functions, Character Functions, Date Functions, General Functions; Group Functions. Introduction to VIEWs, Manipulating the Base table(s) through VIEWs, Rules of DML Statements on Join Views, Dropping a VIEW, Inline Views, Materialized Views. Querying Multiple Tables : Collating Information: Equi Joins, Cartesian Joins, Outer Joins, Self Joins. ;Set Operator : Union, Intersect, Minus; Nested Queries. Data Manipulation and Control-II : Database Security and Privileges, GRANT Command, REVOKE Command, Application Privileges Management, Enhancing Performance, Sequences, Maintaining Database Objects, COMMIT and ROLLBACK.
SECTION-C


SECTION-D

4. PL/SQL-II: Cursor Management in PL/SQL, Cursor Manipulation, Implicit Cursor Attributes, Exception Handling in PL/SQL; Predefined Exceptions, User Defined Exceptions.


References:


Objective: To introduce UNIX environment, edit and manage files and user-level security for UNIX development. Use standard UNIX development tools for C or C++.

Note: (i) The syllabus of this paper has been divided into four sections.
    (ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabi.
    (iii) The students are required to attempt one question from each Section and the entire Compulsory question.
    (iv) All questions carry equal marks, unless specified.
    (v) The student can use only Non-programmable & Non-storage type calculators.

SECTION-A
   Structure of UNIX: Kernel, Shell. UNIX Directory system
   (No. of Periods : 15)

SECTION-B
   (No. of Periods : 15)

SECTION-C
3. Administering UNIX System: Introduction to System Administration, Functional activities of System Administration - Starting up the system, Maintaining the Super User Login, Shutting down the system, recovering from system crash, Taking backups, Managing disk space, Mounting and Un-mounting file system, Adding and removing users, Changing groups and password, Maintaining security, Monitoring system activity, Accounting of system usage and billing, Setting up remote communication, Installing printers and peripheral devices.
   (No. of Periods : 15)
SECTION - D


(No. of Periods : 15)

References :


Paper Code : BCA-404

Paper Title : Computer Lab.-2: Based on BCA - 402 and BCA - 403

Marks : 50
FIFTH SEMESTER
### Fifth Semester

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<th>Exam. Hours</th>
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<td>Enterpreneurship Development Programme</td>
<td>4</td>
<td>90</td>
<td>10</td>
<td>3</td>
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<tr>
<td>20.</td>
<td>Discrete Mathematics in Computer Science</td>
<td>5</td>
<td>90</td>
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<tr>
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### Sixth Semester

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<tr>
<td>24.</td>
<td>Minor Project and Seminar Based on BCA-601</td>
<td>5</td>
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</tbody>
</table>
SYLLABI 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.

Note : (i) The syllabus of this paper has been divided into four sections.

(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.

(iii) The students are required to attempt one question from each Section and the entire Compulsory question.

(iv) All questions carry equal marks, unless specified.

(v) The student can use only Non-programmable & Non-storage type

SECTION-A

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)

SECTION-B

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)

SECTION-C

3. Managing the Enterprise: Resource management – men, material, money and machines; Personnel management, Office management.


(No. of Periods : 25)

SECTION - D


(No. of Periods : 25)

References :
<table>
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<th>No.</th>
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<th>Title and Details</th>
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<tr>
<td>4</td>
<td>Mohan</td>
<td>Principles of Management Accounting, Mohan &amp; Goyal, Agra Sahitya Bhavan, 1982.</td>
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<td>7</td>
<td>Bare Acts</td>
<td>Central Sales Tax Act, State Sales Tax Act, Central Excise Act and Customs Act.</td>
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<td>8</td>
<td>Bhagwati Prasad</td>
<td>Law and Practice of Income Tax in India, Navman Prakashan.</td>
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<td>Gulshan, S. S.</td>
<td>A Text Book of Commercial Law, S. Chand &amp; Co.</td>
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<td>10</td>
<td>Gupta, B. P.</td>
<td>Industrial Relations, (PHD Chamber of Commerce &amp; Inds.).</td>
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Objectives:

- To study the various graphics techniques
- To study the multimedia concepts and various I/O technologies.
- To enable the students to develop creative graphics based programs.

Note:

1. The syllabus of this paper has been divided into four sections.
2. Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.
3. The students are required to attempt one question from each Section and the entire Compulsory question.
4. All questions carry equal marks, unless specified.
5. The student can use only Non-programmable & Non-storage type

Computer Graphics:

1. A Survey of Computer Graphics:
   (No. of Periods: 15)

2. Overview of Graphics Systems:
   (No. of Periods: 10)

SECTION-B

   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)
SECTION-C

Multimedia Technology :


7. Applications:

(No. of Periods : 25)

SECTION-D


9. Studying features and use of Multimedia Image Processing authoring tools like Photoshop and Macromedia Director.

(No. of Periods : 25)

References :


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 syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering the whole syllabus.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type Calculator.

SECTION-A

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)

SECTION - B

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)

SECTION-C


   (No. of Periods: 25)
SECTION-D

(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)

References:


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 languages.

Note: (i) The syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type

SECTION-A

1. Review of forms in HTML, Introduction to cascading style sheets (CSS), defining and applying CSS.
   Javascript: 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)

SECTION-B

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)

SECTION-C

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)
SECTION-D


I/O Applets: I/O Basics: Streams, The predefined streams; Reading console I/P, Writing console O/P. The print writer class; Reading and Writing files. Applet fundamentals, Using AWT controls: AWT Classes, Adding and Removing Controls, Responding to Controls, Controls and their classes, Graphics and Text, Layout Managers: Understanding Layout Manager, FlowLayout, BorderLayout, GridLayout, CardLayout, Menus.-Event handling: Two Event Handling Mechanisms, Delegation Event Model (Events, Event Sources, Event Classes, Event Listeners, Sources of Events, Event Listener Interfaces, Handling Mouse and Keyboard Events.

(No. of Periods: 25)

References:

Objectives: This course will enable the student to understand the basic organization of computer system and system maintenance.

Note: (i) The syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type Calculator.

SECTION-A


   (No. of Periods: 25)

SECTION-B

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)

SECTION-C

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)
SECTION-D


(No. of Periods: 25)

**References:**


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: (i) The syllabus of this paper has been divided into four sections.
(ii) Examiner will set total nine questions comprising two questions from each Section and one compulsory question of short answer type covering whole syllabus.
(iii) The students are required to attempt one question from each Section and the entire Compulsory question.
(iv) All questions carry equal marks, unless specified.
(v) The student can use only Non-programmable & Non-storage type Calculator.

SECTION-A
1. Introduction to Data Communication: Data Communication fundamentals, Simplex, Half-Duplex, Full-Duplex

2. Physical Layer: Transmission Media, Switching, ISDN & its services, Multiplexing, Modems.
   (No. of Periods: 15)

SECTION-B
   (No. of Periods: 15)

SECTION-C
   (No. of Periods: 15)

SECTION-D
   (No. of Periods: 15)
References:

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).

***************
FACULTY OF BUSINESS MANAGEMENT
AND COMMERCE

OUTLINES OF TESTS SYLLABI AND COURSES OF READING
FOR
BACHELOR OF BUSINESS ADMINISTRATION
(Semester System)

For the Examination 2016-17
SYLLABI FOR B.B.A. FOR THE EXAMINATION OF 2016-2017 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 (Seminar, Project & Assignment) : 30%
   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:

<table>
<thead>
<tr>
<th>Section</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section A</td>
<td>Four numerical questions out of six questions.</td>
</tr>
<tr>
<td>Section B and C</td>
<td>At least two numerical questions out of four questions.</td>
</tr>
</tbody>
</table>
### Scheme of Examination for B.B.A (2016-2017)

<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><strong>FIRST SEMESTER</strong></td>
<td></td>
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</tr>
<tr>
<td>BBA 101A/</td>
<td>PUNJABI / HISTORY AND CULTURE</td>
<td>50</td>
<td>3</td>
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<tr>
<td>BBA 101B</td>
<td>OF PUNJAB</td>
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<tr>
<td>BBA 102</td>
<td>BUSINESS STATISTICS*</td>
<td>100</td>
<td>5</td>
<td>1</td>
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<tr>
<td>BBA 103</td>
<td>FUNDAMENTALS OF INFORMATION TECHNOLOGY</td>
<td>100</td>
<td>6</td>
<td></td>
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<tr>
<td>BBA 104</td>
<td>MANAGEMENT CONCEPTS AND PRACTICES</td>
<td>100</td>
<td>6</td>
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<tr>
<td>BBA 105</td>
<td>FINANCIAL ACCOUNTING*</td>
<td>100</td>
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<td>BBA 106</td>
<td>ESSENTIALS OF BUSINESS ECONOMICS ï I</td>
<td>100</td>
<td>6</td>
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<td>TOTAL</td>
<td>550</td>
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<tr>
<td><strong>SECOND SEMESTER</strong></td>
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<tr>
<td>BBA 121A/</td>
<td>PUNJABI / HISTORY AND CULTURE</td>
<td>50</td>
<td>3</td>
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<tr>
<td>BBA 121B</td>
<td>OF PUNJAB</td>
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<tr>
<td>BBA 122</td>
<td>MANAGERIAL &amp; SOFT SKILLS MANAGEMENT</td>
<td>100</td>
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<tr>
<td>BBA 123</td>
<td>ESSENTIALS OF BUSINESS ECONOMICS ï II</td>
<td>100</td>
<td>6</td>
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<tr>
<td>BBA 124</td>
<td>BUSINESS LAWS</td>
<td>100</td>
<td>6</td>
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<tr>
<td>BBA 125</td>
<td>PSYCHOLOGY FOR MANAGERS</td>
<td>100</td>
<td>6</td>
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<tr>
<td>BBA 126</td>
<td>FINANCIAL MANAGEMENT*</td>
<td>100</td>
<td>5</td>
<td>1</td>
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<td></td>
<td>TOTAL</td>
<td>550</td>
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<tr>
<td></td>
<td>ENVIRONMENT, ROAD SAFETY</td>
<td>100</td>
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<td></td>
<td>EDUCATION AND VIOLENCE</td>
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<td></td>
<td>AGAINST WOMEN &amp; CHILDREN**</td>
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<tr>
<td><strong>THIRD SEMESTER</strong></td>
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<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>
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<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  INDIRECT TAX LAWS*  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>gₜBr h ; t fₑqₜh</td>
</tr>
<tr>
<td>2. Access</td>
<td>gj b</td>
</tr>
<tr>
<td>3. Account</td>
<td>bₚk</td>
</tr>
<tr>
<td>4. Accountant</td>
<td>bₚlekt</td>
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<tr>
<td>5. Account Book</td>
<td>t j hylₜk</td>
</tr>
<tr>
<td>6. Acknowledgement</td>
<td>gₗ b o ; hd</td>
</tr>
<tr>
<td>7. Advance</td>
<td>g/r h</td>
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<tr>
<td>8. Alternative Cost</td>
<td>ft ebghbₜk s</td>
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<tr>
<td>9. Amalgamation</td>
<td>; āw oD</td>
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<tr>
<td>10. Amortization of Debts</td>
<td>eof n Kdkfe st lo G skB</td>
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<tr>
<td>11. Amortization of fixed Assets</td>
<td>n ub ; gₚshdhfe st lo gₚsh</td>
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<tr>
<td>12. Annuity</td>
<td>t lₜf eh</td>
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<tr>
<td>13. Anticipated Prices</td>
<td>n BₜWₜBs ehₜs K</td>
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<tr>
<td>14. Arbitration</td>
<td>; kb ; h ft ubr h</td>
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<td>15. Assessed Tax</td>
<td>fBoXₜlos eo</td>
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<td>16. Assets</td>
<td>; gₚs h</td>
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<tr>
<td>17. Assets and Liabilities</td>
<td>b Dₜdloₜm Kns/d Dₜdloₜm K</td>
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<tr>
<td>18. Authorized Capital</td>
<td>n fxelₜs gₚj h</td>
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<tr>
<td>19. Audit</td>
<td>bₚykgVs kb</td>
</tr>
<tr>
<td>20. Audit Staff</td>
<td>bₚykgVs kb n wbk</td>
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<tr>
<td>21. Average</td>
<td>nₜ's</td>
</tr>
<tr>
<td>22. Average Productivity</td>
<td>nₜ's Tₜgₜdes k</td>
</tr>
<tr>
<td>23. Average Income</td>
<td>nₜ's n kwdB</td>
</tr>
<tr>
<td>24. Back Log</td>
<td>fgsbₜkpeₜk j nk</td>
</tr>
<tr>
<td>25. Balance Sheet</td>
<td>/ ; loDh</td>
</tr>
<tr>
<td>26. Bankrupt</td>
<td>fdt lₜbₜm k</td>
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<tr>
<td>27. Barter</td>
<td>t ; s t N dok</td>
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<tr>
<td>28. Beneficial</td>
<td>b kGdₜf e</td>
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<td>29.</td>
<td>Bilateral Agreement</td>
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<td>30.</td>
<td>Bill of Exchange</td>
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<td>31.</td>
<td>Bond</td>
</tr>
<tr>
<td>32.</td>
<td>Book Value</td>
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<td>33.</td>
<td>Book Keeping</td>
</tr>
<tr>
<td>34.</td>
<td>Break-Even Point</td>
</tr>
<tr>
<td>35.</td>
<td>Breach of Trust</td>
</tr>
<tr>
<td>36.</td>
<td>Broker</td>
</tr>
<tr>
<td>37.</td>
<td>Capital Account</td>
</tr>
<tr>
<td>38.</td>
<td>Capital Expenditure</td>
</tr>
<tr>
<td>39.</td>
<td>Capital Formation</td>
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<tr>
<td>40.</td>
<td>Capital Investment</td>
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<tr>
<td>41.</td>
<td>Capital Gains</td>
</tr>
<tr>
<td>42.</td>
<td>Capital Goods</td>
</tr>
<tr>
<td>43.</td>
<td>Cash Account</td>
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<tr>
<td>44.</td>
<td>Cash Balance</td>
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<tr>
<td>45.</td>
<td>Cash Book</td>
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<tr>
<td>46.</td>
<td>Census</td>
</tr>
<tr>
<td>47.</td>
<td>Circulating Capital</td>
</tr>
<tr>
<td>48.</td>
<td>Commerce</td>
</tr>
<tr>
<td>49.</td>
<td>Commercial Capital</td>
</tr>
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<td>50.</td>
<td>Commodity</td>
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<td>51.</td>
<td>Company</td>
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<tr>
<td>52.</td>
<td>Competition</td>
</tr>
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<td>53.</td>
<td>Corporation</td>
</tr>
<tr>
<td>54.</td>
<td>Cost Account</td>
</tr>
<tr>
<td>55.</td>
<td>Cost of Production</td>
</tr>
<tr>
<td>56.</td>
<td>Current Account</td>
</tr>
<tr>
<td>57.</td>
<td>Current Liabilities</td>
</tr>
<tr>
<td>58.</td>
<td>Debenture</td>
</tr>
<tr>
<td>59.</td>
<td>Debt Management</td>
</tr>
</tbody>
</table>
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
HISTORY AND CULTURE OF PUNJAB

For B.Sc. /B.Sc. (Hons) Bio-Technology/B.Sc. (Hons) Bio-Informatics/B.Sc. 4 year agriculture /BCA/B.Sc. Fashion Disigning/B.Sc. Microbial and Food Technology / 4 year B.PEd. /BFA/BBA/B.Com B.A Hons. (Education) B.Ed. etc. all courses that take this paper for ONE year only.

6 credit course

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 carrying 5 marks i.e. 1 marks 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 : 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.

BBA 101B 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. Vedic Age: socio-economic life; development of caste; position of women.
3. Religion: vedic religion; impact of Buddhism and Jainism on the region.

UNIT II

4. Society and Culture c. 1000 A.D.: Socio-economic life; religious life; education
5. Cultural Reorientation: main features of Bhakti; origin and development of Sufism
UNIT III


9. Institution of Khalsa: new baptism; significance

UNIT IV


11. Society and Culture under Maharaja Ranjit Singh: social mobility; painting and architecture; literature.


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, MunshiRam 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.
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 Tendancy: 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


UNIT- II


E- Business Infrastructure ī The Internet ī Intranets and Extranets ī World Wide Web ī Voice Over IP (VoIP) ī The Internet Standards ī The HTTP Protocol ī Audio and Video Standards ī Managing E- Business Infrastructure ī Web Services and Service-Oriented Architecture ī (SOA) ī New Access Devices ī Future of the Internet Infrastructure

Suggested Readings:

BBAS104: MANAGEMENT CONCEPTS AND PRACTICES

Unit I

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:
BBAS106: ESSENTIALS OF BUSINESS ECONOMICS - I

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. Dernburg, Macro economics.
7. A. Kontsoyianis; Modern Micro-Economics.
8. M. Adhikary ; Business Economics.
<table>
<thead>
<tr>
<th>Business Vocabulary</th>
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<tbody>
<tr>
<td>1. Imperfect Market</td>
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<td>2. Imports</td>
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<td>3. Import Duty</td>
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<td>4. Imputed Income</td>
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<td>5. Imprest Account</td>
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<td>6. Income Statement</td>
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<td>8. Income Tax</td>
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<td>10. Intangible Assets</td>
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<td>15. Joint Venture</td>
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<td>18. Lease Holding Building and Property</td>
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<td>19. Ledger</td>
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<td>20. Ledger Folio</td>
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<td>21. Liabilities</td>
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<td>22. Liquidator</td>
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<td>24. Marketable Goods</td>
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<td>25. Mechanization</td>
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<td>27. Monetary System</td>
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<td>28. Money of Account</td>
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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
HISTORY AND CULTURE OF PUNJAB

For B.Sc. /B.Sc. (Hons) Bio-Technology/B.Sc. (Hons) Bio-Informatics/B.Sc. 4 year agriculture /BCA/B.Sc. Fashion Disigning/B.Sc. Microbial and Food Technology / 4 year B.PEd. /BFA/BBA/B.Com etc. all courses that take this paper for ONE year only.

6 credit course

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 : 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.

BBA 121 B 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 Ï 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.).
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.
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:

1. Shapiro, E
   Macroeconomic analysis Galotia publications, New Delhi.
2. Eugene Diulio
4. Ackley, G.
   Macroeconomics: Theory and Policy, Macmillan, New York
5. Baye, Jansen
6. Dennis, Geoffrey EJ
7. Khan, MY
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:

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 ï Maslow, Herzberg , Mc Gregor and Mc Cllenland.

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 I 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 UNDER-GRADUATE 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); 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 (procurement 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
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:

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

(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 students' 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
BBA 203: MARKETING MANAGEMENT

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:

6. Bharat’s Company Rule and Forms, Bharat Law House, New Delhi..
BBA 206: DIRECT TAX LAWS

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 І Dr. H. C. Mehrotra & Dr. S.P. Goyal (Sahitya Bhawan Publications, Agra)

3. Income Tax І 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.
<table>
<thead>
<tr>
<th>Q.4.</th>
<th>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.</th>
<th>5 marks</th>
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<tr>
<td><strong>Section II (Based upon Unit II)</strong></td>
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<td>Q.5.</td>
<td>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.</td>
<td>10 marks</td>
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<tr>
<td>Q.6.</td>
<td>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).</td>
<td>5 marks</td>
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<tr>
<td>Q.7.</td>
<td>Definition/format of Modern forms of communication to be tested Nonverbal communication, e-mail, fax, Audio-Visual Aids and Power-Point Presentations.</td>
<td>5 marks</td>
</tr>
<tr>
<td>Q.8.</td>
<td>Curriculum Vitae</td>
<td>5 marks</td>
</tr>
</tbody>
</table>
 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 ñ Steps, Monitoring the Environment, Scouting for Project Ideas, Preliminarily Screening, Project Rating Index.

Feasibility Studies ñ Technical, Financial, Economic, Social, Legal and Managerial.

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 ñ 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: INDIRECT TAX LAWS

Objective: The objective of this paper is to help the students to acquire the knowledge of indirect tax laws prevailing in India.

UNIT – I


Value Added Tax – Basic Concepts and Historical Background, Levy of VAT, Difficulties in Administering VAT, Mode of Operation of VAT System, Variants of VAT and Methods of Computation of VAT Liability, Merits and Demerits of VAT. Set-Off/Input Tax Credit, Carrying over of Tax Credit, Registration, TIN.


UNIT – II


Service Tax: Nature of Service Tax, Meaning of Service, Negative List, Mega Exemption Notification, Registration, Computation of Service Tax Liability, Point of Taxation, Reverse Charge Mechanism, Small Service Provider, Service Tax Procedure.

Note: The paper setter will consider the changes upto 30th September of relevant year.

Practical Work: Fillings of Forms for Registration Returns, Assessment etc.

Suggested Readings:

1. Indirect Tax Laws - Dr. Vinod K. Singhania & Dr. Monica Singhania (Taxmann Publications, New Delhi).

2. Indirect Taxes – Dr. H. C. Mehrotra & Dr. V.P. Agarwal (Sahitya Bhawan Publications, Agra)
BBA 226: DATABASE MANAGEMENT SYSTEM

Objective: The objective of the paper is to impart basic knowledge of data base 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

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
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:** EDPâ‚°, relevance and achievements; Role of Government in organizing EDPâ‚°, 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.

**Management Process in Small Business:** Product and Marketing Scope, Legal and Tax consideration, Risk analysis and financial considerations. Profit 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.
BBA 307: FINANCIAL MARKETS AND SERVICES

Objectives: To advance the understanding of fundamental concepts of financial markets, financial instruments in various markets and important financial services.

Unit – I

Indian Financial System ï Meaning, Importance, Functions and Structure (Overview of Financial Markets, Financial Institutions, Financial Instruments and Financial Services)

Money Marketî Structure of Indian Money Market (Organized, Co-operative and Unorganized Sectors); Instruments of Money Market ï 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 Marketî 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 î Meaning and Importance.

Merchant Banking and Investment Banking î A brief overview of Issue Management, Underwriting Services, Corporate Debt Restructuring, Project Counselling, Portfolio Management and Loan Syndication

Mutual Funds î concept, advantages, mutual funds schemes (growth, income, balanced, gilt î edged, equity î linked and money market mutual funds)

Factoring Services î 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
Suggested Readings:


Note: Latest edition of text book must be used.

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 – Meaning of Security 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 TradersÔIndex, Price Indicators- Relative Strength Index, Average Directional Index and Momentum, and Volume Indicators- On Balance Volume.

Efficient Market Hypothesis – Concept, Forms and Random Walk Theory

Unit - II

Portfolio Management – Concept and Markowitz Model


Portfolio Performance Evaluation – Sharpe, Treynor and Jensen Models

Value vs. Growth Investing
Suggested Readings:
1. Investment Management by V.K.Bhalla - S. Chand Publishing
4. Security Analysis and Portfolio Management by Fischer and Jordan - 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 Of & in the course of Employment 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 ñ Modification, Interpretation & Enforcement of Standing Order.


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.

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 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
5. Muhleman, Production and Operations Management, Pearson Education.

Note: Latest edition of text book must be used.

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:**

3. Advertising and Promotion by George E.Belch& Michael A. Balch, McGraw Hill Irwin Publication
4. Advertising And Sales Promotion by S.H.H Kazmi and Satish K. Batra, Excel books
5. Advertising Planning and Implementation by Sangeeta Sharma and Raghuvir Singh, PHI
7. Contemporary Advertising, Promotion and Marketing Communications by Kenneth K Clow, Donald Baac, PHI Learning Private Limited, New Delhi
8. Advertising Theory & Practice by Sandage, Fryburger, Ratroll Longman Group

**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:**

1: Jawahar Lal, Seema Srivastava: Cost Accounting, Tata McGraw Hill
2: S.N. Maheshwari: Cost and Management Accounting, Sultan Chand and Sons.
4: Horngren, Srikant M. Datar, George Foster: Cost Accounting, Prentice Hall.
5: P.C. Tulsian, Bharat Tulsian: Cost Accounting, S. Chand Publishing
6: M.N. Arora: Cost Accounting, Vikas Publishers
7: Ravi M. Kishore: Cost Accounting, Taxmann Publications Pvt. Ltd.

**Note:** Latest edition of text book must be used.

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**BBA 328: ACCOUNTING FOR MANAGEMENT**

**Objective:** To acquaint students with concepts of cost and management accounting and their application in managerial decision making.

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**Unit I**


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**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.

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**Suggested Readings:**

2. Lal, Jawahar, Advanced Management Accounting, Text and Cases, S. Chand & Company, New Delhi.
7. S.N.Maheshwari: Cost and Management Accounting, Sultan Chand and Sons.

**Note:** Latest edition of text book must be used.

**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:** Meaning, Features, Factors affecting HRP, Objectives, importance, types.

**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.
### B.Voc. (Food Processing and Quality Management)

**Session 2016-17**

#### Semester I

<table>
<thead>
<tr>
<th>Paper Code</th>
<th>Title</th>
<th>Generic/Skill Component</th>
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<tr>
<td>FPQM-103</td>
<td>Introduction to bakery and confectionary</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
<td>10</td>
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<td>FPQM-104</td>
<td>Dairy technology</td>
<td>Skill</td>
<td>Theory &amp; Practical</td>
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<td>GC 202</td>
<td>Business Ethics</td>
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<td>Food Packaging</td>
<td>Skill</td>
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<td>Industrial Safety, Hazards &amp; Prevention</td>
<td>Skill</td>
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<td>FPQM-205</td>
<td>Food Plant Layout &amp; waste disposal</td>
<td>Skill</td>
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*Refers to all Generic Components common to all B.Voc. Courses*

**Industrial Training of 5-6 weeks of 6 credits in each year followed by Report Writing and Viva-voce**

*These credits will be evaluated in Semester VI*
### Semester I

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<td>FPQM-103</td>
<td>Introduction to bakery and confectionary</td>
<td><strong>Baking technologist:</strong> Responsible for manufacture of bakery and confectionary products and their quality control</td>
</tr>
<tr>
<td>FPQM-104</td>
<td>Dairy Technology</td>
<td><strong>Dairy Technologist:</strong> To supervise manufacture of dairy products like milk, butter, yogurt, cheese and their preservation</td>
</tr>
<tr>
<td>FPQM-105</td>
<td>Food Quality control</td>
<td><strong>Food quality control manager:</strong> 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.</td>
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### Semester II

<table>
<thead>
<tr>
<th>Code</th>
<th>Skill Component</th>
<th>Job Role</th>
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<tbody>
<tr>
<td>FPQM 203</td>
<td>Food Packaging</td>
<td><strong>Food Packaging technician:</strong> 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.</td>
</tr>
<tr>
<td>FPQM 204</td>
<td>Industrial Safety, Hazards &amp; Prevention</td>
<td>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</td>
</tr>
<tr>
<td>FPQM205</td>
<td>Food Plant Layout and waste disposal</td>
<td><strong>Food Plant layout officer:</strong> Managing and updating food plant layout time to time as per business policies and safety standards.</td>
</tr>
</tbody>
</table>
Semester I

FPQM-103: INTRODUCTION TO BAKERY AND CONFECTIONERY

Course Objectives:

• To understand the role of different ingredients used in Baking Industry.
• To know the general methods of processing and preservation of foods.
• To identify the microorganisms that can otherwise spoil bakery products.

Instructions for paper setters

☐ The syllabus of this paper has been divided into four units.
☐ Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
☐ The students are required to attempt one question from each 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.
Text books/ References:

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

Time: 3 hours

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

FPQM 104: DAIRY TECHNOLOGY

Course Objectives:

• To develop knowledge among students about various aspects of dairy industry.
• To study quality standards and production of various types of milk and milk products.
  • To study the role of dairy farming in Indian economy

Instructions for paper setters

☐ The syllabus of this paper has been divided into four units.
☐ Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
☐ The students are required to attempt one question from each 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.

Types of market milk: Toned milk, Double Toned milk, Standardized Milk, Recombined milk, reconstituted milk, fortified milk,. Effluent treatment of dairy plant disposal.
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

Text books/ References:
1. Fluid milk industry, J.S Handerson, A.V.I Publishing Company, USA
2. Indian Dairy products, K.T. Acharya Publication

PRACTICAL BASED ON FPQM 104

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
9. Methylene blue reduction test in milk

FPQM 105: FOOD QUALITY CONTROL

Course Objectives:
• To understand the different principles and functions of food quality control department.
• To understand various food laws and regulations

Instructions for paper setters

☐ The syllabus of this paper has been divided into four units.
Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.

The students are required to attempt one question from each 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.
3. Quality evaluation of milk and milk products
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

**Text books/ References:**


Semester II

Paper Title: GC 202 - BUSINESS ETHICS

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.

Instructions:
- The syllabus of this paper has been divided into FOUR units.
- 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.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

Unit I

Business Ethics: Meaning and Concept, Principles of Business Ethics, Characteristics of Ethical Organisations, Theories of Business Ethics.

Unit-II

Globalization and Business Ethics, Stakeholder’s Protection, Corporate Governance and Business Ethics. Ethical Issues in Indian Business.

Unit - III

Professional Values: Objectives, Morals, Values, Ethics, Integrity, Work ethics, Service learning, Virtues, Respect for others, Living peacefully, Caring, Sharing, Honesty, Courage, Valuing time, Cooperation, Commitment, Empathy, Self-confidence, Challenges in the work place, spirituality

Unit-IV

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.

Suggested Readings:

   Oxford University Press, New Delhi.

**FPQM- 203: FOOD PACKAGING**

**Course Objective:**

• To enable the students to understand about packaging and packaging materials, compatibility of various food items with packaging materials

**Instructions for paper setters**

☐ The syllabus of this paper has been divided into four units.
☐ Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
☐ The students are required to attempt one question from each 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**


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.

Unit IV

Text Books/ References.

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.

FPQM- 204: INDUSTRIAL SAFETY, HAZARDS & PREVENTION

Course Objectives:
• To create awareness about health hazards of industrial substances.
• To evaluate the threshold value of industrial hygiene and safety.

Instructions for paper setters
☐ The syllabus of this paper has been divided into four units.
Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.

The students are required to attempt one question from each 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.

Text books/ References:

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.
FPQM- 205: FOOD PLANT LAYOUT AND WASTE DISPOSAL

Course objective:

- Introduction of the basic setup of a food processing industry
- To make them conversant with the machinery and equipments used in different types of food industry

Instructions for paper setters

- The syllabus of this paper has been divided into four units.
- Examiner will set a total of nine questions comprising two questions from each unit, and one compulsory question of short answer type covering the whole syllabus.
- The students are required to attempt one question from each. 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.

Text Books/ References.


Practical based on FPQM-205

Time: 3 hours

1. Industrial visit and report making.
**Bachelor of Vocational (B.Voc). (Medical Lab Technology)**

**Job Role – Medical Lab Technician**

**SEMESTER I**

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<td>Introduction To Medical Technology Healthcare Systems</td>
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*Refers to all Generic Components common to all B.Voc. Courses*

*Industrial Training of 5-6 weeks of 6 credits in each year followed by Report Writing and Viva-voce*

*These credits will be evaluated in Semester VI*

**Non Credit**
Objectives: Basic understanding of organization of body cells, tissues, organs, organ systems, and glands in human body

Instructions:

- The syllabus of this paper has been divided into four units.
- 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.
- The students are required to attempt one question from each unit.
- All questions carry equal marks

Section I

- Basic unit of body - Cell
- The anatomical organization of human body
- Introduction to different types of tissues: Anatomy, epithelial tissue, muscular tissue, nervous tissue. Different types of organ systems.
- Skeletal system: bones, joints and muscles.

Section II

Digestive Organs:
- Tongue
- Teeth
- Oral cavity
- Pharynx
- Oesophagus
- Stomach
- Small intestine
- Large intestine and its colons
- 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, names and position of main blood vessels.

Section IV

Reproductive Organs Male and Female Gonads

E) 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:

<table>
<thead>
<tr>
<th>Anatomy &amp; Physiology</th>
<th>Ross and Wilson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Physiology</td>
<td>N Murgesh</td>
</tr>
<tr>
<td>Anatomy and Physiology for nurses</td>
<td>Evelyn Pearce</td>
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<td>Anatomy and Physiology for nurses</td>
<td>Sears</td>
</tr>
<tr>
<td>Anatomy and Physiology for nurses</td>
<td>Pearson</td>
</tr>
<tr>
<td>Human Anatomy,</td>
<td>Harie R. Berasari</td>
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</table>
MLT 104
INTRODUCTION TO LABORATORY EQUIPMENTS

Objectives:
- To gain broad understanding of care of laboratory glassware, equipment and instrument
- To gain broad understanding of setting up, calibrating, operating, cleaning, maintaining, troubleshooting of laboratory equipment used in quantitative or qualitative analysis
- To Calibrate and Validate the Clinical Laboratory instruments and glass wares
- To understand Microscopy, working principle, maintenance and applications of various types of microscopes

Instructions:
- The syllabus of this paper has been divided into four units.
- 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.
- The students are required to attempt one question from each unit.
- All questions carry equal marks

Section I
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.

SECTION IV

- 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

<table>
<thead>
<tr>
<th>Book Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the Bench: A Laboratory Navigator</td>
<td>Kathe Barker</td>
</tr>
<tr>
<td>At the Helm: A Laboratory Navigator</td>
<td>Kathe Barker</td>
</tr>
<tr>
<td>Basic Medical Laboratory techniques</td>
<td>Barbara H. Estridge et al</td>
</tr>
<tr>
<td>Instrumental Analysis</td>
<td>Chatwal Anand</td>
</tr>
<tr>
<td>Laboratory Reference</td>
<td>Jane Roskams</td>
</tr>
<tr>
<td>Medical Dictionary</td>
<td>Oxford</td>
</tr>
<tr>
<td>Medical Informatics</td>
<td>Mohan Bansal</td>
</tr>
</tbody>
</table>
MLT 105
INTRODUCTION TO HEMATOLOGY

Objectives:

☐ To gain understanding of blood and components of blood
☐ To gain knowledge of hematological Diseases and hematological Investigations.

Instructions:

• The syllabus of this paper has been divided into four units.
• 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.
• The students are required to attempt one question from each unit.
• All questions carry equal marks

Section I

☐ Introduction to hematology and laboratory organization
☐ Formation of blood.
☐ Composition and functions of blood. The chemical composition, structure, and properties of substances, Morphology of normal blood cells and their identifications
☐ Heamostasis, Mechanism of blood coagulation. Fibrinolysis., body fluids.

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

- Cleaning of Laboratory glassware in hematology
- Clinical significance , specimen collection, laboratory investigation & preservation of blood for various hematological investigations
- Preparation of blood smear.
- Total leukocyte count and Differential leukocyte count.
- Haemoglobinometry, various methods of estimation of Hb, errors involved and standardization of instrument for adaptation for Hb estimation.
- Haemocytometry, procedures for cell counts-visual as well as electronic.
- Determination of total erythrocyte(RBC) count and platelet counts. Errors involved and mean to minimize such errors.
- Romanowsky dyes, preparation and staining procedures of blood smears.
- Laboratory tests for assessing bleeding disorders

Reference Books

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlas of haematology (5/e)</td>
<td>G.A. McDonald</td>
</tr>
<tr>
<td>Clinical Haematology</td>
<td>Christopher A. Ludlam</td>
</tr>
<tr>
<td>Practical Haematology</td>
<td>J.B. Dacie</td>
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<tr>
<td>Practical Haematology (8/e) S</td>
<td>ir John</td>
</tr>
<tr>
<td>Haematology (International edition)</td>
<td>Emmanuel C.Besa</td>
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<tr>
<td>Haematology (Pathophysiological basis for clinical practice (3/e)</td>
<td>Stephen M. Robinson</td>
</tr>
<tr>
<td>Haematology for students Practitioners</td>
<td>Ramnik Sood</td>
</tr>
<tr>
<td>Hand book of Medical Laboratory Technology (2/e)</td>
<td>V.H. Talib</td>
</tr>
</tbody>
</table>
Objective:
- To Understand about Healthcare Service Providers
- To develop broad understanding of the Role of MLT
- To Understand Patient’s Rights & Responsibilities

Section I
- Introduction to medical technology
- Healthcare Systems, Laboratory and Delivery
- Role of Medical Laboratory Technician
- Patient Comforts and Safety
- Understanding of Laboratory Test Results
- Ethical Behavior

Section II
- Patient’s Rights & Responsibilities
- Understand sensitivities involved in patient’s right
- Learn medical laboratory technician’s role in maintaining patient's rights
- Patient’s Environment

SECTION III
- Use of laboratory related medical terminology in daily activities with colleagues, patients and family
- Monitor and assure quality and quality assurance program
- The organisations’ policies and commitments towards quality assurance

SECTION IV
- Maintain a safe, healthy, and secure working environment
- The 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
MLT 108
BASICS OF PHYSIOLOGY

Objectives:
☐ Basic understanding of physiology of different organ system of body.

Instructions:

- The syllabus of this paper has been divided into four units.
- 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.
- The students are required to attempt one question from each unit.
- All questions carry equal marks

SECTION I
☐ Nutrition (Vitamins, Calories)
☐ Integumentary system
☐ Digestive system, mechanism and physiology of digestion and absorption.

SECTION II
☐ Lymphatic system, different types of body fluids: secretions and excretions,
☐ Spleen, lymph node and R.E. system
☐ Cardiovascular system and blood vessels

SECTION III
☐ Respiratory system.
☐ Musculo-skeletal system
☐ Reproductive System

SECTION IV
☐ Nervous system and Sense organs
☐ Endocrine glands and their functions.

PRACTICAL
☐ Study of systems mentioned in theory through Charts.
☐ To separate the plasma and serum from given blood sample
☐ Study of various endocrine glands through permanent slides
MLT 109
Clinical Biochemistry

Objectives:
- Elementary knowledge of Carbohydrates, lipids, Proteins, Enzymes, Clinical enzymology.
- Elementary knowledge of Hormones
- Elementary knowledge of Minerals and Electrolytes
- To Understand about Therapeutic Drug Monitoring

Instructions:
- The syllabus of this paper has been divided into four units.
- 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.
- The students are required to attempt one question from each unit.
- All questions carry equal marks

Section I
- Introduction and general properties of Nucleic acids and Enzymes.
- Clinical enzymology

Section II
Enzyme Histochemistry and 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

Section III

- Elementary knowledge of Minerals and Electrolytes
- Therapeutic Drug Monitoring

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

<table>
<thead>
<tr>
<th>Book Title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>A guidebook to Biochemistry</td>
<td>Michael Yudkin</td>
</tr>
<tr>
<td>A Manual of Laboratory &amp; Diagnostic Tests (6/e)</td>
<td>Frances Fischbach</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Voet and Voet</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>Stryer</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>U. Satyanarayan. &amp; U. Chakrapani</td>
</tr>
<tr>
<td>Clinical Biochemistry</td>
<td>Richard Luxton</td>
</tr>
<tr>
<td>Clinical Diagnosis &amp; Management by Laboratory method0 (20/e)</td>
<td>John Bernard Henary</td>
</tr>
<tr>
<td>Clinical Biochemistry</td>
<td>G. Guru</td>
</tr>
<tr>
<td>Handbook of Biochemistry</td>
<td>M.A. Siddique</td>
</tr>
<tr>
<td>Textbook of Medical Biochemistry</td>
<td>S. Ramkrishnan</td>
</tr>
<tr>
<td>Biochemical Techniques</td>
<td>K. Choudhary</td>
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<tr>
<td>Text book of Medical Biochemistry</td>
<td>Chaterjee &amp; Shinde</td>
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<tr>
<td>Principles of Biochemistry</td>
<td>David L. Nelson</td>
</tr>
<tr>
<td>Principles of Biochemistry</td>
<td>Lehninger</td>
</tr>
<tr>
<td>Textbook of Biochemistry and Human Biology</td>
<td>G.P. Talwar</td>
</tr>
<tr>
<td>Textbook of Medical Laboratory Technology</td>
<td>Godkar and Godkar</td>
</tr>
<tr>
<td>Outline of Biochemistry</td>
<td>Conn Stumpf</td>
</tr>
</tbody>
</table>
MLT 110
Analytical Laboratory Testing Process-I

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:
- The syllabus of this paper has been divided into four units.
- 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.
- The students are required to attempt one question from each unit.
- All questions carry equal marks

SECTION I

☐ Collection and recording of biological specimens
☐ Collection and Handling of Blood Sample

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) Diacetyl monoxime method
☐ 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, 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, 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.

Reference Books

| Textbook of Medical Laboratory Technology | Godkar and Godkar |
| Research Methodology in Medical Sciences | Chandorkar |
| Practical Clinical Biochemistry | Harold Varley |
| Medical Laboratory Sciences, Theory & Practical | A. Kolhatkar |
| Medical Laboratory Technology – Volume I | Kanai Mukherjee |
| Medical Laboratory Technology – Volume II | Kanai Mukherjee |
| Medical Laboratory Technology – Volume II | Kanai Mukherjee |
| Medical Laboratory Technology Methods & Interpretation (5/e) | Ramnik Sood |

***************
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:

| PART – I | Theory Papers | 1600 Marks |
| PART – II | Practical Course (Skill and Prowess) | 800 Marks |
| PART – III | Practice of Teaching | 800 Marks |

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:

| Part-I: Theory | Pass 35% | Third Division Less than 50% marks in Aggregate | Second Division 50% | First Division 60% | Distinction 75% |
| Part-II: Practical Course (Skill and Prowess) | 40% | Less than 50% marks in Aggregate | 50% | 60% | 75% |
| Part-III: Practice of Teaching | 40% | Less than 50% marks in Aggregate | 50% | 60% | 75% |

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>
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<td>Core Course</td>
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<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>
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<td>II.</td>
<td>CC-102</td>
<td>Anatomy and Physiology</td>
<td>68</td>
<td>4</td>
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<td>80</td>
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<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>
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<tr>
<td>IV.</td>
<td>EC-101</td>
<td>Olympic Movement</td>
<td>68</td>
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<td></td>
<td>EC-102</td>
<td>Officiating and Coaching</td>
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**Elective Course (Any One)**

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<tr>
<th>Paper</th>
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<tr>
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<td>Officiating and Coaching</td>
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**PART-II PRACTICAL COURSE (SKILL AND PROWESS)**

<table>
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<tr>
<th>Paper</th>
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<tr>
<td>PC-101</td>
<td></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>
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<tr>
<td>PC-102</td>
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<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
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<tr>
<td>PC-103</td>
<td></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>
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<tr>
<td>PC-104</td>
<td></td>
<td>Basketball, Football, Kabaddi, Kho-Kho</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20</td>
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**PART – III PRACTICE OF TEACHING**

<table>
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<td>PT-101</td>
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<td>Movement Lesson</td>
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<tr>
<td></td>
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<td>(A) Action Song</td>
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<td>(B) Motion Story</td>
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<th>Paper</th>
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<tr>
<td></td>
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<td>Movement Lesson</td>
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<tr>
<th>Total: 800 marks</th>
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</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
- Concept of officiating and coaching
- Importance and principles of officiating
- Relation of official and coach with management, players and spectators
- Measures of improving the standards of officiating and coaching

UNIT- II: COACH AS A MENTOR
- Duties of coach in general, pre, during and post game.
- Philosophy of coaching
- Responsibilities of a coach on and off the field
- Psychology of competition and coaching

UNIT- III: DUTIES OF OFFICIAL
- Duties of official in general, pre, during and post game.
- Philosophy of officiating
- Mechanics of officiating position, singles and movement etc.
- Ethics of officiating

UNIT- IV: QUALITIES AND QUALIFICATIONS OF COACH AND OFFICIAL
- Qualities and qualification of coach and official
- General rules of games and sports
- Eligibility rules of intercollegiate and inter-university tournaments, preparation of TA, DA bills
- 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>
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</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>
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<tr>
<td>VI.</td>
<td>CC-202</td>
<td>Health Education and Environmental Studies</td>
<td>68</td>
<td>4</td>
<td>20</td>
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<tr>
<td>VII.</td>
<td>CC-203</td>
<td>Organization and Administration</td>
<td>68</td>
<td>4</td>
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**Elective Course (Any One)**

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<th>VIII.</th>
<th>Course Code</th>
<th>Subject</th>
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<tr>
<td></td>
<td>EC-201</td>
<td>Contemporary issues in Physical Education, Fitness</td>
<td>68</td>
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<td></td>
<td>EC-202</td>
<td>Sports Nutrition and Weight Management</td>
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**PART-II PRACTICAL COURSE (SKILL AND PROWESS)**

<table>
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<tr>
<th>Paper</th>
<th>Subject</th>
<th>Total Hours</th>
<th>Credit</th>
<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
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<tbody>
<tr>
<td>PC-201</td>
<td>Track and Field (Middle Distance Races, Hurdles,</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Discus Throw, High Jump )</td>
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<tr>
<td>PC-202</td>
<td>Swimming, Gymnastics</td>
<td>68</td>
<td>4</td>
<td>20+20</td>
<td>-</td>
<td>40</td>
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<tr>
<td>PC-203</td>
<td>Aerobics, Lezium, Indian Clubs</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
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<tr>
<td>PC-204</td>
<td>Hockey, Volleyball, Handball, Softball,</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20</td>
<td>-</td>
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**PART – III PRACTICE OF TEACHING**

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<thead>
<tr>
<th>Paper</th>
<th>Subject</th>
<th>Total Hours</th>
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<th>(A)80+20=100</th>
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</thead>
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<td>PT-201</td>
<td>(A) General Lesson (B) Theory Lesson</td>
<td>68</td>
<td>4</td>
<td>(B)80+20=100</td>
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**Total: 800 marks**

**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
- Type 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
- Meaning and importance of Organization and Administration in physical education.
- Qualification and Responsibilities of Physical Education teacher and pupil leader.
- Planning and their basic principles,
- Program planning: Meaning, Importance, Principles of program planning in physical education.
- Functions of Management: Planning, organizing, staffing, directing, communicating, co-ordination, controlling, evaluating and innovating.

UNIT II: OFFICE MANAGEMENT, RECORD, REGISTER & BUDGET
- Office Management: Meaning, definition, functions and kinds of office management
- Records and Registers: Maintenance of attendance Register, stock register, cash register, physical efficiency record, Medical examination Record.
- Budget: Meaning, Importance of Budget making,
- Criteria of a good Budget, Sources of Income, Expenditure, Preparation of Budget.

UNIT III: FACILITIES, & TIME-TABLE MANAGEMENT
- Facilities and equipment management: Types of facilities; Infrastructure-indoor, out door.
- Playfields: Area, Location, layout and care
- Equipment: Need, importance, purchase, care and maintenance.
- Time Table Management: Meaning, Need, Importance and Factor affecting time table.

UNIT IV: COMPETITION ORGANIZATION
- Tournament and its importance.
- Types of Tournament and its organization structure - Knock-out Tournaments, League or Round Robin Tournaments, Combination Tournament, consolation tournaments and challenge Tournament.
- Organization structure of Athletic Meet.
- 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 Hypo kinetic 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
- Meaning and Definition of Sports Nutrition
- Basic Nutrition guidelines
- Role of nutrition in sports
- Factor to consider for developing nutrition plan

UNIT II NUTRIENTS: INGESTION TO ENERGY METABOLISM
- Carbohydrates, Protein, Fat Meaning, classification and its function
- Role of carbohydrates, Fat and protein during exercise
- Vitamins, Minerals, Water Meaning, classification and its function
- Role of hydration during exercise, water balance, Nutrition daily caloric requirement and expenditure.

UNIT III NUTRITION AND WEIGHT MANAGEMENT
- Meaning of weight management Concept of weight management in modern era Factor affecting weight management and values of weight management
- 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
- Obesity Definition, meaning and types of obesity,
- Health Risks Associated with Obesity, Obesity - Causes and Solutions for Overcoming Obesity.

UNIT IV STEPS OF PLANNING OF WEIGHT MANAGEMENT
- Nutrition Daily calorie intake and expenditure, Determination of desirable body weight
- Balanced diet for Indian School Children, Maintaining a Healthy Lifestyle
- 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>
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<th>Total Marks</th>
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<tbody>
<tr>
<td>IX.</td>
<td>CC-301</td>
<td>Computer Application in Physical Education</td>
<td>68</td>
<td>4</td>
<td>20</td>
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<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>
</tbody>
</table>

#### Elective Course (Any One)

| XII.  | EC-301      | Sports Medicine, Physiotherapy, and rehabilitation       | 68          | 4      | 20             | 80             | 100         |
|       | EC-302      | Curriculum Design                                        |             |        |                |                |             |

#### PART-II PRACTICAL COURSE (SKILL AND PROWESS)

| PC-301 | Track and Field (Long Distance Races, Javelin Throw, Triple Jump, Steeple Chase) | 68          | 4      | 40             | -              | 40          |
| PC-302 | Swimming, Gymnastics                                                            | 68          | 4      | 20+20         | -              | 40          |
| PC-303 | Folk Dances                                                                     | 68          | 4      | 40             | -              | 40          |
| PC-304 | Cricket, Badminton, Table-Tennis, Lawn-Tennis                                   | 68          | 4      | 20+20+20+20+20 | -              | 80          |

#### PART – III PRACTICE OF TEACHING

| PT-301 | Teaching Lesson (A) Games (B) Track & Field | 68          | 4      | -              | (A)80+20=100 (B)80+20=100 | 200         |

**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
- Meaning, need and importance of information and communication technology (ICT).
- Application of Computers in Physical Education
- Components of computer, input and output device
- Application software used in Physical Education and sports

UNIT II: MS WORD
- Introduction to MS Word
- Creating, saving and opening a document
- Formatting Editing features Drawing table
- Page setup, paragraph alignment, spelling and grammar check printing option, inserting page number, graph, footnote and notes

UNIT III: MS EXCEL
- Introduction to MS Excel
- Creating, saving and opening spreadsheet
- Creating formulas
- Format and editing features adjusting columns width and row height understanding charts.

UNIT IV: MS POWER POINT
- Introduction to MS Power Point
- Creating, saving and opening a ppt. file
- Format and editing features slide show, design, inserting slide number
- Picture, graph, table
- 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 -Hereditiy 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:
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 DISIGN

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>
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<th>External Marks</th>
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<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>
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<td>100</td>
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<tr>
<td>XIV.</td>
<td>CC-402</td>
<td>Kinesiology and Biomechanics</td>
<td>68</td>
<td>4</td>
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<td>XV.</td>
<td>CC-403</td>
<td>Research and Statistics in Physical Education</td>
<td>68</td>
<td>4</td>
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<td>Elective Course (Any One)</td>
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<td>XVI.</td>
<td>EC-401</td>
<td>Theory of Sports and Games</td>
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<td>4</td>
<td>20</td>
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<td></td>
<td>EC-402</td>
<td>Sports Management</td>
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#### PART-II PRACTICAL COURSE (SKILL AND PROWESS)

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<th>Internal Marks</th>
<th>External Marks</th>
<th>Total Marks</th>
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</thead>
<tbody>
<tr>
<td>PC-401</td>
<td></td>
<td>Track and Field (Race Walk, Road Race, Hammer throw, Pole Vault)</td>
<td>68</td>
<td>4</td>
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<td>PC-402</td>
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<td>Swimming, Gymnastics</td>
<td>68</td>
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<tr>
<td>PC-403</td>
<td></td>
<td>Mass Demonstrations</td>
<td>68</td>
<td>4</td>
<td>40</td>
<td>-</td>
<td>40</td>
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<tr>
<td>PC-404</td>
<td></td>
<td>Wrestling, Judo, Boxing, Kabaddi (circle Style)</td>
<td>68</td>
<td>4</td>
<td>20+20+20+20+20</td>
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#### PART – III PRACTICE OF TEACHING

<table>
<thead>
<tr>
<th>Paper</th>
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<th>Title of the Papers</th>
<th>Total Hours</th>
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<th>Internal Marks</th>
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<tr>
<td>PT-401</td>
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<td>Coaching Lesson (A) Games (B) Track &amp; Field</td>
<td>68</td>
<td>4</td>
<td>-</td>
<td>(A)80+20=100</td>
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**Total: 800 marks**

**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.
Paper –XIII (CC-401)
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
  o Meaning of Test & Measurement & Evaluation in Physical Education
  o Need & Importance of Test & Measurement & Evaluation in Physical Education
  o Principles of Evaluation

UNIT-II CRITERIA, CLASSIFICATION AND ADMINISTRATION OF TEST
  o Criteria of good Test
  o Criteria of tests, scientific authenticity (reliability, objectivity, validity and availability of norms)
  o Type and classification of Test
  o Administration of test

UNIT- III PHYSICAL FITNESS TESTS
  o AAHPER youth fitness test
  o National physical Fitness Test
  o Indiana Motor Fitness Test
  o JCR test

UNIT- IV SPORTS SKILL TESTS
  o Lockhart and McPherson badminton test
  o Johnson basketball test
  o McDonald soccer test
  o S.A.I volleyball test

REFERENCES:
Syllabus: B.P.Ed-Two Year-Semester System, P.U., Chandigarh

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
  o Meaning and Definition of Kinesiology and Sports Biomechanics
  o Importance of Kinesiology and Sports Biomechanics to Physical Education Teacher, Athletes and Sports Coaches.
  o Terminology of Fundamental Movements
  o Fundamental concepts of following terms Axes and Planes, Centre of Gravity, Equilibrium, Line of Gravity

UNIT II  FUNDAMENTAL CONCEPT OF ANATOMY AND PHYSIOLOGY
  o Classification of Joints and Muscles
  o Types of Muscle Contractions
  o Posture Meaning, Types and Importance of good posture.
  o Fundamental concepts of following terms- Angle of Pull, All or None Law, Reciprocal Innovation

UNIT III  MECHANICAL CONCEPTS
  o Force - Meaning, definition, types and its application to sports activities
  o Lever - Meaning, definition, types and its application to human body.
  o Newtons Laws of Motion  Meaning, definition and its application to sports activities.
  o Projectile  Factors influencing projectile trajectory.

UNIT IV  KINEMATICS AND KINETICS OF HUMAN MOVEMENT
  o Linear Kinematics  Distance and Displacement, speed and velocity, Acceleration
  o Angular kinematics  Angular Distance and Displacement, Angular Speed and velocity, Angular Acceleration.
  o Linear Kinetics  Inertia, Mass, Momentum, Friction.
  o 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:
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.
- Force Friction, Centripetal and Centrifugal force, Principles of force.
- 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:
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 o 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:
<table>
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<tr>
<th>S.N.</th>
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<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
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<td>LIFE SKILLS TRAINING</td>
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**TOTAL**                                                                 |        |           | 40      |
PAPER I: BABED-EDUC01: EDUCATION IN EMERGING INDIAN SOCIETY

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:
• 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.
• unit III will be covered through the project work 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, 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 II: BABED-EDUC02: SCHOOL ORGANIZATION AND ADMINISTRATION**

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total: 100 (5)</th>
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<tr>
<td><strong>Theory</strong></td>
<td>60 (3)</td>
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<tr>
<td><strong>Sessional Work</strong></td>
<td>20 (1)</td>
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<tr>
<td><strong>Internal Assessment</strong></td>
<td>20 (1)</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>3 Hours</td>
</tr>
<tr>
<td><strong>Examination hours</strong></td>
<td>3 hours</td>
</tr>
</tbody>
</table>

**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, Cumulative 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, 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-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 Gitanjali
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: Determiners, Modals, Antonyms 2+2+2 = 6
b) Translation from Vernacular to English. Four out of six sentences (only tense based) 4

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 धेंघन रा भंज पहिचा दी पहुँच रा सिखाया अभयारण्य बलराहै।
• पुन्नाथी मधिय निवेश कीमती तीमागे बलराने भरे साधारण रेखा है।
• गर्दन निवेश दिनें दिनांस मुस्तिंट बलराह सी मुद मेंट बलराह है।
• विश्वात लिंच लेख दे मंत्र भरना भरे मुद पेटा है।

Course content

UNIT - 1
विद्वत निवेश (धेर वल्यौत निवेश) पुन्नाथी दिनें पुर्णता महिलाविधिकाक्ष (दे लिंच दिनें)
8 अंश

UNIT – 2
विद्वत न माल के वेडिची बांट (दे लिंच दिनें)
8 अंश

UNIT - 3
क्रियाक्रमात दिनें मंत्र दिनें टिम भरने पहुँच (दे लिंच दिनें महिलाविधिकाक्ष दे टिम भरने दे)

UNIT – 4
केवल उच्च (500 सब्ज़रे फिच़) चल्लुं भिन्निकाँ फर्याचे
(चाच फिचियं फिशे बेटी फिच बड़ा)

UNIT - 5
मंधेथलकरा (हुआंे मित्रकेश मित्रुड)

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. बार्डॉमरल (महा.) डा. वदमनृत्त मिथ, धवलिंगिल विहीरे, वंशाव पुलिंग्वलोरी, चंडीगढ़
2. पंसीयी डामा लिखी भागे हिन्दीबिहर, डा. द्रूपद्रो मिथेव बिल(2006) सेंच बीड भूमरमल लुपिबाटा।
3. पंसीयी अनिमेश दे अनिमेश दे मुकळे संवरेप, नीट मिथेव रेदी (1999), रुजम राज दिपिउर्स, अभिनुभाव
4. पंसीयी गांव दे निंददो मिथ, धवलिंगिल मिथ, विवरण मिथ अलेल(1968), लणेल मेंट मंडल साध सुधिगाटा।
5. आपुर्ण बाबू पंसीयी गांव दे धुंदेकड़ (1850 डे 1970), सेर्जेस रियर(2002) धवलिंगिल विहीरे, पंसीयी पुरी, पारगादा।
6. पंसीयी गांव दा निंदिवन, (आपुर्ण बाबू 1901 डे 1995 उल्ल)मुकळे संवरेप मिथ, डा. भार निम चींगम(1997), धवलिंगिल विहीरे, पंसीयी पुरी पारगादा।
7. आपुर्ण बाबू पंसीयी गांवे पुरिवर्तितवर्त दे पुरिवर्तितवर्त बुपलित वेड़ (2004), उल्लेकल पारगादम, चंडीगढ़।
8. आपुर्ण बाबू पंसीयी बाल्य पार्टी दे निंदिवनवार्त भारत, डा वदमनृत्त मिथ(1983), गुडू राजम बेड मुखी अभिनुभाव
9. आपुर्ण बाबू पंसीयी लिंग दा मुख मुखमानवर्त पैडवर्त(1998), चंडीगढ़ भार धवलिंगिल चंडीगढ़।
10. पंसीयी हिन्दीविद्वान रंजीत क्वाल भारत, रुजम राज दिपिउर्स, अभिनुभाव।
11. बाजीकदुड़े, मुतिवर कुमान एकेडमी (2008), सेंच बीड भूमरमल, लुपिबाटा।
PAPER IV: BABED-HCPC11: 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
• 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:

i) 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.

ii) 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 nine 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
9) Mathematics

1. ENGLISH (Elective)
BABED-ENGO11

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 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) 7
One out of three
Comprehension of passage from prescribed book “Fluency in English” 8

Unit IV
Applied grammar
1. Voice, Direct/Indirect 5
2. Articles, Prepositions 5
3. Antonyms, Synonyms (text based) 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, 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-HINO11

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

समेतर-1

Objectives

अध्यापन प्रक्रिया के समापन के उपरांत विद्यार्थियों के लिए:

• दिए गए कविताओं की पाठ्यक्रम के संदर्भ में व्याख्या करेंगे।
• पाठ्यक्रम में दी गई कहानियों के संदर्भ में व्याख्या प्रस्तुत करेंगे।
• आदिकाल के साहित्य का नामकरण, काल सीमा, परिस्थितियों व प्रवृत्तियों का वर्णन करेंगे।
• राज रासो तथा बीसल देव रासो का परिचय लिखेंगे।
• व्यवहारिक वाक्यांश का प्रयोग करेंगे।
• विश्लेषणात्मक रूप से शब्द सामान्यक क्षेत्र, वाक्यांश के लिए एक शब्द का प्रयोग व्यवहारिक रूप से करेंगे।

Course Content

UNIT I

कवितात्मक

स्रोत:- दीपकमल शर्मा, पद्माकर गुप्त, पंजाब विश्वविद्यालय, चण्डीगढ़ द्वारा प्रकाशित।

इन 4 कविताओं की रचनाएं पाठ्यक्रम में निर्धारित की गई हैं:—
कबीर, रेरास, गुरुगुप्त, गुरुदास, शंकरलाल तुलसीदास।

इस खण्ड में कवि परिचय, कविता सार तथा उदेश्य सम्बन्धी प्रश्न पूछे जाएंगे।
(15)

Unit II

साहित्य कहानियाँ

स्रोत:- दीपकमल शर्मा, पद्माकर गुप्त, पंजाब विश्वविद्यालय, चण्डीगढ़ द्वारा प्रकाशित। निम्नलिखित सात कहानियाँ पाठ्यक्रम में हैं:

शतंजीत के खिलाड़ी, ममता, अरिशिद्ध का हुदौ, मीत के मुंह में, चित्र मंजी, गुलाब, सम्भावना—अक्सर।

(15)

इस खण्ड में शब्दावली, चरित्र—चित्रण एवं उदेश्य से सम्बन्धित कुछ दो प्रश्न पूछे जाएंगे।

Unit III

हिंदी साहित्य का इतिहास

आदिकाल का नामकरण, काल सीमा, परिस्थितियाँ, प्रवृत्तियाँ और पृष्ठी राज रासो तथा बीसल देव रासो का परिचय।
(15)
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 sessional work.

Project

1. हिन्दी की किसी एक पुस्तक की समीक्षा।
2. पाठ्यक्रम में दिए गए कल्पनाओं में से किन्हीं दो का कार्य 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, पंजाब विश्वविद्यालय, चण्डीगढ़ द्वारा प्रकाशित।
2) मनोहर लाल आनंद ;2006, तंगिगी, पंजाब यूनिवर्सिटी पंजाब प्रकाशन खूरो, चण्डीगढ़।
3) सं. डा. संसार चन्द्र; 2006 आदर्श एकाकी संग्रह, पंजाब यूनिवर्सिटी पंजाब प्रकाशन खूरो, चण्डीगढ़ द्वारा प्रकाशित।
4) विधित भागीरथ ;2003, समीक्षालोक, इन्द्रप्रथ प्रकाशन, दिल्ली।
5) जैन निर्मला ;2006, नई समीक्षा के प्रतिमान, नेशनल पब्लिशिंग हाउस, दिल्ली।
6) चतुर्वेदी रवीन्द्रकुमार प्रसाद; 2008 हिन्दी व्यक्तित्व, उपकार प्रकाशन, अगर।
7) साहिन एस. भी. शर्मा आर. पी.; 2007 वर्तमान हिन्दी व्यक्तित्व, साहिन प्रकाशन, अगर।
8) खुंवालन लाल वर्मा ;1995, जारी की सारी मसूर प्रकाशन, जारी।
9) नगेन्द्र हरदयाल ;2009, हिन्दी साहित्य का इतिहास, मसूर पेपरबैक्स, नोएडा।
10) राजसच भर्मना ;2009, नियंत्र बोध, स्पेक्ट्रम बुक्स प्र. लि., दिल्ली।
3. PUNJABI (ELECTIVE)

BABED-PBIO11

बंसाबी रिलैव्यिडिक

Marks (Credits)

Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

Objectives

• नमस के पूजन द भंज फिलिडिजायकीय दी अनुपात बंसाबी विधान संबंधी तात्क्षणी हूँ तेज फिलिडिज देश है।
• बंसाबी नारिंड दे फिलिडिज फिलि फिलिडिजायकीय दी फिलिडिज पाई व्यक्त है।
• सार्वजनिक के पुरुष के दृष्टि संबंधी तेज है।

बांधन

1. अनुपात बंसाबी विधान दा अनुपातेने 22 अंक
2. बंसाबी नारिंडी 23 अंक
3. अनुपात बंसाबी विधान दा फिलिडिज 8 अंक
4. सार्वजनिक दे तुष्य 7 अंक

वेबम

1. तमस कुशाल (मंथ) डा. समस्थिः सिंध, अनुपात बंसाबी विधान (1901 ही: ढँ 2000 ही: डॉर),
वधलीव्रती विहिन, पंसाब पुनर्परिपथिती, आसीवाल है।
( फिलिडिज दरहै : बृहीं लोतुः सिंध, यूः धुतुः सिंध, नाथी उभ पञ्ची, यूः नेघुः सिंध, अभियुः पुषुः,
धारा वर्डेल, सिंध थुः घरुः वही, डा. सेविसल सिंध, डा. सावड़े )
2. डे रवान, संड मिथ स्मेंय, चवलिव्रती विहिने, पंसाब पुनर्परिपथिती, आसीवाल है। (‘फिलिडिज धाम लिंच’
तिविंदी डूँ हड़ ले )

Course Content

UNIT - 1

(ए)‘तमस कुशाल’ (मंथः:डा. समस्थिः सिंध) पुषुः विहिन पुषुः मविं फिलिडिज हिमालियना (दे लिंचे दिव्र)
7 अंक

(अ)‘दे रवान’ (मंथः: यूः संड मिथ स्मेंय) तिविंदी दे इवाधायकी अंक्ष ही पुषुः मविं फिलिडिज हिमालियना (दे
लिंचे दिव्र)
8 अंक
UNIT – 2
(ह) लात-संचित दिनें जिन्हें घटित लड़ता रहा हिंदु-समुद्र मध्यका वर्तमान (दे लिखित टिप्पणी) 7 मंच
(अ) दिव्यतावादी संचित दिनें पुष्प (दे लिखित टिप्पणी) (साधनिक धर्म, लिंग, प्लाट तथा प्राचीनता नीतियों पुष्प प्रदेश साध)

UNIT - 3
लात-संचित दे दिव्यतावादी संचित दिनें समुद्र घटित रहा पुष्प (अथ संचित दिनें पृष्ठ) (पुष्प द्वारा घटित घटनाएँ दे लिखें रहें)
उप5=15 मंच

UNIT – 4
भूतानी बलिदान द टिप्पणी
(ह) फिलिपिन वर्तमान दे देव (दे लिखित टिप्पणी)
(ड) श्री शिल्प,पूजा पुरुष शिल्प,पूजा संस्कृत चमत्कारी (सीमा, संस्कृत, नेपाल)

(अ) मापदंड दे नुम : पवित्रसत्ता दे उंग, बलिदान, श्री, तास, तिरंगारी, समर, यहाँ (दे लिखित टिप्पणी) 10 मंच

5 मंच

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
- मंदिर संस्कृत मंदिर दे पवित्रसत्ता मंदिर अथ संस्कृत संस्कृत संस्कृत संस्कृत निर्देश लेखिए
- दे दिव्यतावादी पुष्प दे आपने दे लिखित दिव्यतावादी पुष्प दे सीमा अथ संस्कृत हर ज्ञाने लिखिए 1

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

1. राजशाही मणिरेत द्र. हिंदुस्थान 1700 दी. ऐव्व (2003), राजशाही पुत्रिच्छमटी, राजशाही
2. राजशाही मणिरेत द्र. हिंदुस्थान 1700 दी. ऐव्व (1972), राजशाही पुत्रिच्छमटी, प्रदीशात
3. राजशाही मणिरेत द्र. हिंदुस्थान, चिन्नर, उज्बे 1700 दी.
4. राजशाही मणिरेत द्र. हिंदुस्थान, चिन्नर, उज्बे 1700 दी.
5. राजशाही मणिरेत द्र. हिंदुस्थान, चिन्नर, उज्बे 1700 दी.
6. राजशाही मणिरेत द्र. हिंदुस्थान, चिन्नर, उज्बे 1700 दी.

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, Kurukshetra, 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 \((2 \times 6 = 12 \text{ marks})\). 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. \((12 \times 4 = 48 \text{ marks})\).
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

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 the 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, education, history, sociology and education

**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


6. ECONOMICS
BABED-ECOO11
MICRO ECONOMICS

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<tr>
<td>Internal Assessment = 20 (1)</td>
<td></td>
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<tr>
<td>Examination hours = 3 hours</td>
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</tr>
</tbody>
</table>

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.
- describe the existence of various types of sellers and variety of products in the market.
- enlist various factors of production and explain how these factors receive payments in lieu of their services.

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

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 teacher directed by way of lectures, discussions and presentations. The remaining will be covered in the form of individualized sessional work comprising:

- market survey of consumer surplus or market survey of law of demand or 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, 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


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-1
Introduction to Sociology: definition, nature, relationship with other social sciences; history, political Science, economics, anthropology, psychology and education.
Human Society: meaning, characteristics, theories of origin of society- organic and social-contract, relationship between individual and society.

Unit-II
Social Groups - meaning, characteristics & classification, detailed discussion on primary and secondary groups.
Association – meaning & characteristics.
Community – meaning, dimensions, bases and features of community.

Unit-III
Culture: meaning, characteristics, dimensions, forms, culture and civilization, cultural lag, conceptual understanding of acculturation, assimilation.

Unit-IV
Social control: meaning, importance, process, means 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**


**Further Readings**

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 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
Geography: definition, place of physical geography within the discipline of geography, divisions of physical geography-geomorphology, climatology, oceanography
Theories of the origin of the earth: Laplace, James, jeans and Jeffrey’s, and Otto Schmidt
Interior of the earth: constitution, theories on constitution -continental drift (with special reference to Wegener’s theory and plate tectonics), isostasy

Unit-ii
Movements of the earth: orogenic epeirogenic movements, landforms resulting from forces of compression and tension; mountain building theories (geosynclines, hinterland and foreland, median mass, convection current), earthquakes and volcanoes (causes, types and distribution)

Unit-iii
Rocks -their origin, classification and characteristics
Major land forms: mountains, plateaus and plains in the world
Geomorphic agents: geomorphic processes (weathering and erosion)

Unit-iv
Geomorphologic landscapes: fluvial, glacial, aeolian, volcanic, coastal, karsts
Applied geomorphology: applications to transport, laiduse, 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
ALGEBRA & TRIGONOMETRY

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<td><strong>Internal Assessment</strong> = 20 (1)</td>
</tr>
<tr>
<td><strong>Examination hours</strong> = 3 hours</td>
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</tbody>
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Objectives

At the end of the semester, the students will be able to

- describe the concept of mappings, equivalence relations and partition.
- 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 and compute relations between the roots and co-efficients of general polynomial equation in one variable and transform equations.
- discuss and apply descarl’s rule of signs.
- use cardon method to derive solutions of cubic equations and biquadratic equations.
- describe de moiver’s theorem and its applications.
• understand and apply gregouy’s seuies , summation of series.
• describe and use basic concepts of vectors algebra’s like transformation of axes ,
rotation of axes invariants, identification of curves.
• draw using equation of the chord in terms of midpoint and diameter of a conic.

Unit I

Algebra

Mappings, equivalence relations and partitions, congruence modulo
Symmetric: skew symmetric. Hermitian and skew Hermitian matrices. Elementary
operation on matrices. Inverse of a matrix, linear independence of row and column vectors, row
rank, column rank and rank of a matrix. Equivalence of column and row ranks. Application of
matrices to a system of linear (homogenous and non- homogenous equations. Theorems on
consistency of a system of linear equations. Eigen values, Eigen vectors and the characteristic
equation of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix

Unit II

Relations between the roots and coefficients of general polynomial equation in one
variable. Transformation of equations, Descartes rule of signs. Solutions of cubic equations
(Cardon method). Biquadratic equations

Unit III

Trigonometry

De Moivre’s theorem and its applications. Direct and inverse circular and hyperbolic
functions. Logarithm of a complex quantity, Expansion of trigonometrical functions Gregory’s
series, summation of series

Unit IV

Vector algebra

Transformation of axes, shifting of origin, rotation of axes, reduction of the second
degree equation into standard forms by transformation of co-ordinates. The invariants,
identification of curves represented by second degree equation (including pairs of lines)
Pole and polar, pair of tangents from a point, chord of contact, equation of the chord in
terms of midpoint and diameter of a conic

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 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 (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 Reading**


**GENERAL PRACTICUM**

**BABED-SRPC11**

**SCHOOL RELATED PRACTICUM**

**MARKS 100 (INTERNAL)**

**CREDITS 5**

- Students will survey a school for SWOT analysis.
- Survey on awareness of RTE.
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.
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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

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, team presentations, 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**
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, 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-ENG21: ENGLISH COMPULSORY**

**Marks (Credits)**

- **Total = 50 (2.5)**
- **Theory = 40 (2)**
- **Internal Assessment = 10 (0.5)**
- **Examination hours = 3**

**Objectives of Teaching English**

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:**

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 5-8**

- Telephone conversation
- Dover beach
- Anthem for doomed youth
- Unknown citizen

**Prose 5-8**

- Letter to a Teacher
- The Best Investment I ever made
- Taking the law into Hands
- The Elixir of Life

**Unit I**
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

**Objectives**

- दिन पेपर का भाजी डी बुकड डा फिचर अफियसल वर्ग है।
- दिलियात्मकी मूव बुकडीबाज़ी हैं बुकडीबाज़ी बुकडीबाज़ी बुकडीबाज़ी बुकडीबाज़ी के कट्टर सफुप्त बुकडीबाज़ी है।
- पंजाबी मूविड लिंगबुकडीबाज़ी है डुबिलिंग घरे मालवाज़ी टेंसर है।
- दिलियात्मक डिचे तेमिर लिंगब डे मुखियारिंग घरे मुख लेख है।

**पाठ्यक्रम**

1. पंजाबी बुकडीबाज़ी का अभियुक्त 24 घंटे
2. मूलता विउ लेमिटम 8 घंटे
3. मुखियारिंग 8 घंटे

**वेब**

1. वर्ष-वर्षक, (मेहमंदर), डा. पर्रेंड्र वेंक, धवलिप्रेरण विस्तुड़िये, पंजाब वर्तमानविकृति, चंडीगढ़।

**अध्याय अन्वेषण**

**UNIT - 1**

‘वर्ष-वर्षक’ (मेहम: डा. पर्रेंड्र वेंक) पुस्तक किंचि फिंच बुकडी का फिन्स डके मात सिद्धि 8 घंटे (डिंग फिंच फिंच)

**UNIT – 2**

बुकडी-संवृति फिंच संबंधित बुकडीबाज़ी किंचि युकड विउडक्ट बुकडी (डिंग फिंच फिंच) 8 घंटे
UNIT – 3

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 examination, attendance, classroom interactions, etc. (20%).

Evaluation Scheme

The evaluation will be based on:

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 based on terminal examinations, attendance, classroom interactions, etc. (10 marks: 0.5 Credit)

Suggested Books:

1. वर्षव वर्षवदेश. ड्र. पतलेक वेरे,वर्णमाल्यात विठूने चंद्रीगावळ
2. पंजाबी वर्षव लिखी अवेद विभागक, ड्र.गवर्चेंट सिंध विँड़र(2006) ठेव गीत पुस्तक,लघुपुस्तक।
3. पंजाबी अविभात वे अविभात वे मुख्य संग्रह, सीट सिंध नेत्री (1999), काल्पनिक संग्रह वर्णविभाग,वर्णमाल
4. पंजाबी संग्रह वेस्ट अथवा अथवा, पंजाब संसथूलीविशिष टेस्टम शब्द वेबड़, चंद्रीगावळ।
5. बीडवीर सिन्ध (ड्र.) वर्षव पंजाबी हिपेस, वर्षव संसथूलीविशिष टेस्टम शब्द वेबड़, चंद्रीगावळ 1999

(भाग 4 में पंजाबी विभागक लिखे गये पुस्तक स्त्र)
6. सौमन, वीदलीना, भूमिका विशालदेव दे सुंदर पंजाब ,बरी माणिक श्रीरामल, राजा गांधी, अमिताभ, 2012
7. अनुप्रेय भन्साली विद्याध्यापक दे पुस्तिकायांकुल दुकान लेख (2004), उदयन धर्मिक विद्या, चंडीगढ़।
8. अनुप्रेय भन्साली वाणि पालुँ दे विवाहवाणि भाषाएँ खंड माणिक मिश्र (1983), बुद्ध विभक्त देवी नूतनी अमिताभ
9. अनुप्रेय भन्साली विद्याध्यापक दे सुमन लाजुरवाल लेख (1998), राजदेव वासु भाषा धर्मिक विद्या, चंडीगढ़।
10. भन्साली स्वामी दे स्वामी लाजुरवाल (2008), जेप्रत्येक देवी, लुधियाना, 2008
11. भन्साली स्वामी दे विवाहवाणिकृती लेख (2008), जेप्रत्येक देवी, लुधियाना।

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

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
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.

iv 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 nine 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
9) Mathematics

1. ENGLISH (ELECTIVE)
BABED-ENGO21

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 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 Acr 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) 7
Use of the same words (text based) 8
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:
 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-HINO21

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination hours= 3 hours

सेमेस्टर-2
Objectives
अध्यायन प्रक्रिया के समापन के उपरान्त विद्यार्थी –
• उपन्यास की परिभाषा, तत्व और वर्गीकरण करेंगे।
• कहानी की परिभाषा, तत्व और वर्गीकरण के समाधान दो प्रश्नों का उत्तर लिखेंगे।
• उपन्यास की रचना के संदर्भ में उसके नामकरण, कथावस्तु चरित्र, उद्देश्य के आधार पर समीक्षा करेंगे।
• भक्तिकाल की परिस्थितियों का संक्षेप वर्णन करें।
• संत काल प्रेमाभ्यासक काव्य व कृष्ण काव्य में विभेद विशेषताएं लिखेंगे।
• मुहावरे और लोकोक्तियों का प्रयोग करेंगे।
• दिए गए मुहावरे और लोकोक्तियों का प्रयोग करेंगे।
• निजी पत्र लेखन की विधि का प्रयोग करने हेतु एक निजी पत्र लिखेंगे।
• परिभाषित शब्दावली का प्रयोग करेंगे (संलग्न शब्दावली)।

Course Content

Unit I
समीक्षा सिद्धांत
कोकल उपन्यास और कहानी
• कहानी उपन्यास की परिभाषा, तत्व और वर्गीकरण सम्बन्धी।
• कहानी की परिभाषा, तत्व और वर्गीकरण सम्बन्धी प्रश्न पूछे जाएंगे।
(15)

Unit II
झांसी की रानी—वृद्धावस्था लाल वर्मा — नगुर प्रकाशन, झांसी
नामकरण, कथावस्तु, चरित्र, उद्देश्य के आधार पर समीक्षात्मक प्रश्न पूछे जायेंगे। इस खण्ड में संदर्भ सहित व्याख्या नहीं पूछी जायेगी। 15

Unit III
आवाहरिक व्याख्या
• कहानी भक्तिकाल की परिस्थितियों, संतकाल्य प्रेमाभ्यासक काव्य, रामकाव्य और कृष्ण काव्य की विशेषताएं, कबीर, जायसी,
• सूरदास और तुलसी
(15)

Unit IV
(क) निजी पत्र—लेखन
(ख) परिभाषित शब्दावली (संलग्न शब्दावली) (B.A. 1st Year 15-22)

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
<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
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<tr>
<td>Teaching Learning Experiences</td>
<td>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.</td>
</tr>
<tr>
<td>Evaluation Scheme</td>
<td></td>
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</table>
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, 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).

Project

1. हिन्दी के किसी भी उपन्यासकार के उपन्यास की समीक्षा
2. पारिभाषित शब्दावली से संबंधित कल्पना प्रज्ञास्टर तैयार करें।

Suggested Reading

1. डिब्रिट भागीरथ (2003), समीक्षातात्त्व, इन्फ्रास्टरक प्रकाशन, दिल्ली।
2. जैन निर्मला (2006), नई समीक्षा के प्रतिभाग, नेशनल परिवर्तन हाउस, दिल्ली।
3. चन्द्राकृष्ण राजेश्वर प्रसाद (2008) हिन्दी व्यक्तिगत, उपकार प्रकाशन, अगर्ला।
4. साहनी एस. बी. शर्मा आर. शी. (2007) साहसों हिन्दी व्यक्तिगत, साहनी प्रकाशन, अगर्ला।
5. बुद्धवन ललाल कर्म (1996) शास्त्री की रचना मन्दिर प्रकाशन, शास्त्री
6. नवम्बर हरदयाल (2009) हिन्दी साहित्य का इतिहास, मन्दिर प्रेसक्वेंस, नोएडा।
7. राजाराम कल्पना (2009) निवंद बोध, वेडक्ट्रम बुक्स प्रा. लि., दिल्ली।

3. PUNJABI (ELECTIVE)

**BABED-PBIO21**

<table>
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<th>Total = 100 (5)</th>
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<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</td>
</tr>
</tbody>
</table>

Objectives

- हिंदी भाषा का भंडाब हिंदीवाचीयों दी भाषातिथि विविध संस्थाओं साठवली उं ३७६ विद्यां देशा है।
- राभर लगा। भृष्ण दे भंडाब विविध संस्थाओं साठवली उं ३७६ विद्यां देशा है।
- भृष्ण मंडित दे हिंदुवाक हिंदी हिंदीवाचीयों दी हिंदीवाची पैंछं वजल है।
- राभर दे हिंदुवाक मथं भृषणी साठवली देशा है।

प्रणाली

1. भाषातिथि भृषणी हिंदुवा सं अधिगीत

22 मास
2. पंसाफ़ी तथ्य

UNIT – 1

1. दक्षिण भारत (मंगल): डॉ. समरदेव सिंह, अध्यात्मिक पंसाफ़ी विषय (1901-2000)। पर्यावरण विज्ञानी, एप्रिल।

(ः) नक्का, बड़को अर्थव्यवस्था बूथ, दीपवल्ल, धारा।

UNIT – 2

1. दक्षिण भारत (मंगल): डॉ. समरदेव सिंह। बार्बर पुष्कर लिखित पुस्तक मंगल तिथियां (दे लिखित दिन)

UNIT – 3

बार्बर मंगल दे दक्षिण पुष्कर लिखित पुस्तक (अंतर्गत पुस्तक लिखित दिन)

UNIT – 4

पंसाफ़ी मंगल का विषय (1901-2000) दे वार्षिक। नक्का, बड़को।

(ः) मंगल लिखित विषय संगीत मंगल लिखित पुस्तक 5 अंश (अंतर्गत वेस्टी बूथ-पुस्तक 3 मंगल 4 अंश दे दिया है देखे)
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

- **Project Work**

  The candidates will be required to attempt one question from each unit (12 x 4 = 48 marks).

  iv) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Books:

i) भूगोल शुद्ध संस्कृत (2007) श्रीमान गुप्त, गुप्त (कृपया लिखित रूप से विस्तारित)

ii) भूगोल शुद्ध संस्कृत (2007) गुप्त (कृपया लिखित रूप से विस्तारित)

iii) भूगोल लघु भाषा (1972) कविता विद्युत गुप्त, गुप्त (कृपया लिखित रूप से विस्तारित)

iv) भूगोल शुद्ध संस्कृत (2007) गुप्त (कृपया लिखित रूप से विस्तारित)

v) भूगोल शुद्ध संस्कृत (2007) गुप्त (कृपया लिखित रूप से विस्तारित)

vi) भूगोल शुद्ध संस्कृत (2007) गुप्त (कृपया लिखित रूप से विस्तारित)
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

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 Iltutmish and Balban
2) The Khaljis: 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:

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 Reading

6. Economics
BABED-ECOO21
INDIAN ECONOMY

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
• describe the concept and features of Indian economy.
• analyze the pros and cons of Indian agriculture.
• discuss and differentiate financial system, tax structure, direction and composition of trade since independence.
• judge the achievement and features of Indian five year plans and understand various economic problems like inflation, unemployment.

Course Content
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. Major large scale industries: Iron & Steel, Cotton Texitle, Petroleum & I.T.

Unit-III
Indian Tax Structure: Principal Features, Division of Financial Resources between Centre and the States, Direction and Composition of Exports and Imports and Changes therein since Independence; Balance of Payment problem; Role of MNCs in India.

Unit-IV
Planning: 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, Poverty and Population Growth; Introduction to Consumer Education and Consumer Protection (elementary ideas).

Teaching Learning Experience
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 In teams students will survey unemployment among youth of a specified area at various levels
2 In teams students will identify concentration of various small scale industries in and around Chandigarh

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


7. SOCIOLOGY
BABED-SOCO21
SOCIAL INSTITUTIONS

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 among institutions, associations, society and groups.

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– meaning, types (monarchy, democracy, totalitarianism, dictatorship) 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)
Educational institutions – meaning, types (formal, informal, non formal)

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-GEOO21
PHYSICAL GEOGRAPHY (CLIMATOLOGY & OCEANOGRAPHY)

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:

• 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 oceanology, 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: climate and weather
Climate: elements and controls
Physical structure of the atmosphere: troposphere, tropopause and stratosphere and attributes of these three divisions
Physical and chemical composition of the atmosphere: dust particles, vapour particles, active gases, inert gases
Insolation and temperature: horizontal distribution of insolation, vertical and horizontal and annual, seasonal and diurnal distributions of temperature, mechanism of heat transfer

Unit-II
Atmospheric pressure and winds distribution: atmospheric disturbances (tropical cyclones, temperate cyclones and anticyclones), air masses
Atmospheric moisture: forms of condensation-cloud, dew, fog, frost and snow. precipitation forms and types, world patterns of precipitation: spatial and seasonal
Climatic classifications and their bases: elementary discussion of Koppen's classification of climates and climatic type, Major Climatic regions
Role of climate in human life: atmospheric pollution and global warming - general causes, consequences and measures of control

Unit-III

Oceanography: definition, topography of the ocean basins; continental shelf, continental slope, deep sea plain and oceanic deep features: trench, trough, oceanic ridge, guyots, seamount
Factors controlling the world patterns of distribution of temperature and salinity in the ocean waters, introduction of El Niño

Unit-IV

Movements of oceanic waters: waves and currents. Surface currents of the oceans
Marine flora, fauna and deposits, corals
Oceans as storehouse of resources for the future

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 the 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
CALCULUS

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 should be able to
• 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 leibnitz theorem.
• trace curves for cartesian and parameter coordinates.
• use reduction for values of integral calculus like definite integral, surface of solids of revolutions.
• compute ordinary differential equations; first order and higher degree equations solvable x.y.p
• describe assumptions, properties and use of compute conjugate diameter hyperbola.
• solve polar equations conics and chords.
• describe concepts of central conicoids, paraboloids and conicoid.

UNIT-I
Differential calculus
E-S definition of the limit of a function, basic properties of limits, continuous functions and classification of discontinuities. Successive differentiation, Leibnitz theorem, indeterminate forms, asymptotes curvature, tests for concavity and convexity, points of inflexion, multiple points, tracing of curves. (Cartesian and parametric coordinates only)

Unit-II
Integral calculus reduction formulae: definite integrals. Quadrature and rectifications volumes and surfaces of solids of revolution

Unit-III
Ordinary differential equations
Exact differential equations, first order higher degree equations solvable for x.y.p. Clairaut’s form and singular solutions, geometrical meaning of a different equation, orthogonal trajectories linear differential equations with constant coefficients, homogeneous linear ordinary differential equations
Linear differential equations of second order, transformation of the equation by changing the dependent variable/ the independent variable, method of variations of parameters

Unit IV
Geometry
Conjugate diameters, conjugate hyperbola, asymptotes of a hyperbola and rectangular, special properties of parabola, ellipse and hyperbola. Polar equations of conics and equations of chords, tangents and normal’s only sphere, cone, cylinder
Central conicoids, paraboloids plane sections of conicoids, generating lines, reduction of second degree equations to standard forms

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 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:
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:


ONLY IN SEMESTER II
ENVIRONMENT AND ROAD SAFETY EDUCATION (COMPULSORY)

UNIT I (ENVIRONMENT)

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: population growth and family welfare programme, human health, HIV AIDS, human rights
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 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.chandigarhpolicen.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.
• Co- living with wider life will be initiated through planting and nurturing one plant each in the campus and awareness about beautification of campus.
• 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.
## B.A. B.Ed.
### SEMESTER III (Session 2016-17)
#### COURSE STRUCTURE FOR SEMESTER III

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**PAPER I: BABED-EDUC05: HUMAN DEVELOPMENT**

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 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, team presentations, individual term papers and seminars (20 marks: 1 credit).

xiv) Internal assessment based on terminal examinations, attendance, classroom
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 Abhiyan 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-ENGC32: ENGLISH (COMPULSORY)**

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**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
Ref 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. 5
2. Note Making ( one out of two to be attempted) 5
The examiner will set two paragraphs based on the prescribed text for note making

**Unit IV**
Grammar
1. Non finite verbs 3
2. Punctuation ( a short paragraph) 3
3. Do as directed 4
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.

PAPER- IV: BABED-PBIC32: PUNJABI (COMPULSORY)

Marks (Credits)
Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)

Objectives
- हिंदी पेंटिंग एवं मैंडल हिंदिएन्जोरी के तौर पर लिखित को पढ़ना बनाए रखें।
- हिंदी मानव चरणों एवं अपवाद लिखने की मूल वैधता बनाए।
- हिंदी प्रवासी निकलने की तारीखों के उत्तरार्थ निर्देश लिखने की तैयारी।
- हिंदी प्रवासी लिखित वाक्यों के उच्च मूल्य धारण के लिए लिखना।
- हिंदी ग्रंथ चलने वाली नाटकों के पृष्ठ बनाने का।

पाठ्यपुस्तक
1. हिंदी कौशिक (बन्द हिंदी) लिखित को पढ़ना 24 अंक
2. हिंदी प्रवासी 8 अंक

76
3. यूनिट ब्रांच 8 अंक

वेतन
ग्रंथावधि (संघर्ष): पृ: ब्रह्मचार समिति अध्यक्ष, पब्लिकसेवा संन्यासी, ग्रंथावधि पुरीवाड़म, चंडीगढ़।

Course Content

UNIT – 1

‘पूनाल’ (संघर्ष: पृ. ब्रह्मचार समिति अध्यक्ष) पुनरुत्थान हिचें दिल्ली तिमंचट फार्मेस जैसे सामान प्रति (डिविंग हिचें टेक्नीक) 8 अंक

UNIT – 2

हिसंबंधीय पुनरुत्थान हिचें अन्य संभावनाओं में (हिटरो,हिपोट,हिपोडेट,हिपोडोट,हिपोडोट,हिपोडोट,हिपोडोट,हिपोडोट,हिपोडोट,हिपोडोट,हिपोडोट) बादश पुनरुत्थान (डिविंग हिचें टेक्नीक बजता) 8 अंक

UNIT – 3

‘पूनाल’ पुनरुत्थान हिचें मध्यें हिचें राहे पुनरुत्थान (डिविंग हिचें टेक्नीक में रोपा न रोपा) (एम रोपा भाषा पुनरुत्थान बजता) 8 अंक

UNIT – 4

हिचें टेक्नीक (हिचें टेक्नीक, हिचें टेक्नीक, हिचें टेक्नीक, हिचें टेक्नीक) (एम रोपा भाषा) 8 अंक

UNIT – 5

ग्रंथावधि सान, हिचें देनामात्र (एम रोपा हिचें टेक्नीक) 8 अंक

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 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, classroom interactions etc. (10 marks: 0.5 Credit).

Suggested Readings

1. ਸਿਖਨੀ (ਸੰਘ:) ਪ੍ਰਧਾਨ ਸਿਖ ਮਹਾਤਮਾ, ਸਿੱਖੀਵਾਦਕ ਖ਼ਤਿਆਂ, ਸਿਖ ਸਿਕਤਵਰਦਮੀਟੀ, ਚੇਂਡੀਗਾਹ।
2. ਸਿਖਨੀ ਸਿਖਨੀ ਅਧਿਕਾਰ, ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ ਟੈਂਬਰਮਾਤ ਸੰਚ ਬੇਕਡ, ਚੇਂਡੀਗਾਹ।
3. ਅਮਰਦੀਸੂਲੀ, ਦੇਸ਼, ਕਾਨਾਨੀ ਵਿਚ ਧਰਮ ਦਿਆਲਾਂ, ਦੀਪਕ ਧਰਮਲਹੋਂ, ਸਾਲੀਪਾਤ, 1981
4. ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ ਵਿਚ ਲਿਖਿਆ (1987) ਸਿਖ ਸਿਕਤਵਰਦਮੀਟੀ, ਚੇਂਡੀਗਾਹ।
5. ਜਵਧੀ ਦੇ ਦੋਹਣ ਦੀ ਸੂਚਨਾ ਸਿਖ (1970) ਨਜਦੀਕਾ ਖ਼ੁਸ਼ ਸਾਹ ਜਿਹਾਦਾ।
6. ਸਿਖਨੀ ਅਸਿਸਟੈਂਟ ਦੇ ਅਖਾਦਾ ਦਾ ਸੁਖਤੀ ਮੀਟ ਸੇਂਟਰ ਪ੍ਰਧਾਨ ਸਿਖ ਸੇਂਟਰ (1999), ਧਿਰਮ ਦੋਤੀਅਰਟ ਸਿਕਤਵਰਦਮੀਟੀ
7. ਸਿਖਨੀ ਸਿਖਨੀ ਸੰਘ ਅਰਸ ਦੇਵਾਨ ਰਾਜਕ ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ, ਸਿਖ ਸਿਕਤਵਰਦਮੀਟੀ, ਸਾਲੀਪਾਤ, 1997
8. ਕਾਮਜੀਤ ਸਿਖਨੀ (ਜਾਂ) ਜਾਲਮ ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ, ਸਿਖ ਸਿਕਤਵਰਦਮੀਟੀ ਟੈਂਬਰਮਾਤ ਬੇਕਡ, ਚੇਂਡੀਗਾਹ, 1999
9. ਸਾਲੀਪਾਤ, ਸਾਲੀਪਾਤ, ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ ਦੇ ਉਪ ਬੇਝਾ ਖ਼ੁਸ਼ ਸਾਹ ਗੁਰੂਜੀਤ, ਗਲ ਗਲਾਹ, ਸਿਕਤਵਰਦਮੀਟੀ, 2012
10. ਸਿਖਨੀ ਸਿਕਤਵਰਦਮੀਟੀ ਅਬਿਆਤ ਜਾਂ ਸਿਕਤਵਰਦਮੀਟੀ ਦੇ ਉਪ ਬੇਝਾ ਖ਼ੁਸ਼ ਸਾਹ ਗੁਰੂਜੀਤ (2000) ਤੀਰਤ ਗੀਤਨੀ ਪੁਲਾਵਰਦ, ਚੇਂਡੀਗਾਹ

PAPER-IV: BABED-HCPC32: HISTORY AND CULTURE OF PUNJAB (COMPULSORY)

Marks (Credits)
Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10(0.5)

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 characteristic 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.
vi. 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

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:
- 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, Puppetry.

Unit I  
Five literary terms out of eight are to be attempted in about 50-60 words  

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
Simile, Metaphor, Alliteration, Assonance

Unit IV
Grammar and composition:
1. Idioms and Phrases
2. Complete incomplete sentences
3. Combine two sentences into one with conjunctions

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:
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)
Babet-Hino32

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

समेतर्ष-3
उद्देश्य
अध्ययन प्रक्रिया के समापन के उपरंत विद्यार्थीः:
- दिए गए कवियों की पाठमानस्तु के सन्दर्भ में व्याख्या-सहित खण्ड करेंगे।
Course Content

Unit I

हिन्दी साहित्य का इतिहास-रीतिकाल (केबल काव्य खण्ड)

(15)
रीतिकाल की परिस्थितियाँ, नामकरण, सीमा निर्धारण, प्रवृत्तियां, रीतिविद्वाद और रीति मुक्त काव्य की प्रमुख विशेषताएं, रीति काव्य के प्रमुख कवि—केशव, बिहारी, घणानन्द पर आधारित सीमात्मक प्रश्न।

Unit II

हिन्दी साहित्य का इतिहास—आद्विनक काल केबल काव्य खण्ड

आद्विनक काल के केबल कविता खण्ड में से भारतेन्दु युग, द्वितीय युग, छायावाद, प्रमलितवाद, प्रयोगवाद और नई कविता की केबल प्रवृत्तियों पर आधारित सीमात्मक प्रश्न।

(15)

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. पाठ्यप्रणाली 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).

### संदर्भ सूची

1. वाही हरदेव (2004) हिंदी उद्भव विकास और रूप, किताब महल, इलाहाबाद।
2. सिंह बहादुर (2008) हिंदी साहित्य का इतिहास, माध्य प्रकाशन, समुना नगर।
3. साहनी एस.वी. एवं शर्मा आर.पी. (2007) स्कोलर हिंदी व्याकरण, साहनी प्रकाशन, आगरा।
4. चतुर्वेदी राजेश्वर प्रसाद (2008) हिंदी व्याकरण, उपकार प्रकाशन, आगरा।
5. नंदग्वर हरदेव (2009) हिंदी साहित्य का इतिहास, मधूर पेपरबुक्स, नोएडा।

### 3. PUNJABI (ELECTIVE)
BABED-PBIO32

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<tr>
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<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
<td></td>
</tr>
</tbody>
</table>

**Objectives**

- टिम देवरलैंड एवं उड़ेम्स हिंदिएशन्स द्वारे मंजूदली पंजाबी विद्या मध्ये मंजूदली वेल्डर हे।
- मंजूदलेले हिंदिएशन्स द्वारे हिंदिएशन्स तराई पहुँचून चालू हैं।
- पंजाबी माधुर्य द्वारे हिंदिएशन्स द्वारे उंचाई हूँ विद्युतहरू बजार है। व्रत्मायं माधुर्य मध्ये हिंदिएशन्स द्वारे व्हायरल चालू है।

**पठ्यसूची**

1. मंजूदली दी वेल्डरमॅक (22 भारवः)
2. मंजूदलेले दो अधिकृत (23 भारवः)
3. पंजाबी माधुर्य द्वारे हिंदिएशन्स (1701 देखि 1900 दिन) (15 भारवः)

**सामग्री**

1. मंजूदली वर्तमान विद्यालय (मंजूदली) डा. पवन सिंह, पवन वेंकटेश्वर विद्यालय, पंजाब जलीबन्धमटी, चौधरीहाट।
   (विद्याप्राप्त वर्तमान: वर्तमान विद्यार्थी, वैदिक वैदिक, मंजूदली वेल्डर विद्या, मंजूदली वेल्डर विद्या, मंजूदली वेल्डर विद्या, चौधरीहाट जलीबन्धमटी)
2. मंजूदली मंजूदली, मंजूदली मंजूदली, मंजूदली मंजूदली, मंजूदली मंजूदली, मंजूदली मंजूदली,
Course Content

UNIT – 1

(इ) संपत्ति वालि सूचीपत्र” (मंचणः:ङ्र.पकम सिंह) पुमुदल दिचें पुमंग संतिर शिजाझिक (दे लिचें टिँच)
8 मंज

(अ) लर्ड पुमुदल दिचें बहिरा सा फिक्स डॉम बे मर किकफ बड़ा (दे लिचें टिँच)
7 मंज

UNIT – 2

(इ) ‘समे-में’ अभिधारा सा सदस्यता (रजिजित सिंह ल्यूक) पुमुदल दे अयाप हुँदे पूर्ण साह दे अंतरण्यं दे देंदे संबंधी पूर्ण (दे लिचें टिँच)
8 मंज

(अ) सदस्यते सी संतिर व्याख्या (दे धूमसं दिचें टिँच)
7 मंज

UNIT – 3

लर्ड संबंधि दे सदस्यते दिचें लघु छिंदां रहे पूर्ण (अंत पूर्ण दिचें धूम)
उपल्ल 15 मंज
(पूर्ण दा पूर्ण दिच-चान सदस्यं डे हॉप न उर्दे)

UNIT – 4

(इ) पौष्ठिक संतिर दा टिडिकटम (1701 ढ़े : ढ़े 1900 ढ़े : ढ़े) मुढी वालि-पान, बिंक दे बाज़ बाज़ दांग (मंचणः छूईंटार दले धूम) (अंत लिचें धूम-छूईंटार दिच सदस्यं डे हॉप न उर्दे)
1पल्ल 5 मंज

(अ) 'महिमाविष्ट वरीयंं' हुँदे टेट (सीक्ष, विचार, विद्याभूत) (सश्र लक्षण, धर्म प्रथा, नरपंच) दे लिचें टिँच
10 मंज

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:

- मंचणः पौष्ठिक वालि-पान दले मंचणः लिच दिचे । सां
- पौष्ठिक संतिर दिचें छूईंटार दले मर किकफ बड़ा दिचें टिँच ।

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:
1. भारतीय इतिहास (संस्था: ) डॉ. पवन मिश्र, भवीष्यवाणी विषय, वर्ष २०५२, हाईलांडर, चेन्नई.
   (विश्वविद्यालय अध्ययन: वर्ण, रसीडेंसी, अली बैंड, मात्र चार अंक वर्ण, अनुप्रयोग, प्रेम, मुद्रांकन)

2. पंजाबी मानविकी दी देभाग्यों के विवाद (१९६८) विज्ञान मिश्र जयेन्द्र, वर्ल्डसिकल मिश्र लेख एवं मिश्र संपादन, चेन्नई.

3. पंजाबी मानविकी दृष्टिकोण (१९८७) पंजाबी यूनिवर्सिटी, चेन्नई.

4. पंजाबी मानविकी दृष्टिकोण (१९७२) पंजाबी यूनिवर्सिटी, चेन्नई.

5. सम्म वाणिज्य, भारतीय वाणिज्य तथा समकालीन, विश्वविद्यालय व्युत्पन्न, वेतनीति व्युत्पन्न, चेन्नई.

4. HISTORY
BABED-HISO32
HISTORY OF INDIA 1750-1964 AD

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:

- 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, Pondichery, 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

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)

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
Constituent assembly: historical background and making of India’s constitution
Basic features of Indian constitution
Preamble and its importance
Nature of Indian federalism and centre state relations: Emerging trends in Indian federalism.

Unit -II
Fundamental rights, Fundamental duties: nature, importance and a critique
Directive principles of the state policy
Fundamental duties: Educating the civil society

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
Council of Ministers and Chief Minister: election, powers, position and 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:

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
5) Brass, P. (1990), Politics of India since Independence. , Hyderabad Orient Longman.
13) Iqbal, N. (1967), State Politics in India. , Meerut, Meenakshi Parkshan.

6. ECONOMICS
BABED-EC032
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:
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-SOCO32  
SOCIAL STRUCTURE

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, norms and values.

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, scientific and technological, educational, legislative.

Unit-IV
Processes of social change: sanskritization, westernization, modernization, secularilization & globalization.

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 :

   University Press.

8. GEOGRAPHY
BABED-GEOO32
RESOURCES & ENVIRONMENT: WORLD PATTERNS

<table>
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<th>Marks (Credits)</th>
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<td>Sessional Work = 20 (1)</td>
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<td>Internal Assessment = 20 (1)</td>
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</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
ADVANCED CALCULUS AND DIFFERENTIAL EQUATIONS

<table>
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<td>Sessional Work = 20 (1)</td>
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<td>Internal Assessment = 20 (1)</td>
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**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 continuity with various terms.
- prove Mean value theorem, Darboux’s value theorem and Taylor’s theorem.
- discuss limits and continuity of two variables and various theorems related with functions of two variables prescribed in the course.
- solve problems related with various classes of differential equations.
- solve problems related with transformations and its details, prescribed in the syllabus.

**Unit–I**
Definition of a sequence, theorems on limits of sequences. Bounded and monotonic sequences, Cauchy's convergence criterion, Series of non-negative terms, Comparison tests, Cauchy's Integral test, Ratio test, Cauchy's Root test. Raabe's Logarithmic, De Morgan and Bertrand's tests, Gauss test. Alternating series, Leibnitz's theorem. Absolute and conditional convergence

**Unit-II**
Continuity, sequential continuity, properties of continuous functions, Uniform continuity, proof of chain rule of differentiability, mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders. Maclaurian and Taylor series expansions limit and continuity of functions of two variables

**Unit-III**
Partial differentiation, change of variables, partial derivation and differentiability of real-valued functions of two variables. Schwarz and Young's theorem, statements of inverse and implicit function theorems and applications. Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobians envelopes, evolutes. Maxima, minima and Saddle points of functions of two variables. Lagrange's multiplier method

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 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) 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

GENERAL PRACTICUM
BABED-SRPC32
SCHOOL RELATED PRACTICUM

MARKS 100 (INTERNAL)
CREDIT 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

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**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= 3Hours
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) a. choose a topic from your own area of specialization and write behavioral objectives at different level
   b. prepare at least 5 test items of different type.
ii) 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, team presentations, 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**

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
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<tr>
<td>Theory = 60 (3)</td>
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<tr>
<td>Internal Assessment = 20 (1)</td>
<td>Examination Hours = 3 Hours</td>
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</tbody>
</table>

**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:

i) Visit to a guidance/counseling centre and write a report.

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).
xix) Internal assessment based on terminal examinations, attendance, classroom interactions (20 marks: 1 credit).

Suggested Readings


PAPER III: BABED-ENGC42: ENGLISH (COMPULSORY)

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 Except from Decolonizing the Mind

Course Content
UNIT I
Questions from Poetry in 100-120 words three out of four are to be attempted, selecting. 10

UNIT II
Long Answer type questions from Prose (in about 100-120 words) two out of four are to be attempted 10

UNIT III
Paragraph Writing (based on post reading activities suggested in the prescribed texts) one out of three is to be attempted 5
Report writing (with internal choice) 5

UNIT IV
Grammar
Use nouns as verbs or vice versa 4
Combining pairs of sentences using words give in the bracket 3
Text based idioms and phrase 3

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: 20Credits).
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)

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
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<tr>
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<tr>
<td>Theory = 40 (2)</td>
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<tr>
<td>Internal Assessment = 10 (0.5)</td>
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<td>Examination Hours= 3Hours</td>
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</tbody>
</table>

Objectives
• टिम घेष्ट ए भुंडत टिमिटांगबिखा नंटखांग लंग्रांगी संबंधी निलांग उल्लेखछै दी तूँसी पैठ बननु है।
• टिमिटांगबिखा नंटखांग लंग्रांगी संबंधी तश्ची पैठ बननु है।
• टिमिटांगबिखा नंटखांग लंग्रांगी संबंधी पैठ बननु है।

पाठमूँड
1. टिमिटांगी 24 अंक
2. पैठ ए भुंडत (माहाकेजी दिं संबंधी) 8 अंक
3. पैठ दी लंग्रांगी उल्लेखछै 8 अंक

वेचम
‘देह छै’ (मिस्य: डा. आउमानीङ सिंह), नवलोकेवल चित्रित, णीर णुटुम्बरमिटी, सेडीदारु।

प्रूतित भगे बीम

UNIT - 1
‘देह छै’ (मिस्य: डा. आउमानीङ सिंह) टिमिटांगी नंटखांग लंग्रांगी दिम्रे दिलन छन्द नेल सब सिलपरा (दिम्रे हिंदे दिलन) 8 अंक
**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: 2 Credits).

ii) Internal assessment based on terminal examination attendance, classroom interaction etc. (10 marks: 0.5 Credit).

**Suggested Readings**

1. व्याख्या (मंच) डा. आउमसी सिंह, लिखितेमंग किरिके,पंसाई भुजीचामटी, चंडीगढ़।
2. पंसाई रॉयलैंड डा अभियानस्फल डा भुजीचामटी (1999), राष्ट्र वार्तामंग, आभियानस्फल।
3. पंसाई रॉयलैंड डा रॉयलैंड डा भुजीचामटी (2000) वेब जीड भुजीचामटी, चंडीगढ़।
4. पंसाई रॉयल डा भुजीचामटी (2004) राष्ट्र वार्तामंग, आभियानस्फल।
5. पंसाई रॉयलैंड डा भुजीचामटी (1997) राष्ट्र वार्तामंग, आभियानस्फल।
6. भुजीचामटी उद्योग, राष्ट्र वार्तामंग, आभियानस्फल, आभियानस्फल, 1981.
7. पंसाई रॉयलैंड डा भुजीचामटी (1997) राष्ट्र वार्तामंग, आभियानस्फल, आभियानस्फल, 1981.
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.

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).

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

<table>
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<tbody>
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<td>Internal Assessment = 20 (1)</td>
</tr>
<tr>
<td>Examination Hours= 3Hours</td>
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</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

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) Matthew Arnold: To Marguerite
x) Hopkins: Pied Beauty
xi) A K Ramanujan: 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

Allegory, Allusion, Anthesis, Epic, Epithet, Hyperbole, Terza Rima, Metaphor, Metonymy, Oxymoron, Personification, Sperian Stanza, Satire, Free Paragraph

Course Content

Unit I

Five literary terms out of eight are to be attempted in about 50-60 words. 15

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 (unseen) 8

Unit IV

Grammar

i) Choose the correct meaning 5
ii) Complete the incomplete sentences 5
iii) One word Substitution 5

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

<table>
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<tr>
<th>Marks (Credits)</th>
<th>Total</th>
<th>Theory</th>
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<td>100</td>
<td>60</td>
<td>20</td>
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**Semester-IV**

**Objectives**

*अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थीः :

- एकांक के तत्वों के आधार पर समीक्षात्मक प्रश्न करेंगे।
- पाठ्य क्रम में दिए गए नाटक और एकांक की परिभाषा, तत्त्व और वर्गीकरण पर आधारित दोनों किस्मों सम्बन्धी प्रश्न करेंगे।
- व्यवहारिक व्याकरण सम्बन्धित प्रश्न का उत्तर करेंगे।
- निर्धारित विषय पर सार लेखन करेंगे।
- विस्तारित विषयों का प्रयोग व्यवहारिक रूप में करेंगे।
- देवनागरी लिपि के विकास और गुणों को जानकार देश व सुविधाओं के उपायों को लेखन करेंगे।

**Unit I**

आदर्श एकांकी संग्रह : आदर्श संसार चित्र, पंजाब युनिवर्सिटी पालिकेशन ब्यूरो, चंडीगढ़ द्वारा प्रकाशित।
क. एकांकी के तत्वों के आधार पर समीक्षात्मक प्रश्न ;सार-लेखन, चरित्र-विचित्रण, उद्देश्य सम्बन्धी ख. संदर्भ सहित व्याख्या नहीं पूँछी जायेगी।

**Unit II**
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<th>हिंदी शब्द</th>
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<tr>
<td>1) स्वीकृति</td>
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<td>2) लेखात्मक</td>
<td>Account</td>
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<tr>
<td>3) अभियोग</td>
<td>Accuse</td>
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<td>4) अभियोग (मानना कबूल)</td>
<td>Acknowledged due</td>
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<td>5) मतपत्र</td>
<td>Ballot Paper</td>
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<td>6) रसोइद</td>
<td>Ban</td>
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<tr>
<td>7) पुस्तक मेला</td>
<td>Bonafide</td>
</tr>
<tr>
<td>8) संपादक</td>
<td>Book - Fair</td>
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<td>9) मंत्री मंडल</td>
<td>Bureau</td>
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<td>10) अनुच्छेदी</td>
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<td>11) अनुच्छेदी</td>
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<td>13) रेखाखंड</td>
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<td>14) पत्रिका</td>
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<td>16) जिनिता</td>
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<td>26) अनुच्छेदी</td>
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<td>27) अनुच्छेदी</td>
<td>Gazetteed Officer</td>
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<td>40) अनुच्छेदी</td>
<td>Lessee</td>
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41) Liaison Officer  सम्पर्क अधिकारी
42) Maintenance  अनुरक्षण, भरण--पोपण, रख--रखाव
43) Major  वास्त, वाहिक, मेजर, प्रांतत्व
44) Manager  प्रबंधक, व्यवस्थापक, मैनेजर
45) Minor  अवस्थय, नाभाविक, आप्रवाय
46) Monopoly  एकाकित्वी, एकाधिपत्य
47) Nationalization  राष्ट्रीयकरण
48) Negotiation  संधियात्म, समझौते की बातचीत
49) Note of Dissent  विस्मयत लेख, अताहति लेख
50) Notification  अमिटुपुन
51) Oath Commissioner  शांघ आपुक
52) Offender  अपराधी
53) Permissible  अनुमेय, अनुरक्षण, कायय
54) Planning Commission  योजना आयोग
55) Precedence  पूर्वता, आप्रता
56) Procedure  कार्यविधि
57) Public  सर्वजनसंस हो, सरकारी, लोक
58) Quorum  गणपुरी, कोरम
59) Receipt  पावती, प्राप्ति रसीद
60) Recruitment  भरती
61) Receiver  पानेवाला
62) Reminder  समरण-पत्र
63) Representative  प्रतिनिधि
64) Senior  वरिष्ठ, उँचाई
65) Sine die  अनिश्चित काल के लिए
66) Statutory  कानुनी, विधि, संविधि
67) Stenographer  आपूर्विक
68) Subordinate  अधिन, अधीनस्त
69) Tender  निषिद्ध, टेंडर
70) Transfer  बदलती, भागनायक, अंतरण
71) Treasurer  कोषपाल
72) Unofficial  अशासनकीय
73) Vacancy  विलिखित
74) Vigilance Officer  सतर्कता अधिकारी, निगरानी अधिकारी
75) Warrant  अधिनता, वांछन

(ख) निमित्त पत्र, विज्ञापन/विज्ञापन का अपवैयाय करना
(ग) देवनागरी लिपि: विकास गुण व दोष सुधर के उपाय

Unit IV
व्यावहारिक व्याकरण
(क) समाकृति, मिन्नार्थक शब्द-गुप्त
(ख) स्वर संधि एवं व्याक वर्ण संधि
(ग) संभि-विच्छेद (केवल व्यावहारिक)
(घ) साहित्य शब्दावली
(ङ) विज्ञापन विहिन

3+3+3+3+3=15

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 समाकृति शब्दों की सूची बनायें जो बिन्नतार्थक हो।
- पाठ्यक्रम में दी गयी एकाकी में से 4–5 विशार्धी के समूह में एकाकी 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.
   
   \( 15 \times 4 = 60 \) 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. चंद्र संतग (2006) आदर्श एकाकी संसाध, पंजाब युनिवर्सिटी गवर्निंग भूमिकाएँ, चंबीगढ़।
2. कुमार सुनील (2009) सामान्य हिंदी, प्रायाग पुस्तकें अवन, इलाहाबाद।
3. सिंह बहादुर (2006) हिंदी साहित्य का इतिहास, माधव प्रकाशन, समुनानगर।
4. बाहरी हरदेव (2004) हिंदी उदयव विकास और रूप, किलाब महल, इलाहाबाद।
5. दीक्षित गांगुरी (2003) समीक्षालोक, इलाह्प्रस्थ प्रकाशन दिल्ली।
6. जैन निरंजन (2006) नई समीक्षा के प्रतिमान, नेशनल पब्लिशिंग हाउस, दिल्ली।
7. तिवारी भोलानाथ (2008) भाषाविज्ञान, किलाबमहल एजन्सीज, इलाहाबाद।

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4. **PUNJABI (ELECTIVE)**

**BABED-PBIO42**

**Marks (Credits)**

- **Total** = 100 (5)
- **Theory** = 60 (3)
- **Sessional Work** = 20 (1)
- **Internal Assessment** = 20 (1)

**Examination Hours= 3Hours**

**Objectives**

- एमपी एवं इंजिनियरिंग प्रज्ञान विभाग के मेजबानी संस्थान द्वारा भूमिकाएँ भूमिकाएँ विभाग संस्थान में प्रविष्ट सम्मान देखा गया है।
- वर्गीय विभाग संस्थान द्वारा महत्वपूर्ण उप-विभाग नियोजित की गई।
- पंजाब महाविद्यालय द्वारा भिन्न भिन्न संस्थाप के अध्ययन के लिए भूमिकाएँ नियोजित की गईं।
- वर्गीय महाविद्यालय द्वारा भिन्न संस्थाप के अध्ययन के लिए भूमिकाएँ नियोजित की गईं।

**पाठ्यक्रम**

1. भूमिकाएँ द्वारा चेकडी विभाग
2. वर्गीय संस्थाप
3. पंजाब महाविद्यालय द्वारा विभाग (1701 तक 1900 तक)


**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 महिलावर्ग से अंतरसमाजिक मूल्यांकन
- महापूर्ण ज्ञान दे सीना, वर्धन अथवा बेंगलुरु व्यवस्था कहने के लिए।

**Evaluation Scheme**

112
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

1. ਪੰਜਾਬੀ ਮਾਠ ਰਾ ਟੀਡੀਗ੍ਰੇਮ (17011900) ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੇਂਡੀਗੜੂ।
2. ਪੰਜਾਬੀ ਮਾਠ ਰਾ ਟੀਡੀਗ੍ਰੇਮ (17011900) ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਪਾਟਿਕੜ.
3. ਪੰਜਾਬੀ ਮਾਠ ਰਾ ਟੀਡੀਗ੍ਰੇਮ- ਡਾ. ਵਿਕਟਰ ਸੀਂਘ ਵਾਸ ਵਿਖੱਤਾ (1972), ਪਾਟਿਕੜ.
5. ਮਹਾਰਾਣੀ ਬਲੀ ਸੂਰਜੀੰਗ ਸ਼ੀਖੂ (ਸੇਂਘ:) ਡਾ. ਪੀਰ ਸੀਂਘ, ਵਧਾਲੀਆਂਸ਼ਤ ਵਿਖੱਤੀਆਂ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੇਂਡੀਗੜੂ।
   (ਵਿਖੱਤਾ ਨਾਮ ਕੁਆਰ : ਸਾਨਦ ਵਾਂ, ਵਾਂ ਸੀਂਘ, ਵਧਾਲੀਆਂ, ਸੀਂਘ ਸੁਭੀਸ, ਵਧਾਲੀਆਂ ਸੀਂਘ)
6. ਵਾਣ ਕਲਾ ਵਾਂ (ਸੇਂਘ:) ਸਵਿੱਟਦ ਵਾਂ ਵਧਾਲੀਆਂ, ਵਧਾਲੀਆਂ ਵਿਖੱਤੀਆਂ, ਪੰਜਾਬ ਯੂਨੀਵਰਸਿਟੀ, ਚੇਂਡੀਗੜੂ।

4. HISTORY
BABED-HISO42
HISTORY OF THE PUNJAB, 1469-1966 A.D.

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:

- 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:
a) Important historical places - Amritsar, Goindwal, Anandpur Sahib, Chamkaur Sahib, Kiratpur, Kartarpur, Ponta Sahib, Sirhind, Muktsar, Taran Taran, Lahore, Machhiwara, Ropar and Kapurthala
b) Battles of Banda Bahadur
c) 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.).

5. POLITICAL SCIENCE
BABED-POLO42
INDIAN POLITICS

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 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: formation, functions and role
Voting behaviour: changing voting patterns and role of education
Pressure groups in Indian politics

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

6. ECONOMICS
BABED-ECOO42
PUBLIC FINANCE AND INTERNATIONAL ECONOMICS

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<td>Examination Hours = 3 Hours</td>
</tr>
</tbody>
</table>

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
*Public Expenditure:* Principles of Public Finance (Maximum Social Advantage), Effects of Public Expenditure on Production and Distribution, Causes for the Recent Growth of Public Expenditure in India.
*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
SOCIAL STRATIFICATION

Objective
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:
Functional – Davis and Moore.
Conflict – Karl Marx.
Multi-dimensional – Max Weber

Unit-III
Forms: caste, class and gender.
Features and Interface.

Unit-IV
Social Mobility – meaning, features, 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 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-GEOO42
GEOGRAPHY OF PUNJAB

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 Location, evolution of the state, administrative decisions. Relief, drainage, climate soils, vegetation, mineral and power resources

Unit-II Population: numbers, distribution, density, growth (birth rate, death rate & migration, religious composition, urbanization
Main characteristics including green revolution, irrigation, main crops (wheat, rice, cotton, sugarcane) and their distribution, agricultural marketing, livestock and dairying, problems of agriculture

Unit-III Main characteristics: distribution pattern of major industries (cotton textile, sugar, hosiery, engineering) industrial concentration, problem of industrialization
Road, rail and air transport, interstate trade

Unit-IV Regional geography of Majiha, Doaba, Malwa & major characteristics of each region

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
DIFFERENTIAL EQUATIONS, VECTOR CALCULUS AND MECHANICS

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Objectives

After the completion of the semester, the students will be able to:

- derive theorems related to differentiation and integration of transforms.
- solve partial differential equations with general and Charpits method.
- derive vector transformation, vector integration and related problems.
• explain velocities and accelerations in its varietes as prescribed in the courses.
• derive motions on different places and different media.

UNIT I

Differentiation and integration of transforms, Convolution theorem, solution of integral equations and systems of differential equations using the Laplace transformations

UNIT II

Partial differential equations of the first order, Lagrange's solution, some special types of equations which can be solved easily by methods other than the general method. Charpit's general method of solution

UNIT III

Vector Calculus, Vector differentiation, Gradient, divergence and curl. Vector Integration, theorems of Gauss, Green, Stokes and problems based on these Statics, Analytical conditions of equilibrium of coplanar forces. Virtual work, Catenary

UNIT IV

Dynamics: velocities and accelerations along radial and transversal directions, and along tangential and normal directions. Simple Harmonic motion, Elastic strings
Motion on smooth and rough plane curves, motion in a resisting medium. Motion of particles of varying mass. Central Orbits, Kepler's law of Motion

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 like:

• the teacher may familiarize the students with examples of course content.
• the 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) 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).

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)
- Students will prepare a counseling programme for at least one student of Class X.

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

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</table>

**PAPER I: BABED-EDUC09: TECHNOLOGICAL BASES OF EDUCATION AND PEDAGOGY**

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 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 Glasers, 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

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 different 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).
(c). Stress and Yoga: Stress – Definition, Causes, Symptoms, Complications in life ; Yogic management of stress related disorders – Anxiety, Depression and Suicidal tendencies.

Teaching Learning Experiences
Practice of Following
Yogic Activities

<table>
<thead>
<tr>
<th>Yogic Activities</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yogic Exercises</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>
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<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) Ardhmatyasana (c) Halasana (d) Uttanpadasana.</td>
</tr>
<tr>
<td></td>
<td>D. LYING POSE (STOMACH FACING GROUND)</td>
</tr>
<tr>
<td></td>
<td>(a) Bhujangasana, (b) Shalabhasana (c) Dhanurasana (d) Makarasana</td>
</tr>
<tr>
<td>Pranayama</td>
<td>Pranayama: Correct Breathing Exercise, Anulome-vilom, Suryabhedhan and Bhramari.</td>
</tr>
<tr>
<td>Meditation</td>
<td>Meditation : Yoga Nidra, Vipasana T.M.</td>
</tr>
</tbody>
</table>

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)

Marks (Credits)
Total = 50 (2.5)
Theory = 40(2)
Internal Assessment = 10 (0.5)
Examination Hours= 3 hours.

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 the structure of poem, story, drama, essay.
- Describe and use new pedagogic practices in the teaching of both language and literature.

Prescribed text
The Silent Song (2007)

COURSE CONTENT

Unit I (Poetry)
1. London
2. The stolen boat
3. Kubla Khan
4. Ode to the west wind
5. Ode to a Nightingale
6. Ulysses
7. The Last Ride together
8. Dover Beach
9. Because I could not stop for death
from the text The Silent Song.

Unit II (Prose)
The Merchant of Venice (2006 edition) by Shakespeare ed by Fletcher, Oxford University Press.

Unit III
Sense and sensibility by Jane Austin

Unit IV
1. Pair of words
2. Correction of sentences
3. Use of Idioms into sentences

Unit V
Essay writing (Social and Current topics)
Précis writing (250 to 300 words)

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

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-PBIC53: PUNJABI (COMPULSORY)

Marks (Credits)
Total = 50 (2.5)
Theory = 40 (2)
Internal Assessment = 10 (0.5)
Examination Hours= 3 hours.

ਪੰਜਾਬੀ ਲਾਭ

ਸਮੀਤਤ

Objectives

ਟਿਮ ਪ੍ਰੋਜ੍ਕਟ ਸਨ ਹੋਏ ਹਰਿਆਲਗੜਹਾਂ ਵੱਲੋਂ ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਦੇ ਸਾਹ ਵਰਤਵਾਦਨ ਸ਼ੁਰੂ ਹੁੰਦਾ ਹੈ। ਸਾਰ੍ਥਕ ਦੇ ਉਨੈਂਦਰ ਅਪਨੇ ਸੰਦ੍ਰਭ ਵਿੱਚ ਪ੍ਰੋਜ੍ਕਟ ਵਰਤਨ ਹੈ। ਮਾਲੀਕ ਵਿਦੇਸ਼ੀਆਂ ਦੇ ਪ੍ਰੋਜ੍ਕਟ ਵੱਲ ਵਿਦਿਆਰਥੀ ਵਰਤਨ ਹੈ। ਵਿਦੇਸ਼ੀ ਦੇ ਉਨੈਂਦਰ ਵਿੱਚ ਪ੍ਰੋਜ੍ਕਟ ਵਰਤਨ ਹੈ। ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸੰਸਕ੍ਰਿਤ ਵਾਣੀ ਵਰਤਨ ਹੈ।

ਪ੍ਰਤੀਬੱਧ

1. ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ, ਸਿੰਧ, ਡਾਂਤ, ਸੰਗੀਤ, ਚੜਧੀਕ ਰਾਜ ਵਿਦੇਸ਼ੀਆਂ, ਚੜਧੀਕ ਰਾਜ
2. ਚੜਧੀਕ ਰਾਜ, ਸੰਗੀਤ, ਚੜਧੀਕ ਰਾਜ
3. ਇਕ ਪ੍ਰੋਜ੍ਕਟ
4. ਦਿੱਕਾਰਟ

UNIT - 1
(ਢੌਂ) ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਹਿੱਸਾ ਸਕੀਂ ਮਾਲਾਵ ਵਿਦਿਆਰਥੀਆਂ (ਦੇ ਦਿੱਕਾਰਟ)

(ਅ) ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਹਿੱਸਾ ਸਕੀਂ ਮਾਲਾਵ ਵਿਦਿਆਰਥੀਆਂ (ਦੇ ਦਿੱਕਾਰਟ)

UNIT - 2
ਬਾਂਝ ਦਾ ਵਿੱਚ ਬ੍ਰਿਟੀਸ਼ ਸੰਨ ਮਾਲ (ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ)

UNIT - 3
ਚੜਧੀਕ ਰਾਜ (ਪਰਿਣਾਮ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ) ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ (ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ)

UNIT - 4
(ਢੌਂ) ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਹਿੱਸਾ ਚੜਧੀਕ ਰਾਜ (ਪਰਿਣਾਮ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ) ਕਦੂ ਸਕੀਂ (ਦੇ ਦਿੱਕਾਰਟ)

(ਅ) ਮਾਲੀਕ ਪੰਜਾਬੀ ਵਿਦੇਸ਼ੀ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਹਿੱਸਾ ਚੜਧੀਕ ਰਾਜ (ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ)

UNIT - 5
(ਢੌਂ) ਵਿਦੇਸ਼ੀ ਕਦੂ ਬਾਂਝ ਦੇ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ

(ਅ) ਵਿਦੇਸ਼ੀ ਕਦੂ ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ (ਦਿੱਕਾਰਟ ਦਿੱਕਾਰਟ)

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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
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 Books:
1. पंसाफी वाण्य लिपी मटे विभाजन, डा. घुर्चेद सिंघ विलियम (2006) चेन गीड पुस्तकालय, लखिमारा।
2. पंसाफी अभििोल रे अभििोल रे भूखे संबंध, नीदु सिंघ शंकरी(1999), दोस स्कप डाउनिंग अभिलाख।
3. पंसाफी मार्गद सी हिंदुस्तान रे विवाद, धार्मिक सिंघ, विवाद सिंघ अमिन(1968), लाइल बुंदु धर्म लखिमारा।
4. पंसाफी मार्गद रा टाबिनोि, (अयुििि िल 1901 ते 1995 डोंब)बा सामरििि सिंघ, डा. भगु सिंघ चीडिया(1997), पालिकाविि विवाद, पंसाफी पुस्तक अभिलाख।
5. पंसाफी विभाजनसूग्ना सिंघ युग, दोस स्कप डाउनिंग, अभिलाख।

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.

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 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

(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.

Objectives of Teaching English
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.

Unit I
Literary terms and definitions
Tragedy, comedy, tragic-comedy, comedy of humors, melodrama, romantic comedy, miracle and morality plays, farce, historical play, closet drama, drama of ideas, revenge tragedy, theatre of absurd, modernism, dramatic irony

Unit II
A Midsummer Night's Dream by William Shakespeare

Unit III
Text No. 1 – Sonnet 55 (William Shakespeare)
Text No. 2 – The Canonization (John Donne)
Text No. 3 – To His Coy Mistress (Andrew Marvell)
Text No. 4 – Mac Flecknoe (John Dryden)
Text No. 5 – Portrait of Atticus (Alexander Pope)
Text No. 6 – The Chimney Sweeper (William Blake)
Text No. 7 - Ode: Intimations of Immortality from Recollections of Early Childhood (William Wordsworth)
Text No. 8 – Ode to the West Wind (Percy Bysshe Shelley)
Text No. 9 – To Autumn (John Keats)
Text No. 10 – The Lady of Shalott (Alfred, Lord Tennyson)
Text No. 11 – Porphyria’s Lover (Robert Browning)
Text No. 12 – Dover Beach (Matthew Arnold)
Text No. 13 – One’s – Self I Sing (Walt Whitman)
Text No. 14 - Success is Counted Sweetest (Emily Dickinson)
Text No. 15 - A Prayer for my Daughter (W.B. Yeats)
Text No 16 – Acquainted with the Night (Robert Frost)
From the book Anthology of poetry and prose from Renaissance to Modern edited by Mutatkar and Sharma

Unit IV
Précis writing
Applied Grammar
Word formation and their use in sentences
Form noun from _____
Form adjective from ______
Form verb from ______

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:


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
2. HINDI (ELECTIVE)

BABED-HINO53

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 100 (5)</td>
</tr>
<tr>
<td>Theory = 60 (3)</td>
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<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**

**अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थी :-**

- सामान्य सिंह दिनकर के कुरुक्षेत्र में से दिए गए चार काव्यांशों के संदर्भ में व्याख्या लिखें।
- इन्हीं काव्यांशों पर आधारित आलोचनात्मक प्रश्नों के उत्तर लिखें।
- गद्दी फुलवारी पर आधारित दिए गए प्रश्नों की आलोचना लिखें।
- इन्हीं दिए गए गद्दी के संदर्भ में व्याख्या कम से कम तीन लिखें।
- कुरुक्षेत्र सशक्तित तथा गद्दी पर आधारित प्रश्नों के उत्तर दें।
- उपन्यास, कहानी, नाटक, निबंध, आलंकार, जीवनी, व संस्मरण रंग चित्र विकास पर आधारित तुलनात्मक प्रश्नों के उत्तर लिखें।

**Course Content**

**Unit I**

कुरुक्षेत्र:

सामान्य सिंह दिनकर

प्रकाशक--राजपाल एण्ड संज, नई दिल्ली

दो संदर्भ संहित व्याख्याएँ होंगी व आलोचनात्मक प्रश्न पूछे जायेंगे। 15

**Unit II**

गद्दी फुलवारी, सम्पादक डॉ. शहाबुद्दीन शेख, प्रकाशक--राजपाल एण्ड संज नई दिल्ली। केवल मिनमलिखित पाठ निर्धारित है।


संदर्भ संहित व्याख्या करनी होगी। कुल दो व्याख्याएँ पूछी जाएंगी। 7½ + 7½ = 15

**Unit III**

कुरुक्षेत्र व गद्दी फुलवारी से समाबंधित समीक्षात्मक प्रश्न पूछे जायेंगे। 15

**Unit IV**

हिंदी साहित्य का इतिहास

गद्दी विकासों का उद्भव और विकास: उपन्यास, कहानी, नाटक, निबंध, आलंकार, जीवनी, संस्मरण, रंग चित्र।
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. किसी एक सामाजिक विषय पर आवश्यक कहानी विश्लेषण करें।
2. किसी महान हिन्दी कवि की जीवनी तथा आल्पकथा 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. चतुर्दशी राजेश्वप्रसाद, (2008) हिन्दी व्याकरण उपकार प्रकाशन, आगरा।
2. साहिनी एस.बी, शरण आर. पी (2007) सर्वोत्तम हिन्दी व्याकरण, साहिनी प्रकाशन, आगरा।
3. राजसम कर्नला (2009) निकंब शोध, स्पेक्ट्रम बुक्स प्रा. लि., दिल्ली।
4. गुप्त गणपतिचन्द्र (2008), साहित्यिक निबंध, लोकभाषातील प्रकाशन, इलाहाबाद।
5. गुलाबी याशा (2007), वृहत साहित्यिक निबंध, सूर्यभाषातील प्रकाशन, दिल्ली।
6. नंगेन्द्र हरदयाल (2009) हिन्दी साहित्य का इतिहास, मापूर एपस्टोल्स, नोएडा।

3. PUNJABI (ELECTIVE)
BABED-PBIO53

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Examination Hours= 3 hours.

पंजाबी दिलेक्टिव

Objectives

विषय पाठ्य एवं वेबिक्स विद्याध्यापकों ही आपूर्तिक पंजाबी दिकेट बाये विमारूज साहचली देखा है। विनियमन साधन निर्माण वर्तमान के बाये हिसाब दिखाई देखा है। पंजाबी माधव व दिमाग के आपूर्तिक वर्तमान के बाये है। माधव दे आपूर्तिक दृष्टि दे नाड़ बाजनदार है। माधव दिमागः पंजाबी विद्याध्यापकों ही तृतीय कार्यक्रम स्वीकार माधव दे नाड़ बाजनदार है।
Course Contents

UNIT - 1

(i) प्रमुख संकेत विभागिता (दे हिंदी विच) 6
(ii) विभिन्न रंग वेदांती अद्वैत वे मार्ग (दे हिंदी विच) 9

UNIT - 2

(i) विशेष विभिन्न अद्वैत (दे हिंदी विच) 7
(ii) मनुष्य आन्तरिक (दे हिंदी विच) 8

UNIT - 3

मुख संकेतन अन्दे वीं वे रंग (परिलक्षित पंज विभिन्न) विभिन्न अपारित स्वभाव पुष्ट (अट्ठ हिंदी पंज) 15

UNIT - 4

(दे हिंदी विच)
(i) महानम
(ii) वेदग्रन्थ
(iii) अनांत

15

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:

- वर्तमान विच परिलक्षित स्वभाव से सविचार रंग बनें।
- ती संहिता सिंह तृतीय अद्वैत है ना वटी चलन बनें?

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 Books

1. वर्तमान तींघ अद्वैत उद्देश्य दे वर्तमानविचार हिंदी वेदीयां उठ।
4. HISTORY
BABED-HISO53
WORLD HISTORY 1500-1870 A.D.

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, 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 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 Nepolean 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

5. POLITICAL SCIENCE
BABED-POLO53
COMPARATIVE POLITICAL SYSTEMS (UK AND USA)
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.

Objectives

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
Meaning and scope of comparative government and politics
Comparative method

Unit –II: U.K.
The British political traditions
Parliamentary government, Monarchy, Cabinet, Parliament
Judicial system and rule of law

Unit –III: U.S.A.
Evolution of American political system, war of independence, framing of the constitution, bill of rights
The constitutional framework
Federal system

Unit IV:
Political parties and interest groups of U.K and U.S.A
Voting behavior and electoral process in U.K. and U.S.A.

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


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:
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).

Books Recommended

7. SOCIOLOGY
BABED-SOCO53
SOCIETY IN 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 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 :

8. GEOGRAPHY
BABED-GEOO53
WORLD REGIONAL GEOGRAPHY

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<td></td>
</tr>
<tr>
<td>Examination Hours= 3 hours.</td>
<td></td>
</tr>
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</table>
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
(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) Sahara of Africa South

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
ANALYSIS

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<td>Examination Hours= 3 hours.</td>
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</table>

Objectives
After the completion of the semester the students will be able to
- discuss integrals of various types
- prove various theorems related with integral calculus.
- explain improper integrals and their convergence along with various details of functions with their parameters.
- discuss sequences and series of functions, uniform convergence.
- work out various tests and theorems related to convergence.

Unit–I
Riemann integral, Integrability of continuous and monotonic functions. The fundamental theorem of integral calculus. Mean value theorems of integral calculus
Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Beta and Gamma functions. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter
[Scope as in Chapters 6 (excluding Section 6.6.3), 9,15 (Sections 15.1-15.14 only) of the book 'A Course of Mathematical Analysis' by Shanti Narayan, Twelfth edition]

Unit II
Double and triple integrals, Fibonis theorem without proof, change of order of integration in double integrals, Volume of a region in space, triple integrals in spherical and cylindrical coordinates, substitution in multiple integrals
Unit–III
Sequences and series of functions, point wise 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 Reimann integration, uniform convergence and differentiation

Unit IV
Weierstrass approximation theorem, power series, interval of convergence of power series, Abel's and Taylor's theorems for power series
Fourier series, Fourier expansion of piecewise monotonic functions
[scope as in relevant sections of chapters 12, 13, 14 of the book 'Mathematical Analysis' (2nd edition) by S.C. Malik and Savita Arora]

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
- 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) 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

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 contra-indications.

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

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### PAPER I: BABED-EDUC11: EDUCATIONAL RESEARCH AND STATISTICS

- **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 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-I

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:
(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-EDUC12: VALUE EDUCATION**

<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**

Examination Hours= 3 hours.

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
Objectives of Teaching English

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
The Silent Song: 2007 edition

COURSE CONTENT

UNIT I (POETRY)

1. Monding wall
2. Journey of the Magi
3. I think continually of those who are Truly Great
4. The gift of India
5. For Elkana
6. Advice to fellow swimmers
from The Silent Song, 2007 edition.

UNIT II
Pygmalion by G.B. Shaw

UNIT III
Passage to India by E.M. Foster

UNIT IV
Translation from Modern Indian Language to English (Paragraph)
Translation from Vernacular to English (sentences) and Vice versa

UNIT V
One word Substitution.
Antonyms.
Adjectives.

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 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, classroom interactions, etc. (10 marks: 0.5 Credit).

Suggested Readings:


PAPER IV: BABED-PBIC63: PUNJABI (COMPULSORY)

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 50 (2.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>= 40 (2)</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>= 10 (0.5)</td>
</tr>
<tr>
<td>Examination Hours</td>
<td>= 3 hours.</td>
</tr>
</tbody>
</table>

(ਪੰਜਾਬੀ ਰੂਪਾਂ)

Objectives

- ਦਿਸਤਾਂਬਲ ਦਾ ਵਿਚਾਰ ਵਿਚਿਤ੍ਰਾਵਚਿਆਰਥ ਤੂੰ ਪੰਜਾਬੀ ਤਾਲਕ ਲਹਾਣੇ ਦੀਪਤੀ ਮਹਤਵਾਂ ਟੇਸਤਾ ਹੈ ਪੰਜਾਬੀ ਦੇ ਮਹਤਵਾਂ ਵਿੱਚ ਕਦ੍ਦਸੀ ਵਲਕਸ਼ਹੀਰਾ ਹੈ।
- ਮਹਤਵਾਂ ਲੀ ਬੁੱਧਵਰ ਹੂੰ ਵਿਚਿਤ੍ਰਾਵਚਿਆਰਥ ਬਰਥਤਾ ਹੈ।
- ਪੰਜਾਬੀ ਵਿਚਿਤ੍ਰਾਵਚਿਆਰਥ ਮੰਬੇਦਰ ਨਾਟਕਾਂ ਟੇਸਤਾ ਹੈ।
- ਨਾਟਕਕਰ ਵਿੱਚ ਵਿਚਿਤ੍ਰਾਵਚਿਆਰਥ ਤੂੰ ਹੂੰਫੀ ਨਾਟਕਾਂ ਟੇਸਤਾ ਹੈ।

ਪੰਤ੍ਰੀਕਾ
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 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, classroom interactions, etc. (10 marks: 0.5 Credit).

Suggested Readings
1. विद्वानों के अनुसार स्कूलों से एवं संगठित हिंदीगी हिस्ट्री टिल्डिंग अवधीताओं वन राजनीति का।
2. अन्तर्गत समस्त निकल मैदा मीड (1993), लहरेल चूंच अप्र, लुपेफा।
3. पंजाबी माधुरी ले दी विषयों के विषय, पाठ-पत्र संथ, विधायक, सिंध अमेल (1968), लहरेल चूंच अप्र लुपेफा।
4. पंजाबी माधुरी ले दी विषयों (1987), पंजाब पुस्तिकावीड़ी द्वारा।
5. पंजाबी माधुरी ले दी विषयों (1972) पंजाबी पुस्तिकावीड़ी, लुपेफा।
6. अन्तर्गत अन्तर्गत प्लाज्ड विषय (1970), लहरेल चूंच अप्र, लुपेफा।

PAPER IV: BABED-HCPC63: 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:
• 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.
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 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
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.

Unit I
Literary terms and definitions
Characterization, Masque, Mine, Ballet, Dialogue, Exposition, Climax, Denouement, Catastrophe, Three Unities, Soliloquy, Tragic Hero, Catharsis, Hamartia, Chorus

Unit II
Drama Winter's Tale by William Shakespeare

Unit III
Text No. 17 – The Unknown Citizen (W.H. Auden)
Text No. 18 – Of Studies (Francis Bacon)
Text No. 19 - Female Orators (Joseph Addison)
Text No. 20 – Letter to Lord Chesterfield (Samuel Johnson)
Text No 21 – Johnson’s Character (James Boswell)
Text No. 22 – On Going a Journey (William Hazlitt)
Text No. 23 Dream Children : A Reverie (Charles Lamb)
Text No. 24 – Young Goodman Brown (Nathaniel Hawthorne)
Text No. 25 – The Open Window (Saki (H.H. Munro)
Text No. 26 – The Rocking-Horse Winner (D.H. Lawrence)
Text No. 27 – In Another Country (Ernest Hemingway)
Text No. 28 – The Magic Barrel (Bernard Malamud)
Text No. 29 – Stranger in the Village (James Baldwin)
Text No. 30 - The Thing without a Name (V.S. Naipaul)
Text No. 31 – The Bed of Nails (Anthony Jay and Jonathan Lynn)
from the book Anthology of Poetry and Prose from Renaissance to Modern edited by Mutatkar and Sharma

Unit IV
I. Translation from hindi/ punjabi into english
II. Idioms
III. Pair of words to be used in 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 sessional work which will include the following project:

- preparation of a report on the writings 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) 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

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.

समेत्तर–6
Objectives
अध्ययन प्रक्रिया के समापन के उपरांत विद्यार्थी :-
- साहित्यिक और सामाजिक विषयों पर निबन्ध लेखन का अभ्यास करने हेतु कम से कम पाँच निबन्ध लिखेंगे।
Course Content

Unit I

निबन्ध लेखन: कविता साहित्यिक और सामाजिक विषयों पर।
कुल आठ निबन्धों में से किसी एक पर निबन्ध लिखने के लिये कहा जायेगा।

Unit II

समीक्षा सिद्धांत
(क) कविता की परिभाषा तथा भेद, महाकाव्य, खण्डकाव्य, गीतिक काव्य की परिभाषा तथा विशेषताएँ।
(ख) गद्य विधाएं—निबन्ध, संस्करण, जीवनी तथा आलंकरण का स्वरूप और तत्त्वों का सामाजिक परिचय।

Unit III

प्रयोजनमूलक हिन्दी: हिन्दी कंप्यूटरिंग व अनुवाद
(क) कंप्यूटर: स्वरूप व महत्त्व
(ख) ई—मेल: प्रेषण प्रमाण
(ग) इंटरनेट: स्वरूप व उपयोगिता
(घ) अनुवाद: परिभाषा व स्वरूप

Unit IV

छन्द—अलंकार परिवय
(क) कविता निम्नलिखित अलंकार निर्धारित हैं:—
अनुपातर, समक, स्तोत्र, वक्तौकित, उपमा, रूपक, अतिरिक्त, विरोधमात्र, उद्देश्य प्रतीप।
(ख) कविता निम्नलिखित छन्द निर्धारित हैं:—
दोहा, सोरवरा, चोरी, रोला, कण्ठलिया, संवेदा, दुःत, विलम्ब, हरिगीतिका, उपेन्द्रव्य, इम्दुव्या।

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. किन्ही द्वारा सामाजिक विषयों पर आधारित अंगी अनुभुति का हिन्दी अनुवाद करें।
2. हिन्दी में जन संवार के महत्त्व पर कल्पना रचित्त्र वैयाकरण 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. 
\((15 \times 4 = 60 \text{ marks})\).

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. चन्द्रगुप्ता राजेश्वरप्रसाद, (2008) हिन्दी व्याकरण उपकार प्रकाशन, आगरा।
2. साहनी एस.बी, रमण आर. पी (2007) सर्वोत्तम हिन्दी व्याकरण, साहनी प्रकाशन, आगरा।
3. राजाराम कल्पना (2009) निकंद वोच, संकेतम बुक्स प्रा. लि., दिल्ली।
4. गुप्त गणपतिचन्द्र (2008), साहित्यिक निबंध, लोकभाषाती प्रकाशन, इलाहाबाद।
5. गुलाली यास (2007), वृहत् साहित्यिक निबंध, सूर्यभारती प्रकाशन, दिल्ली।
6. नगेन्द्र हरदयाल (2009) हिन्दी साहित्य का इतिहास, मध्य पेपरबुक्स, नोयडा।

3. PUNJABI (ELECTIVE)  
BABED-PBIO63

<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>

**Examination Hours= 3 hours.**

**Objectives**
- हिंदी भेरों का मंदिर विद्वान विभाजनीयों कै आपुरविल शंकाश्री तात्त्व में विद्वान झर तीर्थही दर्शनी रेता है।
- निजी बिहार रिवेश वर्तमान है।
- भाषात्मक माधुर्य देव विद्वान वे आपुरविल पथ हे उध्यं है विचारक दृष्टि है।
- तात्त्व मंदिरी हृदयी साहि-श्री रेता है।
- माधुर्य देव आपुरविल तुल्य दे नाट्य विपुलमूल है।
- माधुर्य विनितेश्वर मंदिरी विद्वानकारांतृ दी तुर दृष्टि करणी ठिक रहे दे नाट्य विपुलमूल है।

**पाठ्वृक्तोऽनुसारः**
1. जम्मू भाषा, उत्तरकुट सिप्र, जम्मूती लल केंड संस्थ, लोकभाषाती
2. रिहा देव नाम (पद्मश्री रिहा निकंद), ख्र. गुलाली यास, पवित्रतिथ्य विभिन्न, यंगस्टर पुस्तकाशिपी, 
3. अवम बुक्ष
4. आपुरविल तुल्य

**उपिन्न खोबः**

**UNIT - 1**  
जम्मू भाषा: (दे हिंदी दिव्य)
UNIT - 2

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:

• Academic sessions will be covered in the form of sessional work which will include:
  • Academically supervised sessional work: project work, team presentations, individual term papers and assignment (20 marks: 1 Credit).
  • Internal assessment based on terminal examinations, attendance, classroom interactions, snap test etc. (20 marks: 1 Credit).

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 Books
1. 164
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: Meiji 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 (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
5. POLITICAL SCIENCE
BABED-POLO63
INTERNATIONAL POLITICS: THEORY AND PRACTICE

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 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 organizations: SAARC and European Union
United Nations and maintenance of world peace, organs of UN and their role
Globalization and its impact on Politics

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 Globalization.

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

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory = 60 (3)</td>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
<td>Examination Hours= 3 hours.</td>
</tr>
</tbody>
</table>

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
**Elementary Idea of Sets and Function:** Simple, Derivative, Differentiation of Simple functions – Polynomial (x), Exponential functions. Maxima and Minima of functions of one variable only. Simple Application of Economics.

**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 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.

**Time Series Analysis:** Components of Time Series, Determination of Trend, Least Square and Moving Average Method.

**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

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 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-GEOO63
GEOGRAPHY OF INDIA

<table>
<thead>
<tr>
<th>Marks (Credits)</th>
<th>Total = 100 (5)</th>
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</thead>
<tbody>
<tr>
<td>Theory = 60 (3)</td>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
<td>Examination Hours= 3 hours.</td>
</tr>
</tbody>
</table>

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
India in the context of South Asia, and the world
Relief, drainage, climate, vegetation and soils

Unit-II
Iron-ore, manganese, mica, copper, gold; and power resources
Population: numbers, distribution and density, growth, migration, urbanization, and religious composition

Unit-III
Agriculture—characteristics of Indian agriculture, land use pattern, irrigation, major crops (rice, wheat, jowar, maize, sugarcane, cotton, jute, tea, and groundnut), areas of surplus and deficit food production and problems of Indian agriculture

Unit-IV
Industries—distribution and localization, factors of major industries (iron and steel, cotton, textiles, sugar, fertilizers, cement), 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
ABSTRACT ALGEBRA

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 various groups and theorems.
- discuss rings, subrings in details like Gaussian and polynomial rings.
- define and exemplifiers vector spaces , subspaces of various types along with the related theorems.
- discuss linear transformation, linear maps, matrices.
- discuss characteristics, roots and vectors and variety of matrices.

UNIT I
Groups, subgroups, Cosets, Lagrange's Theorem, Normal (subgroups and Quotient groups. Simple groups, Homomorphism, Isomorphism theorems and Automorphisms, Counting principle. Cayley's theorem, Permutation groups, Alternating groups, Conjugacy, Class equation
[scope as in sections 2.1-2.11 of chapter 2 of the book 'Topics in Algebra' (second edition) by LN. Herstein]

UNIT II
Rings, Subrings. Integral domains, characteristics of a ring and a field, Ideals, Prime and Maximal ideals, Homomorphism, Quotient rings, Integral domains. Field of quotients of an Integral domain, Euclidean domains. The ring of Gaussian Integers, Polynomials rings over rings and fields
[scope as in sections 3.1-3.9 of chapter 3 of the book 'Topics in Algebra' (second edition) by I.N. Herstein]

UNIT III
Definition and examples of vector spaces, subspaces, sum and direct sum of subspaces. Linear span, linear dependence, independence and their basic properties, Basis, Finitely generated vector spaces, Existence theorem for basic dimensional vector space, Invariance of the number of elements of a basis set, dimension, Existence of complementary subspace of a finite dimensional vector space, dimension of sums of subspaces

UNIT IV

Linear transformations, algebra of linear transformations, rank and nullity of a linear map, inverse of a linear transformation, the space L(u, v), composition of linear maps, matrix associated with a linear map, linear map associated with a matrix, Dimensions of matrix. Rank and nullity of a matrix

[scope as in sections 3.1-3.6, 4.1-4.7, 5.1-5.5 of a book 'An Introduction to Linear Algebra by V.Krishnamurthy, V.P. Mainra and J.L. Arora]

Characteristic roots and characteristic vectors, of a matrix, nature of characteristic roots of special types of matrices, relation between algebraic and geometric multiplicities of a characteristic root. Minimal polynomial of a matrix, orthogonal reduction of real symmetric matrices, unitary reduction of Hermitian matrices, similarity of matrices, diagonalization of matrices


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 the following activities:

- 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) 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:


GENERAL PRACTICUM

BABED-SRPC63
SCHOOL RELATED PRACTICUM

• The students of the class will visit one Govt School of Chandigarh to observe the lessons of the interns and to assist them in various tasks to be performed in the school.

BABED-LSTC63
LIFE SKILL TRAINING

PART – A
(1) Drawing and Sketching - 20 sheets
a) Pencil sketches - 2 sheets
b) Landscapes - 2 sheets
c) Collages - 4 sheets (2 from each teaching subject)
d) Alphabets writing in blocks (A to Z)
capital: - 5 sheets
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.
### COURSE STRUCTURE FOR SEMESTER VII
#### OPTION I: B.ED. ELEMENTARY

<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>CREDIT</th>
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<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>
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<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>
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<tr>
<td>3</td>
<td>COMPULSORY</td>
<td>BABED-EDUC15</td>
<td>THEORY OF INSTRUCTIONAL TECHNOLOGY AND EVALUATION</td>
<td>4</td>
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<td>4</td>
<td>COMPULSORY</td>
<td>BABED-EDUC16</td>
<td>SCHOOL MANAGEMENT</td>
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<td>5</td>
<td>COMPULSORY</td>
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<td>INFORMATION &amp; COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION</td>
<td>4</td>
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<td>5</td>
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<td>6</td>
<td>COMPULSORY</td>
<td>BABED-TMENSC</td>
<td>PEDAGOGY OF NATURAL SCIENCES</td>
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<td>7</td>
<td>COMPULSORY</td>
<td>BABED-TMESSC</td>
<td>PEDAGOGY OF SOCIAL SCIENCES</td>
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<td>2.5</td>
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<td>COMPULSORY</td>
<td>BABED-TMEMAT</td>
<td>PEDAGOGY OF MATHEMATICS</td>
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<td>2.5</td>
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<td>9</td>
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## COURSE STRUCTURE FOR SEMESTER VII
### OPTION II: B.ED. SECONDARY

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<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>
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</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>
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<tr>
<td>2</td>
<td>COMPULSORY</td>
<td>BABED-EDUC14</td>
<td>THE LEARNER NATURE AND DEVELOPMENT</td>
<td>4</td>
<td>1</td>
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</tr>
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<td>3</td>
<td>COMPULSORY</td>
<td>BABED-EDUC15</td>
<td>THEORY OF INSTRUCTIONAL TECHNOLOGY AND EVALUATION</td>
<td>4</td>
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<td>4</td>
<td>COMPULSORY</td>
<td>BABED-EDUC16</td>
<td>SCHOOL MANAGEMENT</td>
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<td>5</td>
<td>COMPULSORY</td>
<td>BABED-EDU17</td>
<td>INFORMATION &amp; COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION</td>
<td>4</td>
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<td>5 &amp; 6</td>
<td>TWO OF TEN</td>
<td>BABED-TMS ENG</td>
<td>TEACHING OF ENGLISH</td>
<td>4</td>
<td>1</td>
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<td>BABED-TMS HIS</td>
<td>TEACHING OF HISTORY</td>
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<td>BABED-TMS HIN</td>
<td>TEACHING OF HINDI</td>
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<td>BABED-TMS PBI</td>
<td>TEACHING OF PUNJABI</td>
<td>4</td>
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<td>BABED-TMS GEO</td>
<td>TEACHING OF GEOGRAPHY</td>
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<td></td>
<td>BABED-TMS ECO</td>
<td>TEACHING OF ECONOMICS</td>
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<tr>
<td></td>
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<td>BABED-TMS TMS</td>
<td>TEACHING OF SOCIAL STUDIES</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td>BABED-TMS TMS</td>
<td>TEACHING OF MATHEMATICS</td>
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<td>5</td>
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<tr>
<td></td>
<td></td>
<td>BABED-TMS TMS</td>
<td>TEACHING OF POLITICAL</td>
<td>4</td>
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</tbody>
</table>
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
   a) Political issues and education: historical background with special reference to
      human rights (universal declaration of human rights, latest Indian act with regard to
      human rights). Education for all: Implications of article 21A. Right of children: free
      and compulsory education 2009
   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.
   xxii) 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).
   xxiiii) Internal assessment based on terminal examinations, attendance, classroom
      interactions (20 marks: 1 credit).

Suggested Readings:

      Publishing House Pvt. Ltd.
      Education. Ludhiana: Tandon Publications.

PAPER II: BABED-EDUC14: THE LEARNER - NATURE AND DEVELOPMENT

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 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:
- 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-EDUC15: THEORY OF INSTRUCTIONAL TECHNOLOGY

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3

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**

<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 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

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION
BABED-EDU17

Total Marks(Credits)= 100 (5)
External Theory (Credits)= 60 (3)
Practical (Credits)= 40 (2)
Examination Hours= 3 hours.

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

<table>
<thead>
<tr>
<th>Training Activity</th>
<th>Total Marks (credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switching ON and OFF the PC and Basic of DOS</td>
<td>2</td>
</tr>
<tr>
<td>Use of following packages in creating web pages</td>
<td>2</td>
</tr>
<tr>
<td>Internet Surfing, working with E-mail and chat</td>
<td>2</td>
</tr>
<tr>
<td>Evaluation Scheme</td>
<td></td>
</tr>
<tr>
<td>i) Theory paper at the end of the session consisting</td>
<td>3 (0.5)</td>
</tr>
<tr>
<td>of eight questions two from each unit. The students</td>
<td></td>
</tr>
<tr>
<td>will be required to attempt one question from each of</td>
<td></td>
</tr>
<tr>
<td>the four units (60 marks: 3 Credits).</td>
<td></td>
</tr>
<tr>
<td>ii) Practical work will carry 40 marks: 2 Credits</td>
<td></td>
</tr>
</tbody>
</table>

BOOKS RECOMMENDED


The students will be given experience in the following areas: Black board writing, drawing & sketching, art & craft, motto writing, action drawing, preparation of teaching aids, display of pictures on display board, collage making etc.
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)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory</td>
<td>30</td>
<td>(1.5)</td>
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<tr>
<td>Sessional Work</td>
<td>10</td>
<td>(0.5)</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>10</td>
<td>(0.5)</td>
</tr>
</tbody>
</table>

Objectives

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, over head 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:
iv) 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).
v) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
vi) 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:  
vii) 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).  
viii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).  
ix) 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:
  x) 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).
  xi) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
  xii) 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.

TEACHING SUBJECTS (B.Ed. SECONDARY)
TEACHING OF ENGLISH

BABED-TMS ENG
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)
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:

TEACHING OF HISTORY
BABED-TMS HIS

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 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, time-lines 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:

iv) 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).

v) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

vi) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books Suggested


TEACHING OF HINDI
BABED-TMS HIN

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3

हिन्दी भाषा शिक्षण

लक्ष्य :  
1. भारतीय संस्कृति में हिन्दी शिक्षण के लिए भाषा सम्बन्धी आधुनिक योग्यताओं का विकास करना।
2. भारतीय संस्कृति में हिन्दी भाषा शिक्षण सम्बन्धी योग्यताओं का विकास करना।
3. भारतीय संस्कृति में हिन्दी रिश्तों पर अपेक्षित कृतियाँ का विकास करना।
4. भारतीय संस्कृति में हिन्दी संस्कृति विभिन्न कस्तों तर नारक एवं साहित्यिक क्रियाओं के आयोजन की क्रमात्मक विकास करना।
5. सहायक सामग्री के निर्माण एवं प्रयोग की कृतियाँ का विकास करना।

प्रश्न उपकरण :  
.कल्चर भाषा—अर्थ, आधार एवं प्रकृति  
.खेल वेदनागरी लिपि की विशेषताएं एवं सीमाएं  
.पद्ध हिन्दी भाषा का महत्त्व—गायनाभाषा एवं मार्गदर्शक भाषा के रूप में
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:

vii) 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).

viii) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

ix) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

References:

1. ख़ाना, ज्योति, 2009, हिन्दी शिक्षण, भारतव्यापी एण्ड कम्पनी, नई दिल्ली।
2. सार्म, डी. के., 1999, हिन्दी शिक्षण सिद्धांत, टाइपन प्रकाशन, लुधियाना।
3. राम विश्वासी लाल, 1996–97, हिन्दी शिक्षण, रस्तोंगी एण्ड कम्पनी, नेवाल।
4. सार्म, डी. एल., 1992, हिन्दी शिक्षण, देव नागर प्रकाशन, जयपुर।
5. भाटिया के. डे., और नारायण, सी. एल., 1989, आधुनिक हिन्दी सिद्धांत, एलानि, शिक्षण प्रकाशन, लुधियाना।
6. सिद्धारंभ राजू, 1964, हिन्दी भाषा की शिक्षण सिद्धियों, दिल्ली प्रकाशक सदन, पटना।
7. प्रसाद बेंगकर, 1976, हिन्दी शिक्षण, भारतव्यापी एण्ड संस्था, नई दिल्ली।
8. सरलाया रघुनाथ, 1986–97, हिन्दी शिक्षण सिद्धियों, पंजाब किलाब घर, जालंधर।
TEACHING OF PUNJABI
BABED-TMS PBI

पंजाबी बात्ती ही मिशिंगा दियी

Marks (Credits)
Total = 100 (5)
Theory = 60 (3)
Sessional Work = 20 (1)
Internal Assessment = 20 (1)
Examination Hours= 3

hours.

दीक्षा : 
1. हिंदीहादी अभिलम्बति ही डाज्ड, पंजाबी बात्ती ही गुजराती हिंदी वाण है गर्कला दिखाता देखा।
2. इतिहाद दे मिशिंगा हो दीक्षा हो इतिहाद दी मेंडी ब्रह्मदृढ़।
3. द्राक्ष गुंजन अर्थ विविधत्व ही सूचित होगी अर्थ अभिलम्ब वर्ण है समाजी देखा।
4. मैजिकी बूढ़ीड़ी लकी विराजित वन्य बाठ समाजी दिखे महान्दुरुक्तन तुलिंगां ली चेन बाल दिव मागित वर्णा।
5. पंजाबी बात्ती दे अभिलम्ब दे पुलिंगड़े दे वर्मात्ता पाउ दी ही दुकेक्ष चौबूट लेखी मानव सज्जन देखा।
6. माणिंग दे मिशिंगा त्साक्षी, क्षेत्र, भेद पान दे अभिलम्ब दंगा गां नाटक क्षेत्र।
7. सॉर्थिंग भारत पुलिंगवाला दिख ले के ज्ञान अभिलम्ब अभिलम्ब सबक की वृत्त कैसे बाल।
8. पंजाबी माणिंग राज झाँडी दिख दिखाता ही विविधत्व की अभिलम्ब भारत पूर्व देखा।

पाठ सारणीः

दिवारी, 1
1. बाज दी पुलिंगड़ी अवे हीहूडी दे मिशिंग।
2. पंजाबी बाजा दे विवरण मे विवरण।
3. हिंदी दे अभिलम्ब हिंदी ही पुलिंगड़ा दे महान्दुरुक्त।
4. मिशिंगा दे बेंगल दिख महान्दुरुक्त ही मिशिंगा दे हेरिज अवे महाराज।

दिवारी, 2
1. बाज दी मिशिंगा ही मुहर्म अवे महाराज दा बाज, मुहर्म अवरी दे विवरण दी लेखीऽही अभिलम्बां।
2. बेंगल दी मिशिंगा दा बाज, अवर दिखाड़े दे राज अवे मुहर्म, मिशिंगा बिविधां (राजावल्ल, न्यायाधिपति, राजा, बाबू दी बंडूड़ा)।
3. पुलिंगढ़ मिशिंगा रानी मुहर्म विविधीज़ अवे बजारी मिशिंगा रानी मिशिंगा ममतावध बजारी दे माणिंग बजारी (बंडूड़ा ढाड़ दे मेला ढाड़)
4. हिंदी बाज दा बाज, हिंदी मिशिंगढ़ रानी महामारी, हिंदी महे हिंदी विभा।
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:

x) 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).

xi) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).

xii) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Mahanirav Punjabar:

1. ਪੰਜਾਬੀ ਬਾਧਾ, ਹੈਨਾਕਟਨ ਅਧੀ ਗਰਦਾਰ : ਪੰਜਾਬੀ ਵੁੱਡੀਚਕਰਮੀ, ਪਾਠਭਾਗ।
2. ਪੰਜਾਬੀ ਕਾਲਕਲ ਤੋਂ ਇੱਕ ਕਾਲਕਲ ਕੋਟ : ਡਾ ਉਦਾਮ ਮਿਸ਼ਾ।
3. ਮਹਾਨਿਰਾਵ ਦੀ ਮਿਨਿਫ਼ਰ ਰਿਚਰਡ : ਦਾ ਲਾਹੀਡ ਮਿਚ ਤੱਕ।
4. ਪੰਜਾਬੀ ਬਾਧਾ ਦੀ ਮਾਤੀਮ ਅਧਿਆਪਕ : ਦਾ ਹੈਨਾਕਟਨ ਮਿਚ ਹੈਨਾਕਟਨ।
5. ਪੰਜਾਬੀ ਮਾਤੀਮ ਦੀ ਫੁਅਦੀ ਅਧੀਨਾਂ ਵਿਚ ਵਿਚਾਰ, ਵਿਚਾਰਨ ਮਿਚ ਚਿੱਤਰ, ਖੱਬੀਚ ਮਿਚ, ਸੈਫਿਕ ਮਿਚ ਬੇਰੂਤ ਇਕੋ ਕਰਨ ਸੁਧਾਰ ਹੋਇਆ ਕੜਾ, ਕੌਮਾਨਕੜਾ।
6. ਮਹਾਨਿਰਾਵ ਦੀ ਕਬੱਦੀ ਦੇ ਪੰਜਾਬੀ ਬਾਧਾ, ਦਾਰ, ਪਰਿਸ਼੍ਰਮ ਮਿਚ (ਸ੍ਰੀਗੁਰ ਸਮਰ ਵਿਵਾਦਸਤ, ਚੈਂਡੋਲੂ)।
7. ਪੰਜਾਬੀ ਅਧਿਆਪਕ ਦੇ ਭਰਦ ਸਾੰਤਦਾਰ, ਨਿੱਤ ਮਿਚ ਪਦਾਰਥ, ਹਾਲ ਧਾਰ ਦਾਖਲੇਕਰ, ਅੰਸਹੀਮਾਰ, 1999
8. ਪੰਜਾਬੀ ਬਾਧਾ ਲਿਖੀ ਅਧੀ ਹਿੰਦੂਕਕਾਸਰ, ਹਿੰਦੂਕਕਾਸਰ ਮਿਚ ਵਿਚਾਰਨ ਦੇ ਲਅਰਾਉਡ ਦੁਪਲਸ਼, 2006
TEACHING OF GEOGRAPHY
BABED-TMS GEO

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, 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:**


**TEACHING OF ECONOMICS**

**BABED-TMS ECO**

<table>
<thead>
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<th>Marks (Credits)</th>
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<tr>
<td>Total = 100 (5)</td>
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<tr>
<td>Theory = 60 (3)</td>
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<td>Sessional Work = 20 (1)</td>
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</table>
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:

TEACHING OF SOCIAL STUDIES
BABED-TMS SST

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<thead>
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<td>Sessional Work = 20 (1)</td>
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<tr>
<td>Internal Assessment = 20 (1)</td>
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<tr>
<td>Examination Hours= 3</td>
<td></td>
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</tbody>
</table>

hours.

206
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:**


**TEACHING OF MATHEMATICS**

**BABED- TMS MAT**

<table>
<thead>
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<th>Marks (Credits)</th>
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<td>Theory = 60 (3)</td>
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<tr>
<td>Sessional Work = 20 (1)</td>
</tr>
<tr>
<td>Internal Assessment = 20 (1)</td>
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</tbody>
</table>
Objectives: Examination Hours= 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 - Aryabhata, 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:**


TEACHING OF POLITICAL SCIENCE
BABED-TMS POL

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:

iv) 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).
v) Supervised sessional work: project work, team presentations, individual term papers and seminars (20 marks: 1 credit).
vi) Internal assessment based on terminal examinations, attendance, classroom interactions, etc. (20 marks: 1 credit).

Books recommended:
TEACHING OF SOCIOLOGY
BABED-TMS SOC

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 blue-print 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).

Suggested Readings:
### COURSE STRUCTURE FOR SEMESTER VIII

#### OPTION I: B.ED ELEMENTARY

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<tr>
<th>S.No</th>
<th>NATURE</th>
<th>SUBJECT CODE</th>
<th>SUBJECT TITLE</th>
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<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>
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<td>2</td>
<td>COMPULSORY</td>
<td>BABED-PPI T02</td>
<td>DOCUMENT AND TEXT ANALYSIS</td>
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<td>3</td>
<td>COMPULSORY</td>
<td>BABED-PPI T03</td>
<td>DEMONSTRATION LESSONS</td>
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<td>4</td>
<td>COMPULSORY</td>
<td>BABED-PPI T04</td>
<td>OBSERVATION OF DEMONSTRATION LESSONS</td>
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<td>5</td>
<td>COMPULSORY</td>
<td>BABED-PPI T05</td>
<td>DEVELOPING UNIT PLANS</td>
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<td>6</td>
<td>COMPULSORY</td>
<td>BABED-PPI T06</td>
<td>SUPERVISED TEACHING PRACTICE</td>
<td>2</td>
<td>6 IN FIELD</td>
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<td>7</td>
<td>COMPULSORY</td>
<td>BABED-PPI T07</td>
<td>RECORD KEEPING</td>
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<td>8</td>
<td>COMPULSORY</td>
<td>BABED-PPI T08</td>
<td>SWOT ANALYSIS AND IDENTIFICATION OF PROBLEM CHILDREN</td>
<td>1</td>
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OPTION I: B. Ed. (Elementary) COURSE
Marks: 600
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
Students will take up the following tasks in VIII Semester.
Task I: Report of visit to center/s of Innovation in Elementary School Education
(Marks = 10, Credit = 0.5) Internal Evaluation
BABED-PP1 T01

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, nonformal etc. This could include detailed observations of alternative practices as well as trying innovative approaches with children.

Task II: Document and text analysis. (Marks = 10, Credits = 0.5) Internal Evaluation
BABED-PP1 T02

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 with in the country or outside.

Task III Demonstration Lessons (Marks = 20, Credits = 1.0) Internal Evaluation
BABED-PP1 T03

Task IV Observation of Demonstration Lessons (Marks = 30, Credits = 1.5) Internal Evaluation
BABED-PP1 T04

Task V Developing Unit Plans (Marks = 10, Credits = 0.5) Internal Evaluation
BABED-PP1 T05

Task VI: Supervised Teaching Practice (Marks = 400, Credits = 20, 40 working days) Internal and External Evaluation
BABED-PPI T06

40 lessons, each to be supervised.
Teaching in elementary classes will involve teaching of four subjects (pedagogy papers)

Task VII Internal Evaluation
BABED-PP1 T07

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)

Task VIII Internal Evaluation
BABED-PP1 T08
**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,
  - class room 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 : 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>
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<td>1</td>
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<td>BABED-PPI T09</td>
<td>DOCUMENT ANALYSIS</td>
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<td>BABED-PPI T13</td>
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<td>BABED-PPI T14</td>
<td>ORGANIZATION OF CO-CURRICULAR /CULTURAL ACTIVITIES IN SCHOOL</td>
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<td>SUPERVISED TEACHING PRACTICE</td>
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**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

   **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 with in the country or outside.

   **Task II: SWOT ANALYSIS (Marks = 50, Credits = 2.5)**

   Identification of infrastructural problems with in the school such as broken blackboard, furniture, inadequacy of space, drinking water, etc and providing appropriate individual and school level solutions.

   **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.

   **Task IV: ORGANIZATION OF SCHOOL FUNCTION (Marks = 50, Credits = 2.5)**

   Students are required to organize any school function/sports day

   **Task V: RECORD KEEPING**

   (Marks = 50, Credits = 2.5)

   • Regular written records of the lesson plans.
   • Observation of lessons (minimum ten distributed lessons)

   **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

   **Task VII: ORGANIZATION OF MORNING ASSEMBLY IN SCHOOL**

   (Marks = 50, Credits = 2.5)
Students are required to organize ten morning assembly sessions

**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.

**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.

**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.

**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

**Task XII: PREPERATION 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.

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:  
Lesson Plans File =100 (50 in each subject)  
Attendance = 50  
Teaching aids = 50  
Observation of lesson plans = 600 (20 x 30 lessons)  
Total = 1400 marks

The following will be adopted for the evaluation of internship programme

- observations : knowledge base
- regular supervision : oral and written communication
- rotators supervision : culture of learning,
choice of activities and materials, 
sensitivity towards need of children,  
class room 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
FACULTY OF ARTS

SYLLABI

FOR

M.A. HISTORY (SEMESTER SYSTEM)
EXAMINATIONS, 2016-2017
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:

   Attendance Component                      Mark/s for Theory Papers
   (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 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.
# M.A. Programme at the Department of History

Courses and Syllabus (Semester System)

The M.A. 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 2016. 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>
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<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>
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<td>Paper IV</td>
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<td>HIS 712</td>
<td>Opt. (ii) Agrarian Economy of Medieval India</td>
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<td>HIS 711</td>
<td>Opt. (iii) Agrarian Economy of Modern India</td>
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<td>HIS 721</td>
<td>Opt. (iv) Industry, Trade &amp; Urbanization in Medieval India</td>
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<td>HIS 730</td>
<td>Opt. (v) Industry and Trade in Modern India</td>
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<td>HIS 733</td>
<td>Opt. (vi) Urbanization in Modern India (In abeyance till further orders)</td>
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<td>Group-III Paper III: Any one of the following</td>
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<td>Opt. (i) Modern World (Mid 15th - 19th Century)</td>
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<td>HIS 844</td>
<td>Opt. (ii) China &amp; Japan (1840-1950)</td>
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<td>Opt. (iii) History of Canada (In abeyance till further orders)</td>
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<td>Opt. (i) National Movement in India 1858-1947</td>
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<td>HIS 213</td>
<td>Opt. (ii) Constitutional Development in Modern India, 1773-1947</td>
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<td>Opt. (iii) British Policy and Princely States <em>(KEPT IN ABEYANCE FOR 2015-18)</em></td>
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<td>HIS 431</td>
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<td>HIS 912</td>
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<td>Opt. (i) Industry, Trade &amp; Urbanization in Medieval India</td>
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<td>HIS 731</td>
<td>Opt. (iii) Working Class Movements in Modern India</td>
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<td>HIS 733</td>
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<td>HIS 471</td>
<td>Opt. (vii) Dalit Movements in Modern India</td>
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<td>HIS 462</td>
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<td>Opt. (x) Islamic Traditions of Medieval India</td>
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<td>Opt. (xi) Religious Developments in Medieval India</td>
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<td>HIS 418</td>
<td>Opt. (xii) Socio-Religious Reform Movements in Modern India</td>
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**Semester I**

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<td>6 credits</td>
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**PAPER I : THE PUNJAB (MID-FIFTEENTH TO SEVENTEENTH CENTURIES)**

**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**

Hadith, sangat, pangat, hukm, raza, manji system, Udasis, Udasi sect, Jogis, Minas, Dhirmalias, Ram Rais, miri-piri, shahadat, janam sakhi, Bhai Gurdas varan, literary significance of Adi Granth, Zafarnama, Akal Takht, Babar bani, Guru Nanak’s concept of universal brotherhood

**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 Gurdwara; 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

Reference Readings

PAPER II: Ancient India: An Overview

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 focusses on the 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..

(v) There will be 9 questions in all. The candidate will be required to attempt 5 questions.
(vi) 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.

(vii) 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.

(viii) 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 limbs of the state /rajya); Stri-dhana; Silk-route; Sreni; Bali/Bhaga/Shulka; Vishti; Prasasti; Mahayana; Hinayana; Puranic Hinduism; Agraharas; Devadana; Vanigramma; 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

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 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:

Nasir Amir ul Mominin; Dar al-harb; Zimmi; Shait-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; Patta and Qabuliyat; Farr i izidi; Mahzat; Sulh i kal; Taurh i illahi; Ibadat Khana; Mansab; Ain i-Dahsala; watan jagir; Satnamis; Jats’ revolt in Doab; chauth; sardeshmukhi, Satnami 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

**PAPER IV: MODERN INDIA: POLITICAL PROCESSES**

**COURSE CODE: HIS 211**

**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.

1. There will be 9 questions in all. The candidate will be required to attempt 5 questions.
2. 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.
3. 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.
4. 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; Lathiys; First War of Indian Independence; Military Uprising; Safety valve theory; Moderates; Extremists; Revolutionaries; Militant Nationalism; Indan 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:


### Semester II

<table>
<thead>
<tr>
<th>Semester</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Group-I Paper I:</td>
<td>HIS 125</td>
<td>Punjab in the Eighteenth Century (Compulsory)</td>
<td>6 credits</td>
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<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>
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<td></td>
<td>HIS 712</td>
<td>Opt. (ii) Agrarian Economy of Medieval India</td>
<td>6 credits</td>
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<td>HIS 711</td>
<td>Opt. (iii) Agrarian Economy of Modern India</td>
<td>6 credits</td>
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<td>HIS 721</td>
<td>Opt. (iv) Industry, Trade &amp; Urbanization in Medieval India</td>
<td>6 credits</td>
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<td>HIS 730</td>
<td>Opt. (v) Industry and Trade in Modern India</td>
<td>6 credits</td>
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<td>HIS 733</td>
<td>Opt. (vi) Urbanization in Modern India (In abeyance till further orders)</td>
<td>6 credits</td>
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<td>Group-III Paper III: Any one of the following</td>
<td>HIS 831</td>
<td>Opt. (i) Modern World (Mid 15th - 19th Century)</td>
<td>6 credits</td>
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<td>HIS 844</td>
<td>Opt. (ii) China &amp; Japan (1840-1950)</td>
<td>6 credits</td>
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<td></td>
<td>HIS 821</td>
<td>Opt. (iii) History of Canada (In abeyance till further orders)</td>
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<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>
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<tr>
<td>Group-IV Paper IV: Any one of the following</td>
<td>HIS 812</td>
<td>Opt. (i) USA (1820-1973)</td>
<td>6 credits</td>
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<td>HIS 832</td>
<td>Opt. (ii) World in the Twentieth Century</td>
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**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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus. 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:
Gobind Shahi coin; Nanak Shahi coin; Dal Khalsa; Gurmatta; Rakhi; Misl; Batai; Hundi; Kankut; Katra; Suzerainty; Kardar; Pargana; Madad-i-ma‘ash; Banjaras; Vassal; Inam jagir; Watan jagir; Bunga; Intermediary zamindar; Pubaqi; Ijaradar; Absentee Jagirdar; Khalsa; Coin of Banda Bahadur; Mukhlispur; Third Battle of Panipat; Tirini; Haq- Buha; Ghiana.

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.
Reference Readings


PAPER II: OPT. (I) AGRARIAN ECONOMY OF ANCIENT INDIA

COURSE CODE: HIS 713

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; Das-karmakars; Bali/Bhaga; Paranaya; Sali/Vrihi; Rajuka/Agronomoi; Sitadhyakasha; Sudarshana lake; Vishiti; Agrahara; Deva-agrahara/devagrarahra; devadana; vaishyagrahara; Kara-shasana; Samanta; Bhumi-chidra-nyaya; urban decay; Kosambi’s two stage theory of feudalism; Araghatta/ghatiyantra; 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); Land Revenue 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 Krishiparasara (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).
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 the course. 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; abwab; Zamindar; jins i- kamil; sair land; malikana; Deh kharj; panch mukadamman; khudh ka‘sh; Karori experiment (1574-75); nasq; kankut; jama and hasil; 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
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.

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(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.

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


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; matra; tripolia; qahwakhana; kotwal; mir-i-mohalla; pol; rach bharmar; talimguru; chikandoz; naqqash; baradari; karkhana; jital; ganj; ahl-i-saif; ahl-i-qalam; hakeem; hunarmandan; 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, *Roads and Communications in Mughal India*, Adab-I-Adabiyat-i-Delhi, Delhi, 1977.


Reference Readings


OPT. (V) INDUSTRY AND TRADE IN MODERN INDIA

COURSE CODE: HIS 730

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 this paper. 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.

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 war on Indian foreign trade.

Unit III
The traditional artisanal industries: the de-industrialisation question; Nature of Modern industry under the colonial rule- major industries- Cotton, textile, Jute, Iron and Steel; reasons of industrial expansion; Industrial entrepreneurship.

Unit IV
Industrial Labour under the Colonial rule: Wages and Standard of Wing; Trade union movement; Labour Disputes, Labour Legislation.

Essential Books


**Reference Readings**


**OPT. (VI) URBANIZATION IN MODERN INDIA(IN ABEYANCE TILL FURTHER ORDERS)**

COURSE CODE: HIS 733

**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:


PAPERS III

PAPERS IV OPT. (I) MODERN WORLD (MID 15TH-19TH CENTURY)

COURSE CODE: HIS 831

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;

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 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 context of their struggle against invasion of 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 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:
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 Common 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


Reference Readings


PAPERS III OPT. (III) HISTORY OF CANADA (IN ABEYANCE TILL FURTHER ORDERS)

COURSE CODE: HIS 821

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.
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:
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; conscription; “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”; Multiculturalism; White Paper; Meechlake 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; Multiculturalism.

Essential Readings

Reference Readings
Douglas R. Francis, Richard Jones and Donald B. Smith, Destinies: Canadian History since Confederation, Nelson, Toronto, 2006.
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;

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**


**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.


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<tr>
<th>Paper I:</th>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
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<tr>
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<td>HIS 123</td>
<td>Punjab in the Nineteenth Century (Compulsory)</td>
<td>6 credits</td>
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<td>HIS 212</td>
<td>Opt. (i) National Movement in India 1858-1947</td>
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<td>HIS 213</td>
<td>Opt. (ii) Constitutional Development in Modern India, 1773-1947</td>
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<td>HIS 214</td>
<td>Opt. (iii) British Policy and Princely States</td>
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<td>Opt. (v) Evolution of Ancient Societies</td>
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<td>Opt. (vi) Feudal Society in Western Europe</td>
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<td>Opt. (vii) History of Capitalism</td>
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<td>Opt. (viii) Rise and Growth of Colonialism in India</td>
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<td>Opt. (ix) Gender Relations in Modern India</td>
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<td>Opt. (x) Sacred Centres in Indian Civilization</td>
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<td>HIS 603</td>
<td>Opt. (xi) Science, Technology &amp; Medicine in Colonial India</td>
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<td>HIS 602</td>
<td>Opt (xii) History of Secularism in Modern India</td>
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<td>HIS 432</td>
<td>Opt (xiii) Cultural History of Ancient India</td>
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<td>HIS 424</td>
<td>Opt (xiv) Medieval Indian Art and Monuments</td>
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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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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; 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**


*Note*: Selected articles from Journal of Regional History, Punjab Past and Present, Punjab History Conference and Indian History Congress.
Papers II, III & IV Any three papers from the following:
PAPERS II, III & IV: OPT. (i) 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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


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


Reference Readings


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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

Unit I

Constitutional Development during East India Company’s rule; Govt. 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

PAPERS- II, III & IV: OPT. (iii) BRITISH POLICY AND PRINCELY STATES (KEPT IN ABEYANCE FOR 2015-2018)

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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.s.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.s.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

Reference Readings
Handbook of the Chamber of Princes, Shimla, 1943.
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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

Unit I

1. 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.

2. 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.

3. Rehabilitation after Partition: Settling the people, creating new towns and agricultural settlements, creating new opportunities for the displaced.

Unit II


5. Industrial growth: Debates on the nature and value of the public and the private sector; Labour relations.

6. 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

7. The States: The continuous reorganization of States since the 1950s. Changing nature of Centre-State relations.

8. 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.

9. 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

10. Depressed classes, tribals, and women.


12. The emergence and articulation of an Indian identity: The problem of national integration versus adjusting conflicting claims in a democratic space.

13. 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


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 classroom 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

Unit I
Hunting-gathering societies and the beginning of food production; characteristics of Neolithic societies in Western Asia with reference to the beginnings of villages, the importance of storage and the development of crafts like pottery and weaving; Tribal and chieftain societies with reference to social organization, shamanism and other religious practices.

Unit II
Gift-giving, reciprocity and redistribution; Trade and market exchange; Primitive valuables and the domestic mode of production.

Unit III
Concept of urban Revolution; the process of urbanization with special reference to Mesopotamia; the early Bronze State of Mesopotamia.

Unit IV
The Greek state with reference to democracy, slavery, art; religion; Roman society and economy; Disintegration of the Roman Empire.

Essential Readings


**Reference Readings**


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**PAPERS- II,III & IV: OPT. (vi) 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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
Objective: To trace the broad patterns in the history of capitalism since its rise in the sixteenth century through its emergence as the most powerful socio-economic system in the late nineteenth and early twentieth centuries.

Pedagogy: Class room lectures and discussions form the basis of instruction 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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’


PAPERS- II,III & IV: OPT. (viii) RISE AND GROWTH OF COLONIALISM IN INDIA

COURSE CODE: HIS 412

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 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
Unit I
Introduction to Colonialism: Colonial Structure and 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; Dangers of Neo Colonialism after 1947.

Essential Readings
Amin, Samir, Accumulation on a World Scale, New York, 1974.
Chandra, Bipan, Nationalism and Colonialism in Modern India, Delhi, 1987.

Reference Readings
Bose, Arun, Modes of Production and Civil Societies in Colonial India, Delhi (n.d.).
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 women’s 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.

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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


PAPERS- II,III & IV: OPT. (x) SACRED CENTRES IN INDIAN CIVILIZATION

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 for the written examination will be 80 and duration of the written examination will be 3 hours.

1. There will be 9 questions in all. The candidate will be required to attempt 5 questions.
2. Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.
3. 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.
4. 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.

**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; economy of the temple of Jagannath at Puri; its administration; emergence of temple towns in Gokul and Nathdwara; its mode of worship.

**Unit III**
Emergence of Varanasi as a Shaiva Centre; continuity and change; 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 its management; the Urs festival; history and control of the Golden Temple; its mode of worship.

**Essential Readings**
Reference Readings


PAPERS- II, III & IV: OPT. (xi): SCIENCE, TECHNOLOGY AND MEDICINE IN COLONIAL INDIA (KEPT IN ABYANCE FOR 2015-18)

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
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
Roy Macleod and Deepak Kumar, Technology and the Raj, Delhi, Sage.

Reference Reading

PAPERS- II, III & IV: OPT. (xii): HISTORY OF SECULARISM IN MODERN INDIA
(KEPT IN ABEYANCE FOR 2015-18)

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

Unit I
Scope, concepts and method:
2. The emergence of the nation state and its relationship with secularism and religion.

Unit II
Efforts to engage diverse traditions and interests:
1. The Sikh traditions and the idea of a secular state: Ranjit Singh.
2. Maulana Mohamed Ali, Maulana Abul Kalam Azad, the idea of a secular state and the conflict between pluralism and fundamentalism within the Islamic traditions.
3. 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:
1. The Gandhian perspective
2. The Nehruvian perspective
3. The Constitution of India and legislating for secularism.

Unit IV
The struggle for ideological space in recent times:
1. The majority-minority conundrum.
2. Communalism and communal riots since independence.
3. The conflicting perspectives of Fundamentalism and Pluralism.
Essential Readings:
Chandra, Bipan, Communalism in Modern India, Vikas, New Delhi, 1984.

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].
Hasan, Mushirul, Mohamed Ali, Manohar, New Delhi, 1981.
Nehru, Jawaharlal, The Discovery of India, The Signet Press, Calcutta, 1946 [many later reprints also available].
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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

Unit I


Unit II

Architecture and Sculpture: Buddhist Architecture; Stupa, Chaitya and Vihara; Hindu temple architecture: Nagar, and Dravida; study of Iconography with special reference to the Pratimalaksana of Visnudharmottara Purana; Indian Sculpture Gandhara, Mathura and Chola bronze.

Unit III

Painting and Music: Theoretical foundations with special reference to Chitra-laksana: The Hindu View of Art-theory of beauty; the Beauty is a State: Indian Painting with special reference to Ajanta, Bagh, Ellora; South Indian Painting traditions like Pannamalai, Kanchipuram and Sittanavasal; Indian Music; Iconography of Indian Music and History of Dance: History of Early Music with special reference to key concepts: Raga, Ragini, Tala and genre like South and North India Music.

Unit IV

Dramaturgy and Dance: Study of Natyasastra: an introduction to key concepts; Natyasastra and the regional theatre; Rasa Bhava Hasta abhinaya; Sharira-mudra, Chhanda, Vritti and The Dance of Siva.

Essential Readings:


Francis and Thomas, tr. *Jataka Tales*, (or any other translation that one may like) Delhi: India Book House, 2004.


**Reference Readings:**


**PAPER II, III & IV: OPT. (xiv) MEDIEVAL INDIAN ART AND MONUMENTS**

**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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
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; Music.

Essential Readings
Beach, Milo Cleveland, Mughal and Rajput Painting, Cambridge: The New Cambridge History of India, 1992.

Reference Readings
# Semester IV

Semester IV shall consist of the following four papers:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title of paper</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS 126</td>
<td>Punjab in the Twentieth Century (Compulsory)</td>
<td>6 Credits</td>
</tr>
</tbody>
</table>

- **Paper I:**
  - HIS 911: Opt.(i) History and Historiography 6 credits
  - HIS 912: Opt.(ii) History and Historical Method 6 credits

- **Paper II:** Any one of the following
  - HIS 721: Opt. (i) Industry, Trade & Urbanization in Medieval India 6 credits
  - HIS 730: Opt. (ii) Industry and Trade in Modern India 6 credits
  - HIS 731: Opt. (iii) Working Class Movements in Modern India 6 credits
  - HIS 733: Opt. (iv) Urbanization in Modern India *(KEPT IN ABYANCE FOR 2015-18)* 6 credits

- **Papers III & IV:** Any two papers from the list
  - HIS 455: Opt. (v) Diaspora in Colonial India *(KEPT IN ABYANCE FOR 2015-18)* 6 credits
  - HIS 467: Opt. (vi) Peasant Movements in Modern India 6 credits
  - HIS 471: Opt. (vii) Dalit Movements in Modern India 6 credits
  - HIS 462: Opt. (viii) History of Caste and Caste Politics in Modern India *(KEPT IN ABYANCE FOR 2015-18)* 6 credits
  - HIS 438: Opt. (ix) Buddhism in India 6 credits
  - HIS 426: Opt. (x) Islamic Traditions of Medieval India 6 credits
  - HIS 428: Opt. (xi) Religious Developments in Medieval India 6 credits
  - HIS 418: Opt. (xii) Socio-Religious Reform Movements in Modern India 6 credits
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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(iii) Remaining part of the question paper will be divided into four units, corresponding to the four units of the syllabus. 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.

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


Dayal, Ravi (ed.) *We fought together for freedom*, Indian Council of Historical Research, Oxford University Press, Delhi, 1995.


Mukherjee, Mridula, *Colonializing Agriculture*, Modern Indian History Series, New Delhi: Sage India, 2005.


**Reference Readings**


Paper II: Any one from the followings:

PAPER II: OPT. (i) HISTORY AND HISTORIOGRAPHY

COURSE CODE: HIS 911

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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, strengths 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


Reference Readings

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 for the written examination will be 80 and duration of the written examination will be 3 hours.

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(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.

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:
Carr, E.H., What is History?, Penguin: 1990 (also available in Hindi and Punjabi).
Reference Readings:


Papers III & IV: Any two papers from the following:

PAPERS III & IV: OPT. (i) 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.
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(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.

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, Roads 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


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**PAPERS III & IV: OPT. (ii) INDUSTRY AND TRADE IN MODERN INDIA**

**COURSE CODE: HIS 730**

**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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

**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 the colonial rule- major industries- Cotton, Textile, Jute, Iron and Steel; reasons of industrial expansion; Industrial entrepreneurship.

Unit IV
Industrial Labour under the Colonial rule: Wages and Standard of Wing; Trade union movement; Labour Disputes, Labour Legislation.

Essential Books

Reference Readings

PAPERS III & IV: OPT. (iii) WORKING CLASS MOVEMENT IN MODERN INDIA

COURSE CODE: HIS 731

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

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(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.

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 ILO. (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
Reference Readings


PAPERS III & IV: OPT. (iv) URBANIZATION IN MODERN INDIA
(KEPT IN ABEYANCE FOR 2015-2018)

COURSE CODE: HIS 733

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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
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
Gupta, Narayani, Delhi Between Two Empires, Delhi: Oxford University Press, 1981.
Sharma, Kavita et al., Chandigarh Lifescape: Brief Social History of a Planned City, Chandigarh: Chandigarh Administration, 1999.

Reference Readings
Bose, Ashish, India’s Urbanization, Delhi: Tata Mcgraw Hall, 1978.
Broeze, Frank (ed), Brides of the Sea: Port Cities of Asia from the 16th to the 20th Centuries, New South Wales University Press, 1983.
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:

(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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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:


Buchinani, Norman and Doreen M. Indra; *Continuous Journey: A Social History of South Asian in Canada*: Toronto, Mclelland and Stewart, 1985.


**Reference Readings**


Ballantyne, Tony, *B/W Colonialism and Diaspora Sikh Cultural Formation in an Imperial World*.


Mukherjee, Miridula, *Peasant Rebellion*


Sandeep S. Brar, *Century of Struggle and Success: The Sikhs Canadians Experience*.


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**PAPERS III & IV: OPT. (vi) 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

**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

Unit IV

Essential Readings:

Reference Readings
**PAPERS III & IV: OPT. (vii) 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 for the written examination will be 80 and duration of the written examination will be 3 hours.

(i) There will be 9 questions in all. The candidate will be required to attempt 5 questions.

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(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.

**Unit I**

Historical origins and Development of Caste; Bhakti modes of legitimacy for modern change; Chokhamela; Eknath; 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


Gupta, S.K., *The Scheduled Castes in Modern Indian Politics: Their Emergence as a Political Power*, New Delhi, 1985.


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 for the written examination will be 80 and duration of the written examination will be 3 hours.

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(ii) Question No.1 will be compulsory and carry 20 marks. It will consist of 15 short questions spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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 uplifting 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.


Reference Readings


PAPER III & IV: OPT. (ix) BUDDHISM IN 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
Unit I
Development in Brahmanical religion during the post-Vedic period; State formation and the rise of Mahajanapadas; second Urbanization; new religious ideologies and the principal contemporary sects of Buddhism.

Unit II
Buddhist metaphysics- Four Noble Truth; Noble Eight-fold path; Ahimsa; social dimensions, Gender; the Councils and their significance.

Unit III
Background of the origin and growth of Buddhist arts; Architecture of the Stupas and the Chaityas; a case study of Sanchi stupa; sculptural arts of Gandhara and Mathura; foreign influence on sculptures; Ajanta paintings.

Unit IV
Explaining Buddhist decline in the context of Brahmancial revival, Vajrayana, etc.; B.R. Ambedkar and its Revival; Ambedkar’s interpretation of the origin of Shudras; Future of Buddhism in India.

Essential Readings
R.C. Dutt, Buddhism & Buddhist Civilization in India, Seema Publication, Delhi, 1983.

Reference Readings
Dutt, N., The Spread of Buddhism and Buddhist Schools, Rajesh Publication, Delhi, 1980.
Lee-Kwangsu, Buddhist Ideas and Rituals in Early India and Korea, Manohar, Delhi, 1998.
Oldenberg, H., Buddha: His Life and Doctrines, Aravati Book, Delhi, 1997.
Pathak, R.K., Historical Survey of Indian Buddhism, Ramanand Vidhya Bhawan, Delhi, 1989.
Sengupta, Sudha, Buddhism in the Classical Age (400-750 AD), Sandeep Prakashan, Delhi, 1985.
PAPERS III & IV: OPT. (x) 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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


Reference Readings


Rizvi, Saiyid Athar Abbas, *Shah Wali Allah and His Times*, New Delhi: Munshiram Manoharlal, 1980.

PAPERS III & IV: OPT. (xi) 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 the monotheistic movement started by Kabir, Ravidas, Dadu and Guru Nanak.

Pedagogy: Classroom 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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.

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 Vallabha Charya in Rajasthan and Gujarat; Mirabai.

Unit III
Islam in Medieval India: The Sunnis; the Shias; the Ismailies, Mahdavis and Raushanyas; Sufis orders’: Chishtis, Suhrwardis, Qadars, 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
Debbery, William Theodore et.al. (comp.), *Sources of Indian Tradition*, Delhi: Munshiram Manoharlal, 1963.


**Reference Readings**


**PAPERS III & IV OPT. (xii) SOCIO-RELIGIOUS REFORM MOVEMENTS IN MODERN INDIA**

**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 for the written examination will be 80 and duration of the 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 spread over the entire syllabus. The candidate is required to attempt any 10 short answer type questions. Each short question, carrying 2 marks, will be answered in 25-30 words.

(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.
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; social legislation.

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
Farquhar, J.N., *Modern Religious Movements in India*.

Reference Readings
Heimseth, Chailes, *Indian Nationalism and Hindu Social Reform*.
FACULTY OF LANGUAGES

SYLLABI

FOR

M.A. Punjabi (Semester System)
Examinations, 2015-2016

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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. 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 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

पंजाबी

1. "ब्रज परिचय" – पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक (1500 ई. श्री जन्म वर्ष)
2. "ब्रज तौरा" – भंगरावी पंजाबी माधव (1501 ई. श्री जन्म वर्ष)
3. "ब्रज वीर" – पंजाबी पाठ्य पुस्तक संस्था, अध्याय उत्तम विद्युक पाठ

वृत्तांत
1. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित, विभाग वर्ष (1500 ई. श्री जन्म वर्ष)
   (i) माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित, विभाग वर्ष
   (ii) पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
   (iii) भंगरावी पंजाबी माधव (1501 ई. श्री जन्म वर्ष) चयनित: माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
2. पंजाबी पंजाबी माधव (1501 ई. श्री जन्म वर्ष)
   (i) पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
   (ii) पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
3. "ब्रज वीर (1501-1850) दे माधव दी विंदुराव अभिनेत्र; भंगरावी बादर दे विंदुराव वर्ष"

साहित्य पुरस्कार:
1. नीति निधि श्रीवास्तव, पंजाबी माधव दी विंदुराव अभिनेत्र, पंजाबी बादर दे विंदुराव अभिनेत्र
2. नीति निधि श्रीवास्तव, पंजाबी माधव दी विंदुराव अभिनेत्र
3. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
4. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
5. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
6. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित (भंगरावी माधव, भंगरावी साइनिक मंत्र और पुस्तक चयनित)
7. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
8. पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित
9. नीति निधि श्रीवास्तव, पंजाबी माधव दी विंदुराव अभिनेत्र, भंगरावी साइनिक मंत्र और पुस्तक चयनित
10. नीति निधि श्रीवास्तव, पंजाबी माधव दी विंदुराव अभिनेत्र, भंगरावी साइनिक मंत्र और पुस्तक चयनित
13. Sant Singh Sekhon & Kartar Singh Duggal, History of Punjabi Literature, Sahitya Academy, New Delhi.

पंजाबी पाठ्य/पूर्वार्थिक क्षेत्र ग्रन्थियता:

नीति पाठ दे हिंदु ब्रज वेदांकों आदि 600 सन् १४वीं सदी तक। पंजाबी माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित और पंजाबी माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित द्वारा प्रकाशित ग्रन्थियता।

जीन ब्रज ग्रंथावली व्यक्तित्व: नीति निधि श्रीवास्तव, पंजाबी माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित द्वारा 12 सन् १४वीं सदी तक। पंजाबी माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित द्वारा 10 सन् १४वीं सदी तक। नीति निधि श्रीवास्तव, पंजाबी माधव दी हिंदीगांव, पंजाबी माधव दी हिंदीगांव, भंगरावी साइनिक मंत्र और पुस्तक चयनित द्वारा 50 सन् १४वीं सदी तक।
प्रमेय प्रवविधः
पुरातन वर्तमान - माहित्त निमित्त, तत्वातीति वार्ता सर्वसानेति ज्ञाति कार्यात  

पाठशाला
1. कथा पति का - माहित्त निमित्त, तत्वातीति वार्ता सर्वसानेति ज्ञाति कार्यात  
2. कथा दुर्गा - अपारस्थि आकर्षणं: विवास पुनर्जनि भति पुत्र सम्पत्तिः  
3. कथा जीवन - मुख्य उपदेश हुएं आपासन सिद्ध हुईं कार्य पुत्र  

रुपालिता अध्याभेदः
1. माहित्त निमित्त, तत्वातीति वार्ता सर्वसानेति ज्ञाति कार्यात  
(i) माहित्त: पुरुषवर्यं भति पुत्रसं; शास्त्रसायं, वृद्धवर्यं, विज्ञानवर्यं, आधुनिकवर्यं 
(ii) वार्ता-तीति वार्ता-सर्वसानेति:  
(१) आधुनिक - आधुनिक, वृद्धवर्यं, विज्ञानवर्यं;  
(२) राजवर्षिति: पुरुषवर्यं भति पुत्रसं शास्त्रसायं  
(iii) वार्ता-सर्वसानेति:  
(१) वार्ता-सर्वसानेति - किंतु कार्यात भति समाजसेवन;  
(२) पुरुष-संवेदनिष्ठ - साधन समाजसेवन;  
(३) आधुनिक संवेदनिष्ठ: आधुनिक समाजसेवन  
2. अपारस्थि आकर्षणं: विवास पुनर्जनि भति पुत्र सम्पत्तिः  
(i) अपारस्थि आकर्षणं एवं आकर्षणं भति पुत्रेऽविवास पुनर्जनि  
(ii) आधुनिकवर्यं अपारस्थि आकर्षणं चैति पुत्र सम्पत्तिः  
(iii) वार्ता-सर्वसानेति: अपारस्थि आकर्षणं चैति पुत्र सम्पत्तिः  
3. मुख्य उपदेश हुएं आपासन सिद्ध हुईं कार्य पुत्र  

हस्ताक्षर:  

प्रस्तुत संक्षिप्त वर्तमान:  
1. तत्वातीति आधुनिक सर्वसानेति, (अन्त: १० वर्षां वित्तवर्तमान सिद्ध), साहित्य. भारत में भारतीय लिंग, दिनांक।  
2. वार्ता-तीति वार्ता-सर्वसानेति, (अन्त: २० वर्षां वित्तवर्तमान सिद्ध), साहित्य. भारत में भारतीय लिंग  
3. हस्ताक्षर संबंधित, शैली B, तीव्रता आकर्षणं एवं तीव्रता आकर्षणं चैति, भारतीय आकर्षणं एवं शास्त्रसायं, दिनांक।  
4. हस्ताक्षर वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
5. तत्वातीति वित्तवर्तमान, अन्त: आधुनिक सर्वसानेति, आधुनिक वित्तवर्तमान, दिनांक, 1997  
6. हस्ताक्षर संबंधित, अन्त: आधुनिक सर्वसानेति, भारत में आधुनिक सर्वसानेति, दिनांक, 2003  
7. हस्ताक्षर संबंधित, अन्त: आधुनिक सर्वसानेति, भारत में आधुनिक सर्वसानेति, अधिनियम, 2010  
8. हस्ताक्षर वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2008  
9. हस्ताक्षर वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
10. हस्ताक्षर में वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
11. हस्ताक्षर में वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
12. हस्ताक्षर वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
13. हस्ताक्षर वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
14. हस्ताक्षर में वित्तवर्तमान, वित्तवर्तमान वित्तवर्तमान, भारत में वित्तवर्तमान, अधिनियम, 2010  
15. David Lodge. Twentieth Century Criticism, Orient Longman  
16. David Lodge and Nigel Wood, Modern Criticism and Theory, Pearson  

प्रेम प्रेम/उपाध्याय छठी उपाध्यायः  

हस्ताक्षर संबंधित वित्तवर्तमान सिद्ध, वित्तवर्तमान सिद्ध.
भाषा जीता: आपत्ति (i) - भारतीय पेशेवर वातावरण

पढ़नेवाले क्रम: 1. भारतीय वातावरण एवं विभिन्न प्रकार के जलवायु
2. भारत के विभिन्न भाग: तूफान, बाढ़, गुर्गन, उगम
3. संयुक्त प्रश्न उठाये आपत्ति समाप्त हुईं।
4. तूफान
5. तूफान वातावरण: भूतान, जापान, मलदी, दक्षिण-भारत, एशिया
6. तूफान के विभिन्न प्रकार: आयरलैंड, इंग्लैंड, फ्रांस, जर्मनी, जापान
7. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
8. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, फ्रांस, जर्मनी, जापान
9. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
10. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
11. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
12. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
13. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
14. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
15. तूफान के प्रमुख प्रकार: आयरलैंड, इंग्लैंड, जर्मनी, जापान
प्रथम श्रेणी : अभ्यास (ii) - ज्ञानवाद अर्थ मुख्य बार्चि

बन्धन | श्रेणी : 100
हिंदी : 80
श्रेणी : 20

प्रधानधार

1. ज्ञानवादी बार्चि र देनिज़ामबार में अज अर्थ विश्वास वर्ग (ज्ञानवाद बार्चि-पतन, मुख्य बार्चि पतन अर्थ बार्चि पतन देनिज़ामबार अर्थ बार्चि-अर्थम्, ज्ञानवादिति विज्ञान अर्थ विडिकिमुङ्)
2. ज्ञानबार में धिक बनबी- तुला तलफ, धारा बाली, धारा शुद्धरण
3. ज्ञानबार प्रधानधार देनिज़ाम अर्थवाद में धिक गुर्ज़ा बाली पतन

बन्धन

1. तुला तलफ बनबी : अभ्यास शी। माल
2. धारा बाली : धारा बाली शी। शहर
3. धारा शुद्धरण : धारा शुद्धरण

अवसर धारणबन

1. अभ्यास : सम्पर्क, धारकर्ता, अभ्यासकर्ता गति, चक्रियात।
2. अभ्यास : विद्याओं, दीवारी, धारकर्ता बुध मध्य, हृदिकार।
3. अभ्यास : प्रश्न, धारकर्ता वार्ग, धारकर्ता वार्ग, हृदिकार।
4. अभ्यास : कार्य, धारकर्ता वार्ग धारकर्ता, हृदिकार।
5. अभ्यास : अभ्यास, अभ्यास वार्ग, अभ्यास, हृदिकार।
6. अभ्यास : अभ्यास, अभ्यास वार्ग, अभ्यास, हृदिकार।

वेदः - विज्ञान में, शास्त्री, अभ्यासकर्ता अभ्यास, अभ्यास, हृदिकार।
8. ध्वनि में, ध्वनि में, तुलीकित धार, धार, तुलीकित धार, तुलीकित धार, हृदिकार।
9. धारकर्ता में, धारकर्ता में, धारकर्ता में, धारकर्ता में, हृदिकार।
10. धारकर्ता में, धारकर्ता में, धारकर्ता में, धारकर्ता में, हृदिकार।
12. धारकर्ता में, धारकर्ता में, धारकर्ता में, धारकर्ता में, हृदिकार।

प्रथम श्रेणी/परिचय कर्तव्य उपरिवर्तनोः

यदि प्राप्त वे रिंक ग्रां उपरिवर्तन अर्थ बुध 9 सबक बुध नदी संगोऽ। पारित प्राप्त अर्थ बुध बुध बुध बुध बुध नदी संगोऽ। जोंग 45 अर्थ बुध बुध बुध बुध बुध नदी संगोऽ। और 20 अर्थ बुध बुध बुध बुध बुध नदी संगोऽ। बुध 12 अर्थ बुध बुध बुध नदी संगोऽ। वह श्रेणी में प्राप्त बुध किः विव, वह ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। जोंग ज्ञानवाद श्रेणी में प्राप्त बुध बुध बुध बुध बुध नदी संगोऽ। बुध किः ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। जोंग ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। वह श्रेणी में प्राप्त बुध किः विव, वह ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। जोंग ज्ञानवाद श्रेणी में प्राप्त बुध बुध बुध बुध बुध नदी संगोऽ। बुध किः ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। जोंग ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। बुध किः ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ। जोंग ज्ञानवाद किः दिक महंस किः धारा बुध नदी संगोऽ।
पुस्तक चेता: आपब्बर (i) - पेंगाँची स्तरक्र एवं अफिसर

1. बिउरों सहित बिबंदमार; पेंगाँची स्तरक्र: मिनिट, रिडिविज़न आदि पुस्तकांमध्ये 15 अंक
2. पेंगाँची डे डिट तर्कत तर्ककल (1960 डे पुस्तक) 15 × 3 = 45 अंक
3. मुख्य पुस्तक डिश आपब्बर संबंधी पुस्तक बेहतर 20 अंक

वेबसाइट:
1. तर्कव् विद्या: बिउरों तर्कव्, डिट बिउरों तर्कव्, अभिव्यक्त.
2. निवेदन विद्या, रबी महत बिउरों, गुरुबंध बेमंद, विभागता.
3. नामांकन विद्या: पुस्तकांमध्ये, धनंजय कुंद सध, विभागता.

1. संविदा विद्या: पुस्तकांमध्ये, धनंजय कुंद सध, विभागता.
2. निवेदन विद्या, पेंगाँची स्तरक्र एवं अफिसर, धनंजय कुंद सध, विभागता.
3. निवेदन विद्या, पेंगाँची स्तरक्र एवं अफिसर, धनंजय कुंद सध, विभागता.
4. ती. निवेदन, रिडिविज़न, पेंगाँची स्तरक्र: दिशा पुस्तक, धनंजय कुंद सध, विभागता.
5. ती. निवेदन, पेंगाँची स्तरक्र एवं अफिसर, धनंजय कुंद सध, विभागता.
6. ती. निवेदन, पेंगाँची स्तरक्र एवं अफिसर, धनंजय कुंद सध, विभागता.
7. पु. विद्या विद्या, स्थापत्य विद्या ती ग्रंथ-संग्रह, विभागता पुस्तक, देखीजाव.
8. संविदा विद्या (संप.), अभियोग पुस्तकेतीनण अथवा पेंगाँची स्तरक्र, धनंजय कुंद सध, विभागता, 2005.
9. वर्तमान विकास विद्या (संप.), पेंगाँची स्तरक्र: संविदा तथा तर्कत, धनंजय कुंद सध, विभागता, 1986.
10. संविदा विकास विद्या (संप.), पेंगाँची स्तरक्र, पेंगाँची स्तरक्र, धनंजय कुंद सध, 1986.
11. संविदा विकास विद्या (संप.), पेंगाँची स्तरक्र, पेंगाँची स्तरक्र, धनंजय कुंद सध, 1987.
12. संविदा विकास विद्या (संप.), पेंगाँची स्तरक्र, पेंगाँची स्तरक्र, धनंजय कुंद सध, 1987.
13. संविदा विकास विद्या (संप.), पेंगाँची स्तरक्र, पेंगाँची स्तरक्र, धनंजय कुंद सध, 1987.
14. संविदा विकास विद्या (संप.), पेंगाँची स्तरक्र, पेंगाँची स्तरक्र, धनंजय कुंद सध, 1987.
पठन योजना (ii) - वेतनियंत्रण विभाग

पत्र नं.: 100
संख्या: 80

प्रकाशक

1. वेतनियंत्रण द्वारा वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग, वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग (संपादक)
2. वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग, वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग (संपादक)
3. वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग, वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग (संपादक)

वेतनियंत्रण कुछ महत्वपूर्ण उपभाषाओं

1. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
2. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
3. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
4. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
5. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
6. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
7. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
8. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
9. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
10. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
11. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
12. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
13. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
14. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था
15. वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था, वेतनियंत्रण संस्था

प्रकाश: वेतनियंत्रण विभाग

प्रकाशन: 2007

प्रकाशक: वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग, वेतनियंत्रण विभाग (संपादक), वेतनियंत्रण विभाग (संपादक)
पत्र पत्रधारा - आधुनिक प्रथमी मानव द्वारा दिशित

पत्रधारा
1. ब्राह्मण पत्रधारा - मंगळ वात्र (1850 ई. - 1900 ई.) द्वारा मानव द्वारा लिखित गिनती
2. ब्राह्मण पत्रधारा - विदुषी मर्म (1901-2000) द्वारा पंथस्थी तथा विद्वान
3. ब्राह्मण पत्रधारा - मुहूर्त पत्रधारा द्वारा आधुनिक संस्कृत रूप से लिखित

पत्रधारा अनुसार वीं तार
1. मंगळ वात्र (1850 ई. - 1900 ई.) द्वारा मानव द्वारा लिखित गिनती
(i) पंथस्थी मानव द्वारा लिखित आधुनिक पत्रधारा द्वारा लिखित, पंथस्थी द्वारा लिखित रूप से लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, केवल पंथस्थी मानव द्वारा लिखित
(ii) 1850 ई. - 1900 ई. द्वारा लिखित, विदुषी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित

2. विदुषी मर्म (1901-2000) द्वारा पंथस्थी तथा विद्वान द्वारा लिखित
(i) पंथस्थी मानव द्वारा लिखित (विदुषी मानव द्वारा लिखित), पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित
(ii) पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित, पंथस्थी मानव द्वारा लिखित

3. मुहूर्त पत्रधारा द्वारा आधुनिक संस्कृत रूप से लिखित

संस्कृत पत्रधाराओं
1. ब्राह्मण पत्रधारा, कभी कभी (1 मस्त 11), वर्तमान पत्रधारा द्वारा, कृतिकार
2. ब्राह्मण पत्रधारा, कभी कभी, वर्तमान पत्रधारा, कृतिकार
3. तौर पर महाभारत, पंथस्थी पत्रधारा द्वारा आधुनिक संस्कृत रत्न, ब्राह्मण पत्रधारा, कृतिकार
4. ब्राह्मण पत्रधारा, कभी कभी, वर्तमान पत्रधारा द्वारा, कृतिकार, पंथस्थी पत्रधारा द्वारा आधुनिक संस्कृत रत्न, ब्राह्मण पत्रधारा, कृतिकार

पेपर मैट्रिक्स/व्यक्तिकरण की घटियाँ:

हम पहले से दिखाया गया उदाहरण अनेक बुनियादी 9 सब्जी उत्पादन में उत्पादन करते हैं। बिजली एवं आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित बुनियादी उत्पादन को आयुक्त विभाग द्वारा लिखित
1. आपूर्तिक बोधी प्रवक्ता - 15 अंक
   (i) चलचीति मतिवाण
   (ii) मयावति बोधि प्रवक्ता

2. बिभाग अभिविषयक - 15 अंक
   (i) मयावति बोधि प्रवक्ता
   (ii) अभिबिषयक बोधि प्रवक्ता

3. मुख़्य पाठभूमि उद्देश्य - 20 अंक
   (i) अभिबिषयक प्रवक्ता
   (ii) अभिविषयक प्रवक्ता

पठयो सूची

1. आपूर्तिक बोधी प्रवक्ता - 45 अंक
   (i) चलचीति मतिवाण
   (ii) मयावति बोधि प्रवक्ता

2. बिभाग अभिविषयक - 15 अंक
   (i) मयावति बोधि प्रवक्ता
   (ii) अभिबिषयक बोधि प्रवक्ता

3. मुख़्य पाठभूमि उद्देश्य - 20 अंक
   (i) अभिबिषयक प्रवक्ता
   (ii) अभिविषयक प्रवक्ता
मौलिक ज्ञान

पत्रक मॉडल (i) - अपवादी पंजीकृत वार्षिक

षट मंगल : 100
विधय : 80
हित. अधिकार : 20

पाठभूमि
1. मियाँवज, निजवास अंक पुस्तकालीन
(अपवादी वार्षिक-खेत, अपवादी पुस्तकालीन अंक पुस्तकालीन अंक पुस्तकालीन अंक पुस्तकालीन)
2. में लिखने चाहिए पुस्तक वार्षिक: जय भवानी शंकर, जय भवानी शंकर, जय भवानी शंकर, जय भवानी शंकर
3. मुख्य पाठभूमि प्रयुक्त अपवादी मियाँवज पुस्तक वार्षिक

वेबसाइट

1. जय भवानी शंकर
2. जय भवानी शंकर
3. जय भवानी शंकर

अग्रसर धृतबन्ध

1. अंक मियाँवज, प्रसाद नाथ, अंक मियाँवज, प्रसाद नाथ।
2. अंक मियाँवज, प्रसाद नाथ, अंक मियाँवज, प्रसाद नाथ।
3. में लिखने चाहिए, पंजीकृत उक्ति शेयर, पंजीकृत उक्ति शेयर।
4. प्रवर्तक मियाँवज, अखिलेश अंक अखिलेश अंक अखिलेश अंक।
5. प्रवर्तक मियाँवज, तुलसी तुलसी तुलसी तुलसी।
6. संस्थान एडिटर (मार्ग) पंजीकृत उक्ति शेयर, अंक मियाँवज, अंक मियाँवज।
7. ग्रंथ विधय, सुभाषी सहभागी अखिलेश, पंजीकृत उक्ति शेयर, शेयर।
8. ग्रंथ विधय, प्रवर्तक मियाँवज, पुस्तक वार्षिक पुस्तक वार्षिक, पुस्तक वार्षिक।
9. प्रवर्तक मियाँवज, भारतीय संस्थान भारतीय संस्थान भारतीय संस्थान भारतीय संस्थान।
10. संस्थान नाम, संस्थान उक्ति शेयर, संस्थान उक्ति शेयर, संस्थान उक्ति शेयर।
11. सीज़न मियाँवज, तुलसी तुलसी तुलसी तुलसी, तुलसी तुलसी, पंजीकृत उक्ति शेयर, पंजीकृत उक्ति शेयर।
12. ड्र. नाम, तुलसी तुलसी तुलसी तुलसी तुलसी, तुलसी तुलसी तुलसी।
13. प्रवर्तक मियाँवज बांधा, तुलसी तुलसी तुलसी तुलसी तुलसी, पंजीकृत उक्ति शेयर, पंजीकृत उक्ति शेयर।
14. ड्र. मार्ग समाप्त अंक (मार्ग), अखिलेश अंक रेखा अंक रेखा अंक रेखा अंक।

पेपर फीड/प्रबंधित वर्षीय आधारण

यह पहचान दिखाए पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है। पेपर फीड पेपर फीड पेपर फीड पेपर फीड वर्षीय आधारण है।
पाठ 1
1. सीमांकण, सीमांकण द्रव्यप्राप्ति, 15 अंक
(अन्यत्र फिल्टर, बांधकुंड, फिल्टर, स्वरूप, फिल्टर, द्रव्यप्राप्ति, सीमांकण)
2. उत्पादक से विद्यमान वंशी, 15 अंक
(विद्यमान अर्द्ध वंशी, विद्यमान वंशी, विद्यमान अर्द्ध वंशी)
3. गुरू, कवि, यूनियन, 20 अंक

लेख
1. सीमांकण वन, सीमांकण वन, सीमांकण वन, सीमांकण वन
2. कविता, कविता, कविता, कविता
3. गंगा भुगताँ, गंगा भुगताँ, गंगा भुगताँ, गंगा भुगताँ
समाक्षेप सूची:

पत्रक अंक (i) - पेशा तथा उभयभाषी

पत्रक:

1. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र (1960 के बाद) 15 अंक
2. वस्त्र के दिन पूर्ण तिथि कला (1980 के बाद) 15×3=45 अंक
3. सबूत पत्रक उदाहरण बांटने के पृष्ठ 20 अंक

बुधवार:

1. बुधिविनाश सम्बन्ध, अंग वस्त्र, रंग, बांटना, भाषावादन, हिंदी
2. वस्त्रवाद सम्बन्ध, रंग, वस्त्र, वस्त्रवादन, हिंदी, 1987
3. विभिन्न विषय भूत, वेदना मान, किश्त, पचनाम, हिंदी, 2002

शारीरिक शिक्षा (शिक्षा):

1. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र (1960 के बाद) 15 अंक
2. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र (1980 के बाद) 15×3=45 अंक
3. सबूत पत्रक उदाहरण बांटने के पृष्ठ 20 अंक

संवाद:

1. विभिन्न विषय समाचार, अंग वस्त्र, रंग, बांटना, भाषावादन, हिंदी
2. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र, 1987
3. विभिन्न विषय भूत, वेदना मान, किश्त, पचनाम, हिंदी, 2002
4. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र, 1987
5. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, वस्त्र, 1987
6. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, 1987
7. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, 1987
8. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, 1987
9. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, वस्त्र, 1987
10. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
11. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
12. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
13. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
14. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
15. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 1987
16. विभिन्न विषय समाचार, हिंदी, 2002
17. विभिन्न विषय समाचार, अंग वस्त्र, रंग, वस्त्र, 2002
18. विभिन्न विषय समाचार, हिंदी, 2002
19. विभिन्न विषय समाचार, हिंदी, 2002
20. विभिन्न विषय समाचार, हिंदी, 2002
21. विभिन्न विषय समाचार, हिंदी, 2002

संवाद पत्रक उदाहरण:

पेशा मैदन/संवादिकार की उदाहरण:

लिखित पत्र पर 

पुस्तक में प्रकाशित होने के लिए सम्पूर्ण, पूर्ण और सम्पूर्ण पदों के लिए उच्च 9 समेत प्रकाशित होने के लिए सम्पूर्ण, पूर्ण और सम्पूर्ण पदों के लिए 45 अंकों के बाद प्रकाशित होने के लिए सम्पूर्ण, पूर्ण और सम्पूर्ण पदों के लिए अंकों के बाद प्रकाशित होने के लिए 12 अंकों के बाद प्रकाशित किया गया था।

लिखित पत्र को पुस्तक में प्रकाशित करने के लिए सम्पूर्ण, पूर्ण और सम्पूर्ण पदों के लिए 50 समेत प्रकाशित किया गया था।
प्रश्न (ii) - पंथनी अथवा पाबंधक पंथनी वर्गीय एवं अभिव्यक्ति

<table>
<thead>
<tr>
<th>संख्या</th>
<th>वर्गीय अभिव्यक्ति</th>
<th>प्रश्न (ii) अभिव्यक्ति</th>
<th>तथ्य</th>
<th>रिट. शीर्षक</th>
<th>अंक</th>
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<td>वर्गीय: विवरण अथवा विवरणार्थ, वर्गीय: समाधान, पंथनी अथवा पाबंधक पंथनी वर्गीय</td>
<td>वर्गीय: विवरण अथवा पाबंधक पंथनी वर्गीय</td>
<td>अभिव्यक्ति</td>
<td>अभिव्यक्ति</td>
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<td>अभिव्यक्ति</td>
<td>अभिव्यक्ति</td>
<td>अभिव्यक्ति</td>
<td>20</td>
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वेळानुसार अभिव्यक्ति

1. मंथनिय सिङ्ग की, बालकों के पूर्व वर्गीय, तद्भवना अभिव्यक्ति, रिटा।
2. पूर्व बुधवार, शुक्रवार, चंद्रवर्ष पुरावश, चंद्रवार।
3. नवरत्न विमा, दपुरक, लेखन पुरावश, लेखनवार।

रिट. शीर्षक

1. पाबंधक विवरण, राजस्व विवरण (मंथ.), पंथनी वर्गीय: पाबंधक पुरावशी, लूप राजस्व चंद्रवर्ष पुरावश, अभिव्यक्ति।
2. उत्तराधिकार पाबंधक, तद्भवना अभिव्यक्ति, उत्तर अभिव्यक्ति पुरावश, अभिव्यक्ति।
3. ती. अभिव्यक्ति, पंथनी वर्गीय अभिव्यक्ति, संबंध विवरण, संबंध।
4. उत्तराधिकार पाबंधक, पंथनी वर्गीय विवरण, संबंध अभिव्यक्ति, अभिव्यक्ति पुरावश, अभिव्यक्ति।
5. पाबंधक वर्गीय, अभिव्यक्ति पंथनी वर्गीय: विवरण-पाबंधक अभिव्यक्ति, अभिव्यक्ति पुरावश, अभिव्यक्ति।
6. उत्तराधिकार पाबंधक, अभिव्यक्ति पुरावश, पंथनी अभिव्यक्ति, अभिव्यक्ति।
7. पंथनी अभिव्यक्ति, पंथनी उपर्युक्त, तद्भवना अभिव्यक्ति, रिटा।
8. मंथनिय सिङ्ग, विवरण पूर्व, पुरावश विवरण, चंद्रवार।
9. मंथनिय सिङ्ग की, बालकों के पूर्व बुधवार, अभिव्यक्ति।
10. मंथनिय सिङ्ग की, बालकों के पूर्व बुधवार, अभिव्यक्ति।
11. मंथनिय सिङ्ग की, पंथनी वर्गीय विवरण, पंथनी वर्गीय अभिव्यक्ति, संबंध विवरण, अभिव्यक्ति।
12. उत्तराधिकार पाबंधक, अभिव्यक्ति पंथनी वर्गीय विवरण, उत्तराधिकार पुरावश, अभिव्यक्ति, 2003।
13. ब्रा. उत्तराधिकार पाबंधक (मंथ.), पूर्व बुधवार की वर्गीय पूर्वबंधक, बंधुआर।
14. ब्रा. तद्भवना अभिव्यक्ति (मंथ.), पूर्व बुधवार की वर्गीय पूर्वबंधक, पूर्वबंधक, बंधुआर।
15. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
16. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
17. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
18. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
19. ब्रा. उत्तराधिकार पाबंधक (मंथ.), ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
20. ब्रा. उत्तराधिकार पाबंधक (मंथ.), ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
21. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
22. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
23. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।
24. ब्रा. उत्तराधिकार पाबंधक, ब्रा. उत्तराधिकार पाबंधक (मंथ.), उत्तरबंधक: कार, विवरण अथवा विवरण, बालकों।

पंथनी पूर्व/विवरण अर्थ उपर्युक्त:
SYLLABI AND COURSES OF READING OF M.A. PART I & II (SEMESTER SYSTEM) FOR THE EXAMINATION OF 2015-16

भाषा पाठ्य - भाषा विज्ञान अथवा भाषात्मक व्याख्यान

पाठ्य विधान

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<th>भाषा</th>
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<th>क्रमांक</th>
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1. भाषा पाठ्य - भाषा विज्ञान 30 अंक
2. भाषा पाठ्य - भाषात्मक व्याख्यान 30 अंक
3. भाषा पाठ्य - सार्थक परिवार इत्यादि 20 अंक

पाठ्य पुस्तकें

1. अ. ब. स. संधु, एक यदौती भाषा योग्यता, पंजाब युनिवर्सिटी, पांजाब, 1968, व. II, पंजाब युनिवर्सिटी, चांडीगढ़.
2. अ. ब. स. संधु, एक यदौती भाषा योग्यता, पंजाब युनिवर्सिटी, पांजाब, 1968, व. II, पंजाब युनिवर्सिटी, चांडीगढ़.
3. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान: मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
4. भाषा पाठ्य विभाग, सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
5. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
6. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
7. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
8. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
9. संयोजन पुस्तक परिवार (वर्तन.), सार्थक विज्ञान, मंडल के वर्तन, पंजाब युनिवर्सिटी, पांजाब.
10. बालबर सिंह संधु, एक यदौती भाषा योग्यता, पंजाब युनिवर्सिटी, पांजाब.
11. बालबर सिंह संधु, एक यदौती भाषा योग्यता, पंजाब युनिवर्सिटी, पांजाब.
12. गिल और ग्लीज़न, एक यदौती भाषा योग्यता, पंजाब युनिवर्सिटी, पांजाब.
13. जॉन लियोन्स, इंट्रूडक्शन टु थिएोरिकल लिंग्विस्टिक्स, कैम्ब्रिज युनिवर्सिटी प्रेस, कैम्ब्रिज.
पाठ्यक्रम विवरण
प्रशिक्षण समय: महाविद्यालय, कैरखाना अथवा इंस्टीट्यूट महाविद्यालय
शुल्क अंक: 100
पुस्तक प्राप्ति: 80
समय: 3 घंटे
पाठ्यक्रम
1. बाण भियटा - महाविद्यालय अथवा इंस्टीट्यूट महाविद्यालय: समायोजन पंडः 30 अंक
2. बाण गणना - पैकिंग महाविद्यालय जन्म अवतरण: 30 अंक
3. मानक पाठ्यक्रम द्वितीय अवयव में सेवा विभाग: विभाग पुनः भूषण
पूजन अंतर शीर्षक
1. महाविद्यालय अथवा इंस्टीट्यूट महाविद्यालय: समायोजन पंडः 30 अंक
(i) महाविद्यालय अथवा इंस्टीट्यूट महाविद्यालय: समायोजन पंडः 30 अंक अथवा समायोजन पंडः 30 अंक; महाविद्यालय विविधात्मक क्षेत्र में सर्वेक्षण अथवा सर्वेक्षण पंडः 30 अंक
t (ii) महाविद्यालय अथवा इंस्टीट्यूट महाविद्यालय: समायोजन पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक; महाविद्यालय विविधात्मक क्षेत्र में सर्वेक्षण अथवा सर्वेक्षण पंडः 30 अंक
t (iii) महाविद्यालय अथवा इंस्टीट्यूट महाविद्यालय: समायोजन पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक
2. पैकिंग महाविद्यालय रंग अवतरण: 30 अंक
(i) पैकिंग महाविद्यालय रंग अवतरण पंडः 30 अंक अथवा समायोजन पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक
t (ii) पैकिंग महाविद्यालय रंग अवतरण पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक
t (iii) पैकिंग महाविद्यालय रंग अवतरण पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक अथवा सर्वेक्षण पंडः 30 अंक
3. मानक पाठ्यक्रम द्वितीय अवयव में सेवा विभाग: विभाग पुनः भूषण: 20 अंक
समायोजन प्रमाण
1. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
2. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
3. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
4. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
5. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
6. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
7. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
8. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
9. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
10. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
11. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
12. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
13. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
14. दूरदर्शन सिद्ध होने, महाविद्यालय जन्म अवतरण - पैकिंग समायोजन, पैकिंग विभाग के अध्यापक, विषयक प्रमाण:
प्रतिविद्यालय विभागः
पुस्तक विभागः (i) : अनुवादित पैतृकी विषय - 1
रसोईः 3 घटे

पाठभाग
1. भवन परिधानः सिखंद, गिज़ा मुख्यत्वकी दीदी वाढ़-पत्तरों देव पूजायं
(अनुवादित अनुभूती पैतृकी विषय, भवन परिधान-पत्तर)
2. भवन अनुवादित पैतृकी विषय
(भवन-भवन संगठित संग्रह देव रुपान्तर)
3. भवन पाठभाग देव अनुभूती में पाठभाग देव प्रति

वेशम
1. भवन परिधानः पूर्ण शिक्षा, राजस् वृत्त वाढ़, भुवनाभर।
2. भवन संगठित विषयः भवन संगठित, आमी वाढ़विभाग, भिन्नी।
3. भवन संगठि कोश, बच्चा हस्तक, तब्य वाढ़विभाग, भिन्नी।

संगठित पृष्ठभागः
1. भवन परिधानः अनुवादित पैतृकी विषय देव पूजायं, भवन पाठभाग देव पूजायं, भुवनाभर।
2. भवन परिधानः भवन संगठित, आमी वाढ़विभाग, भिन्नी।
3. भवन परिधानः भवन संगठि कोश, बच्चा हस्तक, तब्य वाढ़विभाग, भिन्नी।
4. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
5. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।

वेशम
1. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
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3. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
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3. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
4. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।

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1. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
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5. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
6. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
7. भवन परिधानः भवन संगठि कोश, आमी अनुभूती पैतृकी विषय, भिन्नी।
प्रवचन निर्देश - 2

प्रवचन के आर्थिक (ii) : आयुर्विज्ञान प्रमुख की विवेचना - 1

1. वृद्धि : 100
2. शिक्षा : 80
3. निगम : 20

प्रवचन

1. मिस्र, टिलियाम, पुरुषविज्ञान, विभिन्न प्राप्ति हेतु पुरुषविज्ञान (आयुर्विज्ञान वर्ग-मेंबर, मंचवारी वर्ग-2 अध्यापक)
   15 अंक
2. इं, आयुर्विज्ञान प्रमुख की विवेचना हेतु पुरुषविज्ञान, विभिन्न प्राप्ति हेतु 15 x 3 = 45 अंक
3. बालों अध्यापक हेतु आयुर्विज्ञान संबंधित कैलेंडर बुधवार पर विचार
   20 अंक

विषय

1. वृद्धि पुरुष हेतु विशेष अंक
2. विषय उपमन : सुग्रीव

प्रवचन के आर्थिक

1. वेदानित मिस्र, आयुर्विज्ञान प्रमुख की विवेचना हेतु पुरुषविज्ञान, विभिन्न प्राप्ति हेतु उपमन, विभिन्न प्राप्ति हेतु उपमन, विभिन्न प्राप्ति हेतु उपमन
2. वेदानित मिस्र, विभिन्न प्राप्ति हेतु उपमन, विभिन्न प्राप्ति हेतु उपमन
3. अवधारण, विभिन्न प्राप्ति हेतु उपमन, विभिन्न प्राप्ति हेतु उपमन
4. उपमन, विभिन्न प्राप्ति हेतु उपमन
5. सुझाव, आयुर्विज्ञान प्रमुख की विवेचना हेतु पुरुषविज्ञान वत्विषय, आयुर्विज्ञान पुरुषविज्ञान, विभिन्न प्राप्ति हेतु अंक
6. प्रतिभाओं मिस्र, पुरुषविज्ञान हेतु पुरुषविज्ञान, विभिन्न प्राप्ति हेतु उपमन, विभिन्न प्राप्ति हेतु उपमन
7. सुझाव, मिस्र, आयुर्विज्ञान हेतु पुरुषविज्ञान, विभिन्न प्राप्ति हेतु उपमन
8. प्रतिभाओं मिस्र, पुरुषविज्ञान हेतु पुरुषविज्ञान, विभिन्न प्राप्ति हेतु उपमन
9. अवधारण, विभिन्न प्राप्ति हेतु उपमन
10. भविष्य विभिन्न प्राप्ति हेतु उपमन
11. विभिन्न प्राप्ति हेतु उपमन

प्राप्ति भिन्न/प्रतिभाओं के दर्जन हेतु विवेचना:

- यदि प्राप्ति तो हेतु विवेचना तो हेतु 9 सबसे उच्च सबसे उच्च 50 अंक
- प्राप्ति को अंक तो हेतु विवेचना तो हेतु 9 सबसे उच्च सबसे उच्च 50 अंक
- प्राप्ति को अंक तो हेतु 50 अंक
प्रमेय। विषय : आयाम (i) : रंगाली तरंग के इकाइयों का अध्ययन – I

पढ़ाई

1. पंसपी तरंग के इकाइयों का निर्माण, हिडिंगम के पुरुषोत्तम
2. विन्दु तरंग तरंगबाँध का निर्माण, हिडिंगम
3. माइनर पढ़ाई हिडिंगम आयाम वेब भुजाए बढ़ते प्रमाण

शीर्ष

1. भविष्य वाचनी : तरंग दी बकी, रचनाला पवित्रशास्त्र, इंडिया, 1976
2. वृद्ध मधु मीठा, गकोटी बैलिका, पुस्तकों की बख़्ची, महामहोदय
3. अनुसंधान मिश्र बोधिता : राणे जी, संस्कृतिगत पूर्वार्थ, बंकीवाल

सर्वाधिक पढ़ाई

1. उपस्थित मिश्र, तरंग बदल चे वेद हें, पुस्तका बुन्न वाचन, प्रकाशन।
2. सुधाकर मिश्र मेठी, राणे बदल, रंगाली तरंग माइनर, गीतांकित।
3. वर्तमान धार्मिक, अनुसंधान, बच्चों का पवित्रशास्त्र, इंडिया।
4. दीपक चित्रण पुस्तका वे तरंगबाँध, बंकीवाल तरंग, बच्चों की बकी, महामहोदय।
5. संक्षिप्त मिश्र नपाक, पंसपी तरंग दी हिडिंगम, बालिका मधु माधविकृष्ट, अन्वयम, 1998
8. गुरुदेव सिंह तुधु, बदल मिश्र (२००५), भविष्य वाचनी : तरंग दी हिडिंगम
9. वृद्ध मधु मिश्र बुन्न, पंसपी तरंग दी हिडिंगम, बालिका मधु माधविकृष्ट, अन्वयम, 1998
10. भर. मुखरज मिश्र (२००५). अनुसंधान आयाम दी तरंग-बकी, केंद्रित पूर्वार्थ, महामहोदय, 2002
11. वर्तमान धार्मिक, पंसपी वेदांश धीरा कामिनी दी हिडिंगम, संस्कृति पवित्रशास्त्र, महामहोदय।

पेपर मैट्रिक्स/विविधता की गतिविधियाँ:

- समावेश के इंद्र कन्ना उजेंड़ के बाद 7 सहस्र पृष्ठ लिखें।
- सिस्टेम में अंक बहसे क्रमांक बनाएं विभिन्न प्रकार के व्यक्तिगत अंक दिन।
- संस्कृति पुस्तकारों के द्वारा बुन्न निर्दिष्ट चित्र, दूर चित्र बनाएं दिन सहस्र अंक लिखें।
- आयामों के द्वारा बुन्न निर्दिष्ट चित्र, दूर चित्र बनाएं दिन सहस्र अंक लिखें।
- सिस्टेम के बाद निर्दिष्ट चित्र, दूर चित्र बनाएं दिन सहस्र अंक लिखें।
मथुर जीना

पठन शब्दकोश : आधुनिक (iii) : पंक्तियों बिच अद्वैतविद्वात्मक राष्ट्र-1

वस्तुंग्र : 100
पिठारी : 80
टिट्ल अभिव्वलता : 20

पीठगुण

1. अवधारणा के सम्बन्ध में राष्ट्र-2 में गणना के लिए राष्ट्र-मीटिंग 15 अंक
2. पुरुष, महिलाओं ने मेमोरियल बिच दिखाया, लिखित अद्वैतविद्वात्मक राष्ट्र 15×3=45 अंक
3. नन्दी पाठ्य पुस्तक आधुनिक संस्कृत पुस्तक राष्ट्र 20 अंक

वीज

1. वेंड्या, क्षण की भूमिका, अनु. पं. मंत्री सिद्ध, तत्कालिक पहलकोकन, तत्कालीन।
2. विश्वविद्यालय, मैथ्युस, अनु. ढा. चौथक सिद्ध, बचत मैथ्यू, तत्कालीन।
3. वृक्षपीठ, अंतरि कर्म, अनु. सिद्ध सिद्ध, बचत मैथ्यू, तत्कालीन।

मार्गदर्शन पुस्तकें

1. ब्र. तत्कालीन, अवधारणा के सम्बन्ध में वृक्षपीठ (पंक्तियों बिच अद्वैतविद्वात्मक, अनु. चौथक बिच अंक, श्री)
2. उपविष्टविद्वात्मक, ब्रम्हात्मक, बिचारवाद, पुवर्ग, अंतरि कर्म, बचत मैथ्यू।
3. तत्कालीन पुस्तक, भौतिक परिस्थिति, वृक्षपीठविद्वात्मक, अंतरि कर्म, बचत मैथ्यू, 1991
4. ब्र. वारहा जुन्ग, जोशेथ में बिच, बचत मैथ्यू, मैथ्यू, 2000
5. ब्र. वारहा जुन्ग, वेंड्या वेंड्या बिच अद्वैतविद्वात्मक, बचत मैथ्यू, मैथ्यू, 2000
8. Auerbach, Mimesis, Princeton University Press, N.J.

पंक्तियों द्वारा/पृष्ठभाग द्वारा उत्पत्तियाँ

- फिन द्वारा एडिट रोजा उद्धो आठ बज जो 9 सबक विच लाती है। पुनः 45 अंक बज बज बज बज विच विच में सबक पुस्तक लाती है। तीस 20 अंक बज बज बज बज विच विच 12 में सिद्ध पुस्तक बज के सबक सबकर लाती है।
- विश्वविद्यालय के एडिट रोजा बज विच विच, पुनः बज बज बज बज विच में सबक बज के सबक उद्धो आठ। तीस बज बज बज बज बज बज बज बज के सबक उद्धो आठ। एडिट बज बज में सबक जो 50 सबक विच विच विच विच बज विच विच विच विच
पाठचर्य

1. डरा परिभाषा - पंजाबी भाषा की शब्दकोष: डरा विभाजन उदाहरण विभाजन
30 अंक

2. डरा धारा - पंजाबी भाषा का विभाजन विभाजन अंतर कुदक्षित किया
30 अंक

3. डरा दीनां - एक चीज़ पाठमूं दुंडे आपायद में दुंडे बाहु पाठ
20 अंक

1. पंजाबी भाषा की मैत्री: डरा विभाजन उदाहरण अंतर कुदक्षित किया
30 अंक

1. (i) विभाजन का पुनर्ग्रहण (Grammatical Categories) अंतर विभाजन: ठिक, बदल, वर्ण, वक्र, बिंदु, पूर्ण, वाच, वंजुलग, पुनर्ग्रहण, अवरोध अंतर मतभक्ति

(ii) पंजाबी डरा - विभाजन: डरा परिभाषा - डरा, डरा अन्य धारावाहिक विभाजन, डरा धारारूप, डरा अंतर विभाजन, पंजाबी धारा के अंतर में विभाजन, पंजाबी धारा की परिभाषा

(iii) पंजाबी अंतर-विभाजन: अंतर शब्दमूं, पंजाबी प्रश्नक्रम की अवलोकन की अवलोकन, विभाजन, प्रश्नक्रम, अंतर-विभाजन (Hyponomy), पुष्पविभाजन (incompatibility), माटुप सबब; अंतर-विभाजन

2. पंजाबी भाषा का विभाजन विभाजन अंतर कुदक्षित किया
30 अंक

1. अवज्ञा समस्या, मान्यता विभाजन, पंजाबी पूर्तिलिक्षितों, परिभाषा

2. संदर्भ समस्या, पंजाबी भाषा का विभाजन, डरा विभाजन पंजाब, परिभाषा

3. उद्धरण समस्या, पंजाबी भाषा का विभाजन, पंजाबी भाषा का विभाजन, पंजाबी भाषा का विभाजन, डरा विभाजन पंजाब, पंजाबी पूर्तिलिक्षितों, परिभाषा

4. व्यवस्था समस्या, पंजाबी भाषा का विभाजन, पंजाबी भाषा का विभाजन, पंजाबी पूर्तिलिक्षितों, परिभाषा

5. संचालन समस्या पुनर्ग्रहण (Grammatical Categories), डरा विभाजन: लोक संबंध विभाजन, पंजाबी भाषा अवधि, संबंध

6. विभाजन अंतर अंतर, पंजाबी हिंदी विभाजन, पंजाबी विभाजन अंतर, संबंध

7. संपत्ति समस्या, पंजाबी विभाजन: दृष्टि का दृष्टि (Vision), विभाजन का दृष्टि, पंजाबी विभाजन, माटुप सबब, संबंध

8. सी. वी. समस्या, पंजाबी धारा का मौल विभाजन, पंजाबी पूर्तिलिक्षितों, चैन्जीजात

9. वृत्ती चौं, पंजाबी भाषा का विभाजन, पंजाबी पूर्तिलिक्षितों, चैन्जीजात

10. वृत्ती चौं, पंजाबी भाषा का विभाजन, पंजाबी पूर्तिलिक्षितों, चैन्जीजात

11. पंजाबी धारा समस्या, पंजाबी विभाजन विभाजन, पंजाबी पूर्तिलिक्षितों, परिभाषा

12. डरा धारा उद्धरण समस्या, पंजाबी भाषा का विभाजन, पंजाबी पूर्तिलिक्षितों, चैन्जीजात

13. पंजाबी धारा समस्या, डरा धारा, पंजाबी धारा, तुलना तुलना, संबंध

14. हेतु विचार विचार, पंजाबी भाषा: मोड़ दें मुख, कालक्रम शैवेंद्रसंस्कार, संभित ज्ञान


रामचंद्र शेष

पृष्ठ चेतावनी : धार्मिक धेंगवण आदेश उपाधि

मौका 100
भिंति 80
हिट. मामलेंट 20

पदरचन
1. बुध भिंति - धार्मिक धेंगवण आदेश
2. बुध धों न - धार्मिक धेंगवण आदेश
3. बुध दोसन - गरीब पहलुव द्वारा आपातक मंदिर दर्शन बंधन पूर्त

अधिन आदेश बीमा

1. धार्मिक धेंगवण आदेश
   (i) धार्मिक धेंगवण ग्रीष्म विपश्चिती की वजह से; पुराणी धेंग प्रक्रिया आदेश
   धेंग विभाग
   (ii) पुराणी धेंग ग्रीष्म (सतीश, विभाग, में)
   (iii) धेंग श्री विहारिर द्वारा, धेंग राशि आदेश धेंग राशि,
2. धार्मिक धेंग विभाग
   (i) धेंग विभाग की पूर्वविभिन्न, विभाग कंट्रोल आदेश पुराण; पुराणी धेंग विभाग ग्रीष्म धेंग विपश्चिती की धेंग विधान (धूम, धेंग, लिंबू, संस्करण, राधा, धेंग, धेंग, धेंग, धेंग, धेंग, पुराण, धेंग, पुराण, धेंग, पुराण, धेंग, पुराण), धेंग धेंग, धेंग धेंग, धेंग धेंग, धेंग धेंग, धेंग धेंग, धेंग धेंग, धेंग धेंग, पुराण, पुराण, पुराण, पुराण, पुराण, पुराण, पुराण, पुराण

3. गरीब पहलुव द्वारा आपातक मंदिर दर्शन बंधन पूर्त

मान्यता प्राप्त

1. श्रीकृष्ण श्री मंदिर, लिंबू, तहसील धर्मालय, तहसील लिंबू
2. भविष्यवाणी भवन द्वारा नवीकरण मंदिर, धार्मिक धेंगवण आदेश, तहसील लिंबू
3. बटानाग, भोपालकोट पुराणी धेंग व्रत (धूम 32 धेंग), धेंग प्रूप, धेंग प्रूप, धेंग प्रूप
4. श्रीकृष्ण धेंग विभाग विभेदक (निदेश 1 धेंग 8 धेंग), तहसील धेंग प्रूप, तहसील लिंबू
5. बटानाग बंगाल, भोपालकोट पुराणी धेंग, श्रीकृष्ण धेंग विभाग श्रीमान, तहसील लिंबू
6. रुपप सिद्ध, रुपप वर्षी निदेश पूंजीकरण, धेंग पुरा, धेंग पुरा, धेंग पुरा
7. रुपप सिद्ध, भविष्यवाणी भवन द्वारा (निदेश पुराणी धेंग), पुराणी पुराणकालीन, पुराणकालीन, पुराणकालीन
8. रुपप सिद्ध, भविष्यवाणी भवन द्वारा (निदेश पुराणी धेंग), पुराणी पुराणकालीन, पुराणकालीन, पुराणकालीन, पुराणकालीन
9. श्रीकृष्ण सिद्ध प्रविशण, धेंग प्रविशण, धेंग के मंदिर, पुराण पुरा पुरा, पुराण पुरा, पुराण पुरा, पुराण पुरा, पुराण पुरा, पुराण पुरा
10. श्रीकृष्ण सिद्ध प्रविशण, धेंग प्रविशण, धेंग के मंदिर, पुराण पुरा पुरा, पुराण पुरा पुरा, पुराण पुरा पुरा, पुराण पुरा पुरा, पुराण पुरा पुरा, पुराण पुरा पुरा, पुराण पुरा पुरा
11. बदले भविष्यवाणी भवन (धेंग), धेंग के मंदिर, धार्मिक धेंगवण, तहसील लिंबू, तहसील लिंबू, तहसील लिंबू, तहसील लिंबू
12. भविष्यवाणी भवन, पुराणी धेंग विभाग विभेदक, पुराणी पुराणकालीन, पुराणकालीन, पुराणकालीन
13. नवीकरण सिद्ध द्वारा, पुराणी धेंग विभाग विभेदक नवीकरण आदेश आदेश धेंगिवण, पुराणी पुराणकालीन
पाठ-पेंटर : अपकत (ii) : आपुतिय भेंगथी वाञ्चल - II

पाठ-पेंटर

1. निरांठ, निर्दिष्ट भूविश्वसत्ता/वर्गि-पायवं के पुस्तकारों
(साकारी भेंगथी वांच-संबंधत, वांचि-पुरुषों के कृपालवत)

2. दिन भवनार भेंगथी द्वारो 
(दिव्य-दिव्य देवता के गकरत रस्म)

3. सिंघे पाठ-पेंटर पुंड़े अपाषण मेंध सुभु मेंढ बांधु पुहाँ

लेख

1. वांचि-सुभाष, जै. ताकझ

2. वांचि-तक विषय, भेंग, द्रवेण बूंढ़ भाषा, शुभफामग।

3. भाषाय ली इनमण, मुस्कीड भाषा, संवादी पुरुष, चाँदीअड़

सत्ता-पुरुष

1. जै. संसम चिक जैस, वांचि-सुभाष-1, अधे वांचि-सुभाष II, संवादी पुरुष, चाँदीअड़।

2. वांची लोक, आपुतिय भेंगथी वांचि-पायवं के बिंदुशेयरवी अपाषण, जून तत्तव एंज पुरुषविश्वसती, शीघ्रगत

3. उन्नतत्व चिक विषय, भाषा : नीच देव महत, भेंगथी पुरुषविश्वसती, परिशिष्टग।

4. उन्नतत्व सिख विषय, गुत्ती वांचु, बांधिय पुरुष, वर्षम बांधु ब्रह्मदेवगत, शीघ्रगत।

5. एंज जैन, भवनार भेंगथी बिंदुशेयरवी: साकारी सिखवं, एंज जैन, वांचु पुरुष, शुभफामग।

6. एंज जैन, भेंगथी बिंदुशेयरवी: भाषाय बिंदुशेयरवी अपाषण, जून तत्तव एंज पुरुषविश्वसत, सत्तग।

7. एंज जैन, भेंगथी बिंदुशेयरवी: भाषाय बिंदुशेयरवी, एंज जैन, पुरुषविश्वसत।

8. एंज जैन, भेंगथी बिंदुशेयरवी: भाषाय बिंदुशेयरवी, एंज जैन, पुरुषविश्वसत।

9. एंज जैन, भाषा-संक्षेप, संवादी पुरुष, चाँदीअड़।

10. एंज जैन, भाषा-विषय, संवादी पुरुष, चाँदीअड़।

11. एंज जैन, भाषा-रस्म (मैथर.), भेंगथी बिंदुशेयरवी ली इनमण, भेंगथी भेंगथी, नित्ती।

12. वांची लोक (मैथर.), जै. सत्तग पुरुष-संक्षेप, लीलाय वांची-संक्षेप, सत्तग।

पेंटर मेट्र/वांचितथम दीय बिंदुशेयरवी'

विषय पृष्ठ एंज रिक भाषा येंटर अनुसार बढ़ 9 महक बढ़े तत्तव। पृष्ठांक भेंगथी बढ़े भाषा बिंदुशेयरवी दें, जूने 45 अंक बढ़े भाषा बिंदुशेयरवी के महक बढ़े तत्तव। जूने 20 अंक बढ़े भाषा बिंदुशेयरवी के महक एंज अंक दे 12 मस्तिष्क पुंड़े बढ़े महक बढ़े तत्तव।

परिशिष्टगतवीय के निष्ठ विषय बिंदुशेयरवी दें, पृष्ठांक भेंगथी बिंदुशेयरवी के महक बढ़े तत्तव। जूने बढ़े भाषा बिंदुशेयरवी के महक बढ़े तत्तव। जूने महक बढ़े भाषा बिंदुशेयरवी के महक बढ़े तत्तव। पृष्ठांक एंज रिक भाषा पुंड़े बढ़े 50 महक एंज बढ़े भाषा बिंदुशेयरवी।
प्रभाव चालक (ii) : अप्रभाव चालक (ii) - II

प्रभाव
1. मिसॅन्ट्र विभागों : 1947 ई. बाद से साधारण विभाग से उप-रुपाख्यान
अनेक विभागों, अन्य देशों के विभाग साधारण विभाग : मिसॅन्ट्र अनेक विभाग
15 अंबेड
2. ज्ञान विभाग की विभ - पेड़ विभाग अन्य उसका उपाधि
15x3=45 अंबेड
3. सत्ता प्रभाव प्रकृति आपना रचना प्रेम के पुस्तक
20 अंबेड

वैश्विक
1. प्रभाव विभाग की पिछली : सामाजिक मिश्र विभाग
2. प्रभाव विभाग, वैज्ञानिक विभाग, रचना विभाग, विभिन्न

मण्डल विभाग
1. वि. वैश्विक मिश्र विभाग, वैश्विक-विभाग, अनेक वैश्विक-विभाग, चेंडीगढ़।
2. विभाग विभाग, प्रभाव मिश्र विभाग, वैज्ञानिक विभाग, रचना विभाग, विभिन्न।
3. संगीत मिश्र, राँची विभाग, रांची विभाग, दिल्ली।
4. प्रभाव मिश्र, राँची विभाग, पुरोहित संगीत, चेंडीगढ़।
5. प्रभाव मिश्र, दिल्ली विभाग, केंद्रीय विभाग, चेंडीगढ़।
6. विभाग विभाग, वृद्ध विभाग सामाजिक मिश्र विभाग, रचना विभाग, विभिन्न।
7. सामाजिक मिश्र विभाग, भौतिक मण्डल चालक संस्थान, संस्थान, चेंडीगढ़।
8. तुलनात्मक मिश्र मंत्र (मंत्र.), वैज्ञानिक विभाग, संगीत विभाग, चेंडीगढ़।

उपभोक्ता/पारंपरिक सिद्धांत विभाग:
1. प्रभाव विभाग, राज्य विभाग, अनेक 9 अंबेड पुरुष विभाग। परिषदें उपभोक्ता अंबेड विभाग, राज्य विभाग, नेता, 45 आंगन विभाग राज्य विभाग के 12 संघ विभाग पुरुष विभाग। तो 20 अंबेड विभाग, राज्य विभाग, नेता, 12 संघ विभाग पुरुष विभाग।
2. नेता विभाग को परिषदें विभाग विभाग, नेता विभाग, राज्य विभाग, नेता, 35 अंबेड विभाग एक दो संघ विभाग के संघ विभाग पुरुष विभाग विभाग, नेता, 35 अंबेड विभाग एक दो संघ विभाग पुरुष विभाग।
ਸਭਿਨਾਤ ਤੇਜਵਾਦ

ਪ੍ਰਤਿ ਸੈਦਾਰਵਾਦ : ਅਧਿਕਾਰ (੧) : ਪ੍ਰਤਿ ਸੈਦਾਰਵਾਦ ਅਤੇ ਤੇਜਾਸ਼ ਦਾ ਅਧਿਕਾਰ-੨੧

ਲਘੂ ਮੰਗਲ : 100
ਸਿਰਫ਼ਤੀ : 80
ਐਲਾ ਮੌਨਪ੍ਰੋਸ਼ : 20

ਪ੍ਰਤਿਵਾਦ

1. ਪ੍ਰਤਿ ਸੈਦਾਰਵਾਦ ਅਤੇ ਤੇਜਾਸ਼ ਦਾ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਦੋਏ ਵਿਚਕਾਰ ਸੀ, ਨਿਰੰਤਰਵਾਦ ਦੇ ਨਿਰੰਤਰਵਾਦਾਂ 15 ਅੰਗ
2. ਨਿਰੰਤਰਵਾਦ ਦੇ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਨਿਰੰਤਰ ਦੋਏ ਵਿਚਕਾਰ ਹੋਣ ਵਾਲੇ ਮਹਾ ਪ੍ਰਤੀਵਾਦ 15×3=45 ਅੰਗ
3. ਪ੍ਰਤਿ ਪ੍ਰਤਿਵਾਦ ਪ੍ਰਤਿਵਾਦ ਪ੍ਰਤਿਵਾਦ ਪ੍ਰਤਿਵਾਦ ਪ੍ਰਤਿਵਾਦ ਵਾਲੇ ਮਹਾ ਪ੍ਰਤੀਵਾਦ 20 ਅੰਗ

ਬੈਰਾਮ

1. ਚਾਰ ਮਿੱਨੂ, ਬਖਾ ਦੇਉ, ਤੇਜਾਸ਼ ਵੱਖ ਵੱਖ, ਵਿਰੀਅਣ।
2. ਅਕਾਲਾਤ ਕੀਅਕਾ ਲੀਅਨ ਵਿੱਕਾਅਲ ਵਿੱਕਾਅਲ ਵਿੱਕਾਅਲ ਵਿੱਕਾਅਲ, ਖ਼ਵਤਕ ਪੁਰਾਤਾ, ਚੇਕਾਗ ਜਾਣ।
3. ਮੌਰਤ ਵੀਚਕਾ, ਮੋਜਲ ਵੀਚਕਾ, ਖੇਜਿਲ ਪੁਰਾਤਾ, ਫੁੱਕਆਟ।

ਪ੍ਰਤੀਵਾਦ ਪ੍ਰਤੀਵਾਦ

1. ਬਲਰ ਸਰਿਸ਼ਟ ਸਿਧਾ, ਚਾਰ ਮਿੱਨੂ ਦੇ ਨਿਰੰਤਰ ਦਾ ਅਧਿਕਾਰ ਅਧਿਕਾਰ, ਅਧਿਕਾਰ ਪੁਰਾਤਾ, ਵਿਰੀਅਣ, 2003
2. ਬਲਰ ਸਰਿਸ਼ਟ ਸਿਧਾ (ਸੀਪ.), ਚਾਰ ਮਿੱਨੂ ਦੇ ਨਿਰੰਤਰ ਅਧਿਕਾਰ, ਖ਼ਵਤਕ ਪੁਰਾਤਾ, ਚੇਕਾਗ ਜਾਣ।
3. ਬਲਰ ਸਰਿਸ਼ਟ ਸਿਧਾ (ਸੀਪ.), ਮੌਰਤ ਵੀਚਕਾ ਮਿੱਨੂ ਦੇ ਨਿਰੰਤਰ, ਖੇਜਿਲ ਪੁਰਾਤਾ, ਚੇਕਾਗ ਜਾਣ।

ਪੇਸ਼ਕ ਪੇਸ਼ਕ/ਪ੍ਰਤੀਵਾਦ ਕੁਝੀ ਪ੍ਰਤੀਵਾਦਾਂ :

ਸਿਲ ਪਰਸੇ ਦੇ ਨਿਰੰਤਰ ਪ੍ਰਤੀਵਾਦ ਅਤੇ ਬਲਰ 9 ਮਹਾ ਪੁਰਾਤ ਨਤੜਦੇ। ਪਰਸੇ ਪੇਸ਼ਕ ਅਤੇ ਪੇਸ਼ਕ ਦੇ ਨਿਰੰਤਰ ਪੁਰਾਤਾਂ ਦੇ ਨਤੜਦੇ। ਅਲਾਵਾ 12 ਅੰਗ ਬਾਰੇ ਰੱਖੀ ਦੱਖਣ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ।

ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। 

ਸਿਲ ਪਰਸੇ ਦੇ ਨਿਰੰਤਰ ਪ੍ਰਤੀਵਾਦ ਅਤੇ ਬਲਰ 9 ਮਹਾ ਪੁਰਾਤ ਨਤੜਦੇ। ਪਰਸੇ ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। ਪੰਜ ਦੇ ਨਤੜਦੇ। 

ਸਿਲ ਪਰਸੇ ਦੇ ਨਿਰੰਤਰ ਪ੍ਰਤੀਵਾਦ ਅਤੇ ਬਲਰ 9 ਮਹਾ ਪੁਰਾਤ ਨਤੜਦੇ। 

ਪੰਜ ਦੇ ਨਤੜਦੇ। 

ਸਿਲ ਪਰਸੇ ਦੇ ਨਿਰੰਤਰ ਪ੍ਰਤੀਵਾਦ ਅਤੇ ਬਲਰ 9 ਮਹਾ ਪੁਰਾਤ ਨਤੜਦੇ। 

ਪੰਜ ਦੇ ਨਤੜਦੇ। 

ਸਿਲ ਪਰਸੇ ਦੇ ਨਿਰੰਤਰ ਪ੍ਰਤੀਵਾਦ ਅਤੇ ਬਲਰ 9 ਮਹਾ ਪੁਰਾਤ ਨਤੜਦੇ।
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FACULTY OF LANGUAGES

SYLLABI

FOR

M.A. English (Semester System)
Examinations, 2015-2016

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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.).
OUTLINES OF TESTS, SALLABI AND COURSES OF READING FOR M.A. ENGLISH
SEMESTER I AND II FOR THE SESSION 2015-2016

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. 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:

- Mimetic and Expressive theory of Art
- Catharsis
- Hamartia
- Three Unities
- Ars Poetica
- Sublime
- Apologie for Poetry
- Decorum
- Humanism
- Objective Correlative
- Dissociation of Sensibility
- Fancy and Imagination
- Synaesthesia
- Disinterestedness
- Impersonal Theory of Poetry.

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)
- **Unit 3.** Matthew Arnold: “The Study of Poetry”
- **Unit 4.** T.S. Eliot: “Tradition and the Individual Talent”

The texts of Wordsworth, Arnold, and Eliot essays are available in *English Critical Texts* edited by Enright and Chickera.

Suggested Readings:

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 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 Readings:
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, Marlowe 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 Readings:


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 Readings:

PAPER-I: LITERARY CRITICISM-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:

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 Guerin et al, ed., A Handbook of Critical Approaches to Literature

Suggested Readings:

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 : “Easter 1916”
“The Second Coming”
“A Prayer for My Daughter”
“Sailing to Byzantium”
“The Circus Animals’ Desertion”

“The Hollowmen”

Unit 3. W. H. Auden : “In Memory of W. B. Yeats”
“Musee 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 Readings:

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 Readings:


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 Readings:

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:
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 : Kantha pura
Unit II: This unit will have three poets and there will be three poems by each :

Suggested Readings:
2. Bruce, King, Modern Indian Poetry in English (New Delhi: Oxford University Press, 1987).
4. Tabish Khair, Babu Fictions (Delhi: Oxford University Press, 2006).
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 Homi Bhabha: Concepts of ambivalence and hybridity.
Suggested Readings:


**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 2. The growth of Modern Linguistics:– The descriptive approach, Linguistics as a Science. The early structuralists, anthropologists - Boas, Sapir, Whorf. The contribution of Bloomfield, Ferdinand de Saussure and Dichotomies; Langue and Parole, Syntagmatic and Paradigmatic relationships, synchronic and diachronic approaches. Branches of Linguistics; Psycholinguistics and Neurolinguistics, Sociolinguistics and the study of the variation in language, particularly, dialect, accent and register.
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 Readings:

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 Readings :

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 Readings:


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 Banarsidas, 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).


Krishna, Daya, *Indian Philosophy: A Counter-Perspective* (Delhi, OUP 1991).


Kane, P.B., *History of Sanskrit Poetics* (Delhi, Motilal Banarasidass, 1971, 4th ed.)

**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 on going 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...
M.A. ENGLISH (SEMESTER SYSTEM) SYLLABUS

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 Readings:


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 Readings:

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 paw”
                    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 --“Nor 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 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 Readings:


8. S.S. Schoenbaum : *Shakespeare; A Documentary Life*.


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 Readings:

**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 Indianess 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 styles 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 Readings:


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 Readings:


**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 2.** The Grammar of English – Basic sentence patterns in English, Description of the structure of Noun Phrase, Verb Phrase, Adjective and Adverbial Phrase in English (with practical exercises). Some types of complex sentences. Sentence connection and cohesion in English.

**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 Readings:


**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)

**Unit IV:** Arthur Miller : *The Crucible* (Allied Press)
Suggested Reading:


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*, *dhavni* and *vakrokti*. 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 Readings:
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 Banarasidas, 1993).
Mukherjee, Meenakshi, The Perishable Empire (Delhi, OUP, 2000)
_______. Reality and Realism (Delhi, OUP, 1983)
Gauri, Viswanathan, Masks of Conquest (New York, Colombia University Press, 1989)

_______. 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).
Krishnamoorthy, K, Essays in Sanskrit Criticism (Dharwar, Karnataka Univ. 1964).
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 Readings:


**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 1:** Approaches and methods in language teaching – Direct, Grammar Translation, Audio-lingual, Structural-situational and Communicative Language Teaching, The Communicative Approach, Brief Historical overview of English Language Teaching with reference to the Problematic of Teaching English in India (Pre and Post Independence, Language Policies, Multilingualism, mother tongue influence, choice of a model for teaching).

**Unit 2:** Approaches to teaching Skills: LSRW, 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 Readings:


**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 : Chekhov: *The Cherry Orchard* (Penguin)

Unit-4 : Pirandello: *Six Characters in Search of an Author* (Collected Works of Pirandello)

**Suggested Readings:**


**PAPER-IV (Opt. iv) SHAKEESPEARE-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 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 Readings:


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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>
<th>Internal Assessment of House Test</th>
<th>Total</th>
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<tbody>
<tr>
<td>I</td>
<td>CH-411</td>
<td>Inorganic Chemistry 1</td>
<td>60</td>
<td>80</td>
<td>20</td>
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<tr>
<td>II</td>
<td>CH-412</td>
<td>Organic Chemistry 1</td>
<td>60</td>
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<tr>
<td>III</td>
<td>CH-413</td>
<td>Physical Chemistry 1</td>
<td>60</td>
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</table>
| IV    | *CH-414    | (a) Mathematics for Chemists
(b) Biology for Chemists
(c) Computer for Chemists | 60    | 80    | 20                               | 100   |
| V     | CH-415     | Laboratory Course (Inorganic Chemistry) |       |       |                                  | 33    |
| VI    | CH-416     | Laboratory Course (Organic Chemistry) |       |       |                                  | 34    |
| VII   | CH-417     | Laboratory Course (Physical Chemistry) |       |       |                                  | 33    |

*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 (15Hrs.)

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 valance 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.

3
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
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, entatiotropic 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 (7 Hrs.)

The S_NAr, S_N1, benzyne and S_RN1 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:

Subject: Physical Chemistry  
Paper: (III) CH-413

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, eigenvalues 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:
Subject: Mathematics for Chemists (for students without Mathematics in B.Sc.)
Paper: (IV) CH-414 (a)

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 eigen values and eigen vectors, diagonalization, determinants (examples from Huckel theory).

Elementary Differential Equations
Variables-separable and exact, first-order differential equations, homogeneous, 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.

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**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 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, radioactive decay evaluation of lattice energy and ionic radii from experimental data. Linear simultaneous equations to solve secular equations within the Hückel 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:

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III. All questions carry equal marks.

ESSENTIAL BOOKS:

2. Stryer, L. Biochemistry, W.H. Freeman
4. Voet; Voet Biochemistry, John Wiley.
OBJECTIVE OF THE COURSE

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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, 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 and linear equations. 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 (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 heredity, 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:

8. Stryer, L. Biochemistry, W.H. Freeman
10. Voet; Voet Biochemistry, John Wiley.
OBJECTIVE OF THE COURSE

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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 \([\text{Cu.}(\text{tu})_3]_2\text{SO}_4.2\text{H}_2\text{O}\) (Where tu stands for thiourea) and its physicochemical characterization including IR Study.

ESSENTIAL BOOKS:

OBJECTIVE OF THE COURSE

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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. Benzamidine (Schotten-Baumann reaction).
12. o-Benzoylbenzoic acid (Friedel Craft’s reaction).

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 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.

**M.Sc. (Chemistry) 1st Year (2nd Semester) (Marks: 500)**

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<td>I</td>
<td>CH-421</td>
<td>Inorganic Chemistry 1</td>
<td>60</td>
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<tr>
<td>II</td>
<td>CH-422</td>
<td>Organic Chemistry 1</td>
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<td>III</td>
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**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.
Subject: INORGANIC CHEMISTRY
PAPER: (1) CH-421

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

Electronic Spectra and Magnetic Properties of Transition Metal Complexes-I
(15 Hrs.)

Spectroscopic ground states, correlation, Orgel and Tanabe-Sugano diagrams for transition metal complexes (d–d states), calculations of Dq, B and β parameters, charge transfer spectra, Isopoly And Heteropoly Acids And Salts

UNIT 2

Electronic Spectra and Magnetic Properties of Transition Metal Complexes-II
(15 Hrs.)

Spectroscopic method of assignment of absolute configuration in optically active metal chelates and their stereo chemical information, anomalous magnetic moments, magnetic exchange coupling and spin crossover.

UNIT 3

Metal Π–Complexes
(15 Hrs.)

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
(15 Hrs.)

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:**

Subject: Organic Chemistry
Paper : (II) CH-422

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.  

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III. **All questions carry equal marks.**

**ESSENTIAL BOOKS:**

BOOKS FOR FURTHER READING:


Subject: Physical Chemistry  
Paper : (III) CH-423

**OBJECTIVE OF THE COURSE**

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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 onager’s reciprocity relations, electro kinetic phenomenon, diffusion, electrical conduction, irreversible thermodynamics for biological system, coupled reactions.

**Macromolecules:**
Electrally 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**

*(15 Hrs.)*

**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 cometration, 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:**

*(15 Hrs.)*


**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.

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ESSENTIAL BOOKS:

BOOKS FOR FURTHER READING:
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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 subgroups. Point group symmetry. Representations of groups by matrices (representation for the C_n, C_{nv}, C_{nn}, D_{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.

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III. All questions carry equal marks.

ESSENTIAL BOOKS:
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 Chloropentaammine 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:
OBJECTIVE OF THE COURSE

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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:

OBJECTIVE OF THE COURSE

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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) \( \text{Zn}^{2+} + \text{Cu}^{2+} \rightarrow \text{Zn}^{2+} + \text{Cu} \)
   (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>
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<th>Paper</th>
<th>Course No.</th>
<th>Course</th>
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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 PH$_4^-$, F$_2$, AND [BH$_3$]$^-$.

Nuclear Magnetic Resonence of Paramagnetic Substances in Solution (7 Hrs.)
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 $^{195}$Pt and $^{119}$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 Fe$^{+2}$ and Fe$^{+3}$ compounds including those of intermediate spin, (2) Sn$^{+2}$ and 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 AB$_2$, AB$_3$, AB$_4$, AB$_5$ and 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 biphenyls.
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 & mercapto), 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:

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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:
Subject: Heterocyclic Chemistry

PAPER: (II) CH-513

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.

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 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 Hetroatoms

Synthesis and reactions of diazines, triazines, tetrazines and thiazines

UNIT 4

1,2-Azoles: pyrazoles, isothiazoles and isoxazoles

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

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)

Environmental Toxicology (9 Hrs.)
Chemical solutions to environmental problems, biodegradability, principles of decomposition, better industrial processes. Bhopal gas tragedy, Chernobyl, Three mile island, Sewozlo

UNIT 2

Industrial Pollution (15 Hrs.)

Soils
Composition, micro and macro nutrients, pollution- fertilizers, pesticides, plastic and metals. Waste treatment

UNIT 3

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:**
**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**
**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:**
OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to M.Sc. (2nd Year, 3\textsuperscript{rd} 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  \hspace{1cm} \textbf{(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:**


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)

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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, β -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, NAD\(^+\),NADP\(^+\),FMN, FAD, lipoic acid, vitamin B\(_12\). Mechanism of reaction catalyzed by the above cofactors.
**Biological Macromolecules**  
(5 Hrs.)  
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**  
(4 Hrs.)  
**The Nucleic Acids:** Nucleotide, torsion angles in poly nucleotide chains, the helical structure of polynucleic acids, high order structure in polynucleotides.

**Interactions in Macromolecules:**  
(4 Hrs.)  
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:**  
(3 Hrs.)  
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**  
(4 Hrs.)  
Sedimentation, moving boundary sedimentation, zonal sedimentation, general principles of electrophoresis, electrophoresis of proteins and nucleic acids, capillary electrophoresis.

**UNIT 4**

**Bioenergetics and ATP cycle**  
(8 Hrs.)  
Standard free energy change in biochemical reaction, exergonic, endergonic reactions. Hydrolysis of ATP, synthesis of ATP from ADP, metal complexes and transition of energy, chlorophyls, photo system I and photo system II in cleavage of water.

**Thermodynamics of Biopolymer Solutions**  
(4 Hrs.)  
Thermodynamics of biopolymes solutions, osmotic pressure, membrane equilibrium, muscular contraction and energy generations in mechanochemical system.

**Cell Membranes And Transport Of Ions**  
(3 Hrs.)  

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3. **All questions carry equal marks.**
**ESSENTIAL BOOKS:**
8. Jolley, William *Bioinorganic Chemistry*.

**BOOKS FOR FURTHER READING:**

**Subject: Organic Synthesis – I**

**PAPER: (III) CH-522**

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**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, Regoselectivity, 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:

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III. All questions carry equal marks.

ESSENTIAL BOOKS:


BOOKS FOR FURTHER READING:

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  
(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  
(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  
(Occurrence nomenclature basic skeleton. Diel’s hydrocarbon and Stereochemistry Isolation structure determination and synthesis of cholesterol Bile acids Androsterone Testosterone, Estrone Progesterone Aldosterone Biosynthesis of Steroids)

UNIT 4

* Plant Pigments  
(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.)
Porphyrrins  

Structure and synthesis of Haemoglobin and chlorophyll

Prostaglandins  

Occurrence, nomenclature, classification, biogenesis and physiological effects Synthesis of PGE2 and PGF 2

Pyrethroids and rotenones :  

Synthesis and reaction of Pyrethroids and rotenones

Note : *Geraniol, Menthol, Zinigiberene, apigenin, luteolin, myrcetin, butin, aureusin are deleted because geraniol similar to citral ,Menthol similar to Alpha-Terpeneol , Zinigibrene 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
(7 Hrs.)
Intramolecular reaction of carbonyl compounds—saturated, cyclic and acyclic β-γ unsaturated and α-β 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.)

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.
LABORATORY COURSE (INORGANIC CHEMISTRY)
PAPER: (V) CH-525

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

1. Preparation of head Tetra-acetate, Pb(OCOCH3)4 and its complex, Dipyridinium Hexachloroplumbate (IV), (C5H5NH)2PbCl6. Estimation of lead in its complex.
2. Acetylation of ferrocene and its purification by column chromatography.
3. Amperometric determination of
   (i) Zn$^{+2}$ with EDTA
   (ii) Thiosulphate with iodine.
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 sucrose solution. (Fehling’s method)
6. To determine saponification & iodine values of oils and fats.
7. Estimation of formaldehyde.
8. Estimation of glycin

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**
**Max marks 33**

(6 Hrs./Week )

1. **Current Potential Relationships :**
   - (i) To determine half wave potentials of Zn$^{2+}$ and Cd$^{+2}$ ions.
   - (ii) To find formation constant of copper glycinate polarographically.
   - (iii) To plot a polarogram of a mixed soln. of Cd$^{+2}$, Zn$^{+2}$, Mn$^{+2}$ ions in 0.1M HCl.

2. **Colorimetry :**
   - (i) Determination of iron in water using a colorimeter.
   - (ii) To measure concentration of KMnO₄ and K₂Cr₂O₇ 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: Xₙ, (t) Versus n.
   - (for all experiments. Students should be encouraged to analyse data (graphics etc.) on a computer).

**ESSENTIAL BOOKS:**

**********
Syllabus is same for 2016-17

FACULTY OF SCIENCE

SYLLABI

FOR

M.Sc. MATHEMATICS (SEMESTER SYSTEM)
EXAMINATION, 2015-2016

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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>
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<tbody>
<tr>
<td>(a) 75% and above up to 85%</td>
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</tr>
<tr>
<td>(b) Above 85%</td>
<td>2</td>
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</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
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<th>Code</th>
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<tr>
<td>MATH-637S</td>
<td>Linear Algebra (Compulsory Course)</td>
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<tr>
<td>MATH-638S</td>
<td>Functional Analysis (Compulsory Course)</td>
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<tr>
<td>MATH-681S</td>
<td>Probability and Mathematical Statistics-II</td>
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<td>MATH-692S</td>
<td>Computational Techniques-II</td>
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<tr>
<td>MATH-693S</td>
<td>Differential Geometry-II</td>
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<tr>
<td>MATH-694S</td>
<td>Elasticity -II</td>
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<tr>
<td>MATH-695S</td>
<td>Integral Transforms and Their Applications</td>
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<tr>
<td>MATH-696S</td>
<td>Fluid Mechanics-II</td>
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<td>MATH-698S</td>
<td>Non-Linear Programming</td>
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<td>MATH-700S</td>
<td>Geometry of Numbers-II</td>
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</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

| 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

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

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

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, Morrer’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 4.5 and §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

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

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

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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

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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

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

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
(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
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
(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

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

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**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.
**Correlation & Regression Analysis:** Scatter diagram. Karl Pearson’s and Spearman’s rank correlation coefficient. Linear Regression and its properties. Theory of attributes, independence and association.

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, Arithmatic 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:
MATH-674S: ELASTICITY –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: 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

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

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
(COMPELLARY 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

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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

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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

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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

**Elastic Waves**: Wave propagation in isotropic elastic solid medium, Waves of dilation and distortion, Rayleigh waves, Love waves, Reflection of P, SV and SH-waves from free surface of a half-space, Reflection and refraction of elastic waves (P, SV and SH-waves) at Solid-Solid and Solid-Liquid interface.

**References:**


MATH 695S: INTEGRAL TRANSFORMS AND THEIR APPLICATIONS

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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.

**Applications of Laplace Transform to Solve/Evaluate**: Ordinary and partial differential equations, Initial and boundary value problems, Integral equations, Definite integrals, Difference equations and Differential-difference equations.
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

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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

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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

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OUTLINES OF SYLLABI AND COURSES OF READING FOR M.Sc. (TYC) IN PHYSICS (1\textsuperscript{st} to 4\textsuperscript{th} SEMESTER) FOR THE EXAMINATION 2015-16 onwards.

M.Sc 1\textsuperscript{st} Semester

<table>
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<td>PHY 6002</td>
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M.Sc 2\textsuperscript{nd} Semester

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<td>Computational Physics I</td>
<td>4</td>
<td>50</td>
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</table>

### M.Sc 4th Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
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<tr>
<td>PHYS 7051</td>
<td>Particle Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
<td>3</td>
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<tr>
<td>PHYS 7052</td>
<td>Condensed Matter Physics II</td>
<td>4</td>
<td>15+60 = 75</td>
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<td>PHYS 7071</td>
<td>Physics Laboratory IV</td>
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<td>PHYS 7073</td>
<td>Computational Physics II</td>
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**Special Paper (two of the following)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Teaching hours per week</th>
<th>Marks</th>
<th>Credits</th>
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<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.
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


UNIT II

Delta and Gamma Functions: Dirac delta function. Delta sequences for one dimensional function, properties of delta function, Orthogonal function and Integral representation of Delta function. Gamma function, Weierstrass form, factorial notation and applications. Beta function. Relation with gamma function. (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)
Differential Equations: Partial differential equations of theoretical physics, separation of variables, singular points, series solutions-Frobenius method, second solution. (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

(1.1-1.6 of Book 1)

**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

(6.1-6.4 of Book 1)

**Hamilton’s Equations:** Legendre Transformations. Hamilton’s equations of motion. Cyclic-coordinates. Hamilton’s equations from variational principle, principle of least action.
(8.1-8.3, 8.5, 8.6 of Book 1)

UNIT IV

(9.1, 9.2, 9.4-9.6, 10.1, 10.4, of 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 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
(Ch.1, 2.3, 2.7, 3.9 of Book 1 and 3.16 of Book 2)

UNIT II
Angular Momentum: Angular part of the Schroedinger equation for a spherically symmetric potential, orbital angular momentum operator, Eigen values and eigenvector of $L^2$ 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, Clasusius 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 rarefield 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** : npnp 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** :

M.Sc1st Semester
PHY6051 PHYSICS LABORATORY I

Max. Marks : 125
Teaching hours: 9hrs 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.
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 C
4
ν
. 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
M.Sc 2nd Semester
PHY6012 QUANTUM MECHANICS II

Max. Marks: 15+60 = 75
Total teaching hours: 60

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 Gordan 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
[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. 
(Book 1-4)

UNIT II

(Book 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. 
(Book 1-4)

UNIT III

(Book 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

(Book 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 : β− , β+ 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)
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.Sc2nd 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 Leachew Wire. To study reflected waves in Leachew 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

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
Nuclear Shell Model: Coupling of angular momentum - C.G. Coefficients and Racah Coefficients.
Evidence for nuclear shell structure, Extreme single particle model with square-well and harmonic oscillator potentials, spin-orbit potential, Shell model predictions.
Single-particle model, total spin for various configurations, Nuclear isomerism, Magnetic moment-Schmidt lines, electric quadrupole moment,
Configuration mixing, Independent particle model, L-S coupling and jj coupling schemes.
(Book 1, Book 2 and Book 4)

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
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, thermoelastic 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, ploarizability, the classical theory of electronic ploarizabilty, Clausius-Mosotti relation; dipolar polarizability.
Piezo- pyro and ferroelectric properties of crystals, ferroelectricity, ferroelectric domain, antiferroelectricity and ferrielectricity [Book 1 and Book 2]

Books
M.Sc.-3rd SEMESTER
PHY 7021         PHYSICS LABORATORY III

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 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 hadrons, 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

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 \( ^{60} \text{Co} \) 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 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**

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)\(^n\) 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, \(\gamma\gamma\) 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 bandwidth, 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 D for a given wave vector, angular relationships between D, E, H, k and Poynting vector 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
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
M.Sc.- 4th SEMESTER
PHYS 7056 PARTICLE ACCELERATOR PHYSICS

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
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 caloriemetry, measurement of specific heat, and thermal conductivity.
(Book 9 and Book 10)

Books
1. Atomic and Molecular Spectra: Rajkumar (Kedarnath Ramathan Prakashan, Meerut).

***********************
FACULTY OF SCIENCE SYLLABI FOR
M. Sc. INFORMATION TECHNOLOGY
(SEMESTER SYSTEM)

EXAMINATIONS 2016 - 2017
--:O:--
PANJAB UNIVERSITY, CHANDIGARH Outlines of Tests, Syllabi and Courses of Reading for M. Sc. Information Technology (Two Year Degree Programme) for Session 2016 - 2017.

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**FIRST YEAR**

**FIRST SEMESTER**

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**SECOND SEMESTER**

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**SECOND YEAR**

**THIRD SEMESTER**

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**FOURTH SEMESTER**

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<td>Lectures Exam</td>
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**Major Project**

320 80

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 Management 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**


7. **System Maintenance and Reliability:** Maintenance and its types; Factors Affecting Software Reliability, Software Reliability vs Hardware Reliability, Software Reliability Metrics.

**UNIT-IV**

8. **Software Testing Techniques:** Introduction to Software Testing Process, Objectives of Software Testing, BBT & its Techniques: Boundary Value Analysis, Equivalence Class Testing, and Cause- Effect Graph,


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 Five 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 Five 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

6. **Memory Allocation**: Address binding, Address Space, Memory Protection, Contiguous and Non-Contiguous allocation, Swapping, Fragmentation; Paging: Protection, Shared pages, Techniques for structuring of page table; Segmentation: Segmentation with paging; Virtual Memory: Demand paging; Page replacement Algorithms: FIFO, Optimal, LRU, LFU, MFU, Working set, Thrashing;

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 Five 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.

6. **Networking**: Networking basics, Client / server model, Java and the Net, TCP/IP client sockets, TCP/IP server sockets, Inet Address, URL, Data grams, creating networking applications.

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.

Paper Code: MS – 65
Paper Title: E-Commerce and Emerging Trends
Maximum Marks: 80
Number of Lectures: 90 (45 minutes duration)

L   P   6   0

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:
1. The Question Paper will consist of Five 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. 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

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.

**Paper Title**: Advanced Database Programming & MySQL  
**Paper Code**: MS-60  
**Max. Marks**: 80  
**Time**: 3 Hrs.  
**Number of Lectures**: 90 (45 Minutes duration)

**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**:

1. The Question Paper will consist of Five 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**


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 MichelineKamber,"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 Five 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


6. Natural Language understanding and Processing: Complexity of the problem, Syntactic processing: Grammars and Parsers, Augmented Transition Networks; Semantic Analysis: Semantic Grammars, Case Grammars; Discourse and Pragmatic processing: Using Focus in Understanding, Modeling Beliefs;
Introduction to Perception: Vision using Low-Level and High-Level Image Features and Action: Navigation and Manipulation.

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.


**UNIT-IV**

7. **Accessing Data with ADO .NET**: ADO .NET: Architecture, Components, Database, DataReader, DataAdapter, DataSet, Viewing data using DataGridView Control, Creating Applications.

REFERENCES:

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
- Assign the various permissions on the files and directories
- Write the shell programs
- Work with PERL
- Administrate the Linux machine

Note:

v. The Question Paper will consist of Four Units.
vi. Examiner will set total of **NINE** questions comprising **TWO** questions from each Unit and **ONE** compulsory question of short answer type covering whole syllabi.
vii. The students are required to attempt **ONE** question from each Unit and the Compulsory question.
viii. All questions carry equal marks unless specified.

UNIT –I

1. **Introduction to Linux:** What is Linux, Linux’s History, Minimum System Requirements; Installing Linux: Working with Linux, Floppy-less Installation, Boot and Root Disks, Choosing Text or Graphics Installation, Setting up your Hard Drive, Formatting the Partitions, Configuration X, Selecting packages to Install, Using LILO; Partitioning the Hard Disk: Linux Swap Space Partitions, Linux's fdisk, Enabling the Swap Space for Installation, Creating the Linux File-system partition, Using LILO
2. **Using Linux:** Starting and Stopping your Linux System, Linux Shutdown Commands, Login, Passwords, Creating a New Login, Logging Out; Linux Error Messages, Search Paths; the who Command.
3. **Basic Linux Commands:** How Linux Commands Work, Command Options, Other Parameters, Input and Output Redirection, Notational conventions used to Describe Linux commands, Online help available in Linux, The Linux Man pages, Finding keywords in Man pages, The bash shell help facility; Wildcards: * and ?, Environment Variables, Process and how to Terminate them, The process status Commands: ps, The process termination command: kill, the su command, the grep command.

UNIT-II

4. **Using the File System:** Files Overview, Common types of files, filenames, Directories, Parent directories and sub-directories, The root directory, The home directory; Navigating the Linux file System: pwd command, Absolute and relative filenames; cd command, Creating and Deleting files: Cat, Creating Directories, Moving and Copying files, Moving and Copying with Wildcards, Moving Directories, Removing files and directories, Fear of Compression: The Zipless file, Important directories in the Linux file System: /, /home, /bin, /usr, /usr/bin, /usr/spool, /dev, /usr/bin, /sbin, /etc.

UNIT-III

6. **Linux - tcsh:** An Introduction to tcsh, Command completion, Wildcards, Command History, Aliases, Input and Output Redirection, Pipelines, Prompts, Job Control; Key Bindings, Correcting Spelling Errors, Pre-commands, Change directory Commands, Monitoring Logins and Logouts, Customizing tcsh, tcsh Command Summary, tcsh variables.

8. **Editing and Typesetting**: Text Editors vi, The vi Editor, Starting vi, vi modes, Inserting Text, Quitting vi, Moving the Cursor, Deleting Text, Copying and Moving Text, Searching and Replacing Text, Setting Preferences.

**UNIT-IV**

9. **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.


11. **Networking & Network Services**: Setting of DNS, Ping, WWW, e-mail.

**REFERENCES**:

Objective: This paper enables students to learn software testing process and techniques, concepts of Quality Assurance, reliability and Conf. Management. After the completion of this paper, student will be able to:

- Develop error free and quality software.
- Analyze the risk management
- Differentiate between CMM levels

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


UNIT-III


UNIT-IV

8. **Software Reliability**: Factors Affecting Software Reliability, Software Reliability vs Hardware Reliability, Software Reliability Metrics.

9. **System Configuration Management (SCM)**: Basic requirements for SCM system, SCM principles, Planning and organizing for SCM, Benefits of SCM, Change management, Version and release management.

REFERENCES:
1. Doutsch, Wills, Hall: Software Quality Engineering: A total Technique and management Approach,

Paper Code: MS – 14
Paper Title: Systems Approach to Management and Optimization Techniques
Maximum Marks: 80
Number of Lectures: 90
(45 minutes duration)

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
7. **Basics of Operations Research (OR)**: Origin and Development of OR, Characteristics of OR, Models in OR, OR and Decision Making, Role of Computers in OR, Limitations of OR.
UNIT-IV

9. **Special types of Linear Programming problems**: Transportation and Assignment problems.
10. **Integer Programming**: Introduction, Branch and Bound Techniques, Binary Linear Programming, Assignment & Traveling salesman problems.

REFERENCES


************
FACULTY OF SCIENCE

SYLLABI FOR

POSTGRADUATE DIPLOMA

IN

COMPUTER APPLICATIONS

FOR

EXAMINATIONS 2016 – 2017
(SEMESTER SYSTEM)

--:O:-
Outline of the Syllabi and Courses for Post Graduate Diploma in Computer Applications for Examination – 2016 - 2017 (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>
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**TOTAL PERIODS =42**

**TOTAL MARKS = 450**

**FIRST YEAR (SEMESTER –II)**

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<td>Object Oriented Concepts Using JAVA</td>
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<td>PGD-2107</td>
<td>Project Work : Project will involve Development of Business Application / Web Site</td>
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**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.
SEMESTER -I

Paper Title : COMPUTER FUNDAMENTALS

Paper Code : PGD-1101

Max. Marks : 60

Time : 3 Hrs.

Course Duration: 60 Lectures

Note:

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.
iv. All questions carry equal marks unless specified.

SECTION – A

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.

SECTION – B

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.

SECTION – C

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

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**SECTION – D**

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.

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**References :**

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<tbody>
<tr>
<td>5.</td>
<td>Rajaraman, V</td>
<td>Fundamentals of Computers, PHI, New Delhi,</td>
</tr>
<tr>
<td>8.</td>
<td>Noroton, P.</td>
<td>Complete guide to LINUX, Techmedia</td>
</tr>
</tbody>
</table>
Note:

i. The Question Paper will consist of Four Sections.
ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.
iv. All questions carry equal marks unless specified.

**SECTION – A**

1. **Problem Solving**: Problem Identification, Analysis, Flow charts, Decision Tables, Pseudo code and algorithms, Program Coding, Program Testing and Execution.
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)

**SECTION - B**

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

**SECTION - C**

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.
SECTION – D

12. Console Input/Output: Console I/O Functions, Formatted Console I/O Functions, `printf()` and `sscanf()` Functions, Unformatted Console I/O Functions, `gets()`, `puts()`


<table>
<thead>
<tr>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kanetkar, Yashavant</td>
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<tr>
<td>Let us C, BPB Publications, New Delhi</td>
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<td>2. Gottfried, B.</td>
</tr>
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<td>Theory and problems of Programming in C, Schaum Series. N.D. TMH</td>
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<tr>
<td>3. Sinha, P.K.</td>
</tr>
<tr>
<td>Computer Fundamentals, BPB Publications,</td>
</tr>
<tr>
<td>4. Salaria, R. S.</td>
</tr>
</tbody>
</table>
Note:
   i. The Question Paper will consist of Four Sections.
   ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt **ONE** question from each Section and the Compulsory question.
   iv. All questions carry equal marks unless specified.

**SECTION - A**

1. **Data Base Concept:** Data Base Vs File Oriented Approach, Basic DBMS terminology, Data Independence, General Architecture of a Data Base Management Software, Components of DBMS, Advantages and Disadvantages of DBMS. Distributed Databases, Structure and Design of Distributed Databases.

2. **Data Base Design:** Introduction to Data Models, Entity Relationship Model, Entities, Attributes, E-R Diagrams, Conceptual Design of a relational data base model.

**SECTION – B**

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

3. **Database Security:** Database Security and Integrity: Data security risks, Password-related threats, Protecting the data within the database- database privileges, system privileges and object privileges, granting and revoking privileges and Roles. Concurrency: locking techniques for concurrency control.
   Recovery: Causes of failures, recovery from failures, Log based recovery, checkpoints

**SECTION - C**

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 table, Functions: Character Functions, Date Functions, Group Functions, Ordering the result of a Query Aggregate Functions, Grouping the Result of a Query.
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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Desai, B.C.</td>
<td>An Introduction to Database Systems, Galgotia Pub. New Delhi</td>
</tr>
<tr>
<td>5. James T. Perry</td>
<td>Understanding ORACLE, BPB Publications</td>
</tr>
<tr>
<td>6. O’Reilly</td>
<td>Oracle PL/SQL Programming, Shroff Publications Mumbai</td>
</tr>
<tr>
<td>7. Rowski, Bob</td>
<td>Oracle Client server Computing, BPB publications</td>
</tr>
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</table>
Paper Title: DATA COMMUNICATIONS AND NETWORKS.

Paper Code : PGD -1104 Max. Marks : 60 Time : 3 Hrs.
Course Duration: 60 Lectures

Note:
   i. The Question Paper will consist of Four Sections.
   ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
   iii. The students are required to attempt ONE question from each Section and the Compulsory question.
   iv. All questions carry equal marks unless specified.

SECTION – A

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.

SECTION – B

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

SECTION – C


SECTION – D


References:

1. Tanenbaum, Andrew S. Computer Networks, PHI.
2. Behrouz A. Forouzan Data Communication & Networking, TMH
Title: Lab1 (Based on PGD-1101 and PGD-1102)


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)


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
SEMESTER -II

Paper Title: Object Oriented Concepts Using JAVA

Paper Code : PGD-2101 Max. Marks : 60 Time : 3 Hrs.
Course Duration: 60 Lectures of one hour each.

Note:
i. The Question Paper will consist of Four Sections.

Note:
ii. Examiner will set total of **Nine** questions comprising **Two** questions from each Section and **One** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt **One** question from each Section and the Compulsory question.

iv. All questions carry equal marks unless specified.

SECTION - A

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

SECTION – B

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

SECTION – C

6. **Strings:** String arrays, String methods, StringBuffer 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.

**SECTION – D**

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

References:

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<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Balaguruswamy, E.</td>
<td>Fundamentals of Java</td>
</tr>
<tr>
<td>2.</td>
<td>Daniel Dang</td>
<td>An Introduction to Java Programming, PHI, New Delhi</td>
</tr>
<tr>
<td>3.</td>
<td>Deitel &amp; Dietel</td>
<td>JAVA, How to Program, Pearson Education Asia</td>
</tr>
<tr>
<td>4.</td>
<td>Liang</td>
<td>An Introduction to Java Programming PHI</td>
</tr>
</tbody>
</table>
Paper Title: WEB Technologies

Paper Code : PGD-2102   Max. Marks : 60   Time : 3 Hrs.
Course Duration: 60 Lectures of one hour each.

Note:
  i. The Question Paper will consist of Four Sections.
  ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
  iii. The students are required to attempt ONE question from each Section and the Compulsory question.
  iv. All questions carry equal marks unless specified.

SECTION – A

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.

SECTION – B


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

SECTION – C

5. Introduction to PHP: Embedding PHP code in a Web Page, Basic Syntax, Defining variable and constant, PHP Data types, Operators and Expressions


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.

SECTION – D

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>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phillips</td>
</tr>
<tr>
<td>2. Bayross, Ivan</td>
</tr>
<tr>
<td>4. Steve Suehring</td>
</tr>
<tr>
<td>5. Steven Holzner</td>
</tr>
<tr>
<td>6. Kelvin Tetroi</td>
</tr>
</tbody>
</table>
Note:
1. The Question Paper will consist of Four Sections.
2. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
3. The students are required to attempt ONE question from each Section and the Compulsory question.

All questions carry equal marks unless specified

SECTION-A

1. **Software Engineering Fundamentals**: Characteristics, Components, Applications, principles of software engineering, skills of software engineer.


SECTION B

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)


SECTION C

5. **Software Design**: Software Design Process, Design Failures and Remedies


SECTION D


<table>
<thead>
<tr>
<th></th>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Shere, Kenneth</td>
<td>Software Engineering &amp; Management, Prentice Hall</td>
</tr>
<tr>
<td>9.</td>
<td>Ghazzi, Carlo</td>
<td>Fundamentals of Software Engineering, PHI</td>
</tr>
</tbody>
</table>
Note:

i. The Question Paper will consist of Four Sections.

ii. Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.

iii. The students are required to attempt ONE question from each Section and the Compulsory question.

iv. All questions carry equal marks unless specified.

**SECTION – A**

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.

**SECTION – B**

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

**SECTION – C**

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.

**SECTION – D**

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
## References:

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Publisher/Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Home, James, C., 2004</td>
<td>Financial Management &amp; Policy, Prentice Inc</td>
<td></td>
</tr>
</tbody>
</table>
Paper Title: Lab3 (Based on PGD-2101)


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)


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

***************
FACULTY OF BUSINESS MANAGEMENT & COMMERCE

SYLLABI

FOR

M.COM. [SEMESTER SYSTEM] EXAMINATIONS, 2013-2014

(For Regular College/University/USOL Students)

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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.
<table>
<thead>
<tr>
<th>Paper 1</th>
<th>M.C.101</th>
<th>MANAGERIAL ECONOMICS</th>
<th>100 Marks</th>
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<tbody>
<tr>
<td>Paper 2</td>
<td>M.C.102</td>
<td>QUANTITATIVE METHODS FOR BUSINESS</td>
<td>100 Marks</td>
</tr>
<tr>
<td>Paper 3</td>
<td>M.C.103</td>
<td>MODERN ACCOUNTING THEORY &amp; REPORTING PRACTICES</td>
<td>100 Marks</td>
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<tr>
<td>Paper 4</td>
<td>M.C.104</td>
<td>ORGANISATION THEORY AND BEHAVIOUR</td>
<td>100 Marks</td>
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<tr>
<td>Paper 5</td>
<td>M.C.105</td>
<td>MARKETING MANAGEMENT</td>
<td>100 Marks</td>
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<tr>
<td>Paper 6</td>
<td>M.C.106</td>
<td>MANAGEMENT INFORMATION SYSTEM</td>
<td>100 Marks</td>
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<tr>
<td>Paper 7</td>
<td>M.C.107</td>
<td>WORKSHOP ON IT APPLICATIONS IN COMMERCE (For Regular Students Only)</td>
<td>100 Marks</td>
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<tr>
<td>M.C.107 A</td>
<td>IT APPLICATIONS IN COMMERCE (For USOL Students Only)</td>
<td>100 Marks</td>
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<td>Total</td>
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**SEMESTER-II**

<table>
<thead>
<tr>
<th>Paper 1</th>
<th>M.C.201</th>
<th>BUSINESS ENVIRONMENT</th>
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<tbody>
<tr>
<td>Paper 2</td>
<td>M.C.202</td>
<td>RESEARCH METHODOLOGY IN COMMERCE</td>
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<td>Paper 3</td>
<td>M.C.203</td>
<td>FINANCIAL MANAGEMENT AND POLICY</td>
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<tr>
<td>Paper 4</td>
<td>M.C.204</td>
<td>PRODUCTION AND MATERIALS MANAGEMENT</td>
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<td>Paper 5</td>
<td>M.C.205</td>
<td>OPERATIONS RESEARCH</td>
<td>100 Marks</td>
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<tr>
<td>Paper 6</td>
<td>M.C.206</td>
<td>BUSINESS POLICY &amp; STRATEGIC MANAGEMENT</td>
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<tr>
<td>Paper 7</td>
<td>M.C.207</td>
<td>SUMMER TRAINING REPORT AND VIVA VOCE (For Regular College Students)</td>
<td>100 Marks</td>
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<tr>
<td>M.C.207 A</td>
<td>ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT (For USOL Students Only)</td>
<td>100 Marks</td>
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<td>OR</td>
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<tr>
<td>M.C.207 B</td>
<td>FINANCIAL SERVICES (For USOL Students Only)</td>
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## SEMESTER-III

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<td>1</td>
<td>M.C.301</td>
<td>BUSINESS PERFORMANCE MEASUREMENT</td>
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<tr>
<td>2</td>
<td>M.C.302</td>
<td>TAX PLANNING AND MANAGEMENT</td>
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<td><strong>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)</strong></td>
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<td>3</td>
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<td>Select Group from A-F</td>
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<td>4</td>
<td>Paper 4</td>
<td>Select Group from A-F</td>
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<tr>
<td>5</td>
<td>Paper 5</td>
<td>Select Group from A-F</td>
<td>100</td>
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<tr>
<td>6</td>
<td>Paper 6</td>
<td>Select Group from A-F</td>
<td>100</td>
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<tr>
<td>7</td>
<td>Paper 7</td>
<td>M.C.315 - WORKSHOP ON FINANCIAL MARKETS AND INSTRUMENTS (For Regular Students Only)</td>
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<td>M.C.315 A - FINANCIAL MARKETS AND INSTRUMENTS (Theory paper For USOL Students Only)</td>
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<td><strong>Total</strong></td>
<td><strong>700</strong></td>
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</table>

**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
SEMESTER-IV

Paper 1  M.C.401  PROJECT PLANNING AND CONTROL  100 Marks
Paper 2  M.C.402  KNOWLEDGE MANAGEMENT  100 Marks
Paper 3  M.C.403  BUSINESS ETHICS AND CORPORATE GOVERNANCE  100 Marks

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)

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.422  COMPREHENSIVE VIVA-VOCE  100 Marks

Total  700 Marks

Group A: Marketing
MC. 404  Advertising and Sales Management  100 Marks
MC. 405  Services Marketing  100 Marks
MC. 406  Consumer Behavior  100 Marks

Group B: Human Resource Management
MC. 407  Organizational Change and Development  100 Marks
MC. 408  Training and Development  100 Marks
MC. 409  Compensation Management  100 Marks

Group C: International Business
MC. 410  International Business Environment  100 Marks
MC. 411  Global Financial Management  100 Marks
MC. 412  International Marketing Management  100 Marks

Group D: Accounting & Finance
MC. 413  Advanced Corporate Accounting  100 Marks
MC. 414  Security Analysis and Portfolio Management  100 Marks
MC. 415  Advanced Auditing  100 Marks

Group E: Applied Economics
MC. 416  Macro Economic Analysis and Policy  100 Marks
MC. 417  Economics of Services  100 Marks
MC. 418  World Trading System  100 Marks

Group F: Banking and Insurance
MC. 419  Bank Legislation  100 Marks
MC. 420  Risk Management  100 Marks
MC. 421  Actuarial Practice  100 Marks
SEMESTER-I

PAPER 1: MC. 101- MANAGERIAL ECONOMICS

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 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 - 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 - EOQ and Quantity discounts- Leasing decisions - 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 - 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 ũ 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 ũ EOQ and Quantity discounts- Leasing decisions ũ Flexible budgets -Break even analysis-goal seek- scenario management and pivot table applications.

UNIT-IV
Database management systems - Concept of database ũ 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 ũ Tables- creation-relationships- Forms designing, forms queries- types of queries- reports- report design-use of RDBMS in business decisions.
Reference Books:

SEMESTER-II

PAPER 1: MC. 201 - BUSINESS ENVIRONMENT

Objective: The objective of the course is to acquaint students with the concepts of macroeconomics 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 ĭ Qualities of a research worker ĭ Scientific Method ĭ Definition ĭ stages of scientific study ĭ Different steps in scientific study ĭ Logical Methods ĭ Inductive & Deductive Methods ĭ Nature of the Phenomena & the use of the scientific methods. Approach to a Research Project :- Purpose of Research ĭ Functions in Research ĭ Research Programme ĭ Problem solving through research /financial aspects of research ĭ Research Design ( Selective topic, Coverage, Hypothesis) ĭ Sources of Information ĭ Nature of study ĭ Definition of terms ĭ Techniques of study ĭ Collection, Analysis & presentation of the data ĭ Testing hypothesis ĭ Stating results.

UNIT-II


UNIT-III

Presentation of Information:- Analysis of information ĭ Classification, tabulation & interpretation ĭ Presentation of data & its application ĭ Pictorial presentation ĭ 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. ) ĭ Text proper ( Chapter wise information ) ĭ 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 - 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. Mukhopadhyay, 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 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. ñ with special reference to ñExport oriented unitesñ Role of the following agencies in the Entrepreneurship Development DIC ñ District Industrial Center, SISI ñ Small Industries Services Institute, EDII ñ Entrepreneurship Development Institute of India NIESBUD ñ National Institute of Entrepreneurship and Small Business Development. NEDB ñ National Entrepreneurship Development Board.

Recommended Books:-


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.

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SYLLABUS OF M.COM. (SEMESTER SYSTEM) EXAMINATIONS

SEMESTER-III

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:

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

Indirect Tax Planning: Central Excise Act - Planning in relation to nature of activity, use of power, commodity to manufacture, method of selling, scale of investment, number of workers, location of units, etc. Exemption from excise duty levy - nature and types of exemption, Special reliefs for exports and SSI units. Set-off of duties - meaning, schemes of set-off VAT / Sales Tax Act - Method of executing sales through branches, head office and factory; export contracts and implications on penultimate sales, canalized exports implications.

Reference Books:
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 Jjain, 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 student 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, Unilatarist, 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:

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 - 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 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 ï 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.
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:

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. Ikujiro Nonako and Hirotaka Tkeuchi: 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 Directors ï 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 ï developments in Corporate Governance in India in nineties and 2000s ï CII, Kumaramangalam, Narayanamoorthy, Naresh Chandra, JJ Irani Committee reports ï Legal and Regulatory Changes ï introduction and modification of Clause 49, Corporate governance in practice in India.

UNIT-IV
Cases:
1. A Dent in Wal Mart ï Public Image - The PR Strategy.
2. China Aviation Oil ï Collapse: Singapore INC ï 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 depth understanding of behavioural interventions and enable the students to apply these intervention 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, 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 administering 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 period, Break down 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


UNIT-III


UNIT-IV


Reference Books:

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


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's 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 ï 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 ï textiles and agriculture ï 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 ìspaghetti bowlî 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.
GROUP F: BANKING AND INSURANCE

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.

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