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, 2019-2020
(SEMESTER : FIRST AND SECOND)

i.e

First Semester : November/December, 2019
Second Semester : April/May, 2020

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<td>(i)Environment (ii) Road Safety Education (iii) Violence against Women/ Children.</td>
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</table>
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, Violence against Women/Children and Drug Abuse ***

**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.

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* 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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<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>
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<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>
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<tr>
<td>6. Computer Applications</td>
<td>Preferably Computer</td>
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<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>
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<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>
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</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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<tbody>
<tr>
<td>1.</td>
<td>Clinical Nutrition Dietetics</td>
<td>Chemistry, Physics &amp; Botany</td>
<td>PCB*</td>
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<tr>
<td>2.</td>
<td>Bio-Technology</td>
<td>Chemistry, Botany or Zoology</td>
<td>PCB</td>
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<tr>
<td>3.</td>
<td>Seed Technology</td>
<td>Botany, Chemistry</td>
<td>PCB</td>
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<tr>
<td>4.</td>
<td>Industrial Fish &amp; Fishery</td>
<td>Zoology, Chemistry</td>
<td>PCB</td>
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<tr>
<td>5.</td>
<td>Instrumentation</td>
<td>Physics, Mathematics</td>
<td>PCM</td>
</tr>
<tr>
<td>6.</td>
<td>Mass Communication Video Production</td>
<td>Any two Science Subjects</td>
<td>Any</td>
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<tr>
<td>7.</td>
<td>Electronic Equipment Maintenance</td>
<td>Physics, Chemistry/Maths.</td>
<td>PCM</td>
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<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>
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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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<td>12.</td>
<td>Information Technology</td>
<td>Any</td>
<td>Any</td>
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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

OR

Chemistry + Electronics + Computer Science

16. 1. Agriculture, Botany & Zoology
     : PCB

   2. Agriculture, Biotechnology, Botany/Zoology
     : PCB

   3. Agriculture, Microbiology, Chemistry/Botany/Zoology
     : PCB

   4. Agriculture, Chemistry, Physics/Botany/Zoology
     : PCB

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

** B for Botany.

*** Z for Zoology

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

**Criteria for Internal Assessment:**

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

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

SEMESTER – I

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

Text Prescribed :


Poems = 1-4
Prose Chapters = 1-4

Section-A

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

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

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

Section B

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

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

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

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

OR

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

SEMESTER – II

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

Text Prescribed :


Poems = 5-8
Prose Chapters = 5-8

Section-A

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

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

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

Section B

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

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

Q.6 Comprehension of Unseen Passage 05 marks

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

OR

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

1. आधुनिक भाषाविद्या विषय का प्रविष्टितिति 20 भाग
2. संस्कृत पुरुष 10 भाग
3. मध्य पुरुष 5 भाग
4. विभाजन: मिश्रित व विद्युत 10 भाग

वेतन
1. वाणिज्य-अर्थव्यवस्था (अर्थव्यवस्था) का अनुभव तथा संस्कृति, भविष्यवाणिज्य सिद्धांत, व्यापार और पर्यावरणीय लोक: 10 भाग

पुरक (अर्थशास्त्र)
1. (a) वाणिज्य-अर्थव्यवस्था का विषय का विषय (देखिए विषय) 5 भाग
2. वाणिज्य-अर्थव्यवस्था का विषय का विषय (विषय विषय विषय विषय विषय विषय विषय विषय विषय विषय विषय विषय विषय विषय 5×1=5 भाग)
3. संस्कृत पुरुष (500 विषय विषय ) (5×1=5 भाग तथा संस्कृत महाशिक्षा विषय)
4. मध्य पुरुष 5 भाग
5. विभाजन: मिश्रित व विद्युत 6 भाग

(i) विभाजन: विभाजन ती को पुरुष, भविष्यव्यवस्था ती विषय (लव लव, लव लव, लव लव वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा वर्मा
पाठ्यक्रम (संक्षेप)

बी.ए./बी.एच. पूर्व बी.एच. 2020 के दिव्यांग यही (बी.ए./बी.एच. के दिव्यांगवीण क्षेत्र)

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पाठ्यक्रम

1. पाठ्यविषय वर्गीकरण का अभिव्यक्ति 20 अंक
2. तत्त्वविद्या बिंदु टेक्निक 10 अंक
3. बानालोन 5 अंक
4. विभागीय : मिश्रित एवं विभागीय 10 अंक

वेकर

1. वचन वर्गीकरण. (संक्षेप) (क) यह पढ़ने वालों लिए, पाठ्यक्रम तिथियां, पीएच पुस्तिकासमीति, चंदीगढ़

2. वर्गीकरण विंध्या विविध मंज़ुरत का पहल दिवस समय तक (विंध्या विंध्या विविधता का पहल दिवस समय तक) 5 अंक

3. मुक्ता दिवस विडियो लिंक (संगीत, मंज़ुरतापूर्व) 10 अंक
4. धूमलिर : भाषा समय के बाद घटनाएं (मेंट विंध्या बेंची पीछे लिखे) 5 अंक

5. विभागीय विभागीय विभाग विभागीय विभागीय विभाग (विंध्या विंध्या विंध्या विंध्या विंध्या) 10 अंक

6. विभागीय विभागीय विभाग विभागीय विभाग (विंध्या विंध्या विंध्या विंध्या विंध्या) 6 अंक

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2. प्रोफ़ेसर भोज्य भोज्य भोज्य भोज्य 50 अंक
3. स्तंभविभाग भोज्य भोज्य 50 अंक

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HISTORY AND CULTURE OF PUNJAB
(For B.A. Only)
B.A. (General) SEMESTER –I EXAMINATION, 2019-20

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

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

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 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 and 4 questions 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 questions within one question paper.

Paper:

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

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

Unit-II

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

Unit-III

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

Unit-IV

Impact of Alexander’s invasion on social and cultural life.
Position of women: Harappan, early Vedic and later Vedic Age.

Map:

Important Historical places of Punjab: Mohenjodaro, Harappa, Kotla Nihang Khan, Sanghol, Banawali, Taxila, Indraprastha, Hastinapur, Kurukshetra, Srinagar, Purusapura, Sakala.

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 option of History & Culture of Punjab in lieu of Punjabi as compulsory subject:
(a) That the students have not studied Punjabi up to class 10th.
(b) Ward of/and Defence Personnel and Central Government Employee/Employees who are transferable on all India basis.
(c) Foreigners.
HISTORY AND CULTURE OF PUNJAB
(For B.A. Only)
B.A. (General) SEMESTER-II EXAMINATION, 2019-20

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

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

Pedagogy: Lectures, library work and discussions.

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 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 :

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 questions within one question paper.

Paper:

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

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

Unit-II

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

Unit-III

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

Unit-IV

Society and Culture on the eve of the Turkish invasion of Punjab.
Punjab in the Kitab-ul-Hind of Alberuni.

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

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

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

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

Explanation:

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

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

   Map : 6 Marks
   Explanatory Note : 4 Marks

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

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

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

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

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

Pedagogy: Lectures, library work and discussions.

UNIT I

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

4. Society and Culture under Maurayas and Guptas.
5. Bhakti movement: Main features; prominent saints and their contribution.
6. Origin and development of Sufism.

UNIT III

9. Institution of Khalsa: New baptism; significance

UNIT IV

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

Suggested Readings:

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

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

A. That the students who have not studied Punjabi upto class 10\textsuperscript{th}.
B. Ward of/and Defence Personnel and Central Govt. Employee/Employees who are transferrable on all India basis.
C. Foreigners

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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. Each question will carry 1 mark. Rest of the paper shall contain 4 units. Each Unit shall have two essay type questions and the candidate shall be given internal choice of attempting one question from each unit – IV in all. Each question will carry 10 marks.

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

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

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

Explanation:

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

2. The distribution of marks for the map question would be as under:
   Map : 6 Marks
   Explanatory Note : 4 Marks

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

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

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

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

Objectives: To introduce the students to the history of Punjab region in modern times.

Pedagogy: Lectures, library work and discussions.
UNIT I

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

UNIT II

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

UNIT III

7. Emergence Of Political Consciousness: Ghadar Movement; Jallianwala Bagh Massacre
8. Gurudwara Reform Movement; major Morchas; Activities of Babbar Akalis.
9. Struggle for Freedom: Non Cooperation Movement; HSRA and Bhagat Singh; Civil Disobedience Movement; Quit India Movement.

UNIT IV

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

Suggested Readings:

1. Singh, Kirpal : History and Culture of the Punjab, Part II(Medieval Period), Publication Bureau, Punjabi University, Patiala 1990(3rd edn.).
ELECTRONICS

(KEPT IN ABYANCE FOR THE EXAMINATION, 2019-2020)

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AGRICULTURE

SEMESTER-I

Paper-I : Basics of Agricultural Botany & Forestry (THEORY)

Max. Marks : 75
Theory : 70 marks
Internal Assessment : 5 marks
Time : 3 Hours

Period per week:
1. Theory - Six of 45 minutes duration each.
2. Practical - Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS:
1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question I shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit-I

Plant Morphology - Root, Stem, Leaf - Their types and modifications.
Inflorescence - Types and classification.
Flower - Parts and their functions.
Fruit - Types and classification.

Unit-II

Pollination - Types, Significance, Emasculation, Techniques, mode of Reproduction and their significance
Life cycle of a typical angiosperm. Objectives of Plant Breeding, introduction to self – Incompatibility.
Unit-III

Cultivation practices including soil requirements, Water requirements, Improved varieties of the region for:
Cereals - Wheat, Rice, Maize.
Fibres – Cotton, Jute.
Oil Crops - Sarson, Soyabean.
Fruits - Mango, Grapes, Citrus, Sapota.

Unit-IV

Importance of forests, Important forest trees of India and status of forestry in Punjab, its significance.
Raising of Nurseries for forestry.
Social forestry: Definition, concept & its significance.

PRACTICAL

Max. Marks : 25
Practical : 20 marks
Internal Assessment : 5 marks
Time : 3 Hours

Study of root, stem, leaf modifications.
Raising of crops/visit to farms/fields to have knowledge of various agricultural tools, implements, and methods of crop production of related area.
Visit to Fruit and Forest nurseries.
Performance of emasculation techniques.

Books Recommended:


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AGRICULTURE

SEMESTER-II

Paper-II: Agricultural Economics and Agronomy (THEORY)

Max. Marks : 75
Theory : 70 marks Internal
Assessment : 5 marks Time
: 3 Hours

Period per week:
1. Theory - Six of 45 minutes duration each.
2. Practical - Two of three hours duration.

INSTRUCTIONS FOR THE PAPER SETTER AND THE STUDENTS:

1. The syllabus of this paper has been divided into Four Units.
2. Question paper shall comprise of 9 questions in all.
3. Question I shall comprise of 10 short answer type questions covering the whole syllabus and will be compulsory. Each question will carry 1 (one) mark.
4. Units I, II, III and IV shall have two questions each from respective units, out of which one question from each unit is to be attempted. Each question will be of 15 (fifteen) marks.
5. Total five questions are to be attempted.

Unit-I

Agricultural Banking, Agricultural Loans – Its various types, repayment mode, form filling for agricultural loans.
National policy for agricultural loans.
Agriculture credit cards.
Fundamentals of land measurements and land revenue

Unit-II

Various legal aspects of import and export of raw crop and crop products.
Quarantine laws.
Fundamentals of agricultural economics.
Psychological pressure on farmer and villagers of different classes.
Unit-III

Storage of vegetables, Fruits, Grains at local and large level.
Vegetable and fruit preservation.

Unit-IV

Soil types, Management, Improvement and Amendments. Soil Testing.
Fundamental of fertilizers and manures.
Important fertilizers and their uses.
Nitrogen fixation.

PRACTICAL

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<td>25</td>
</tr>
<tr>
<td>Practical</td>
<td>20 marks</td>
</tr>
<tr>
<td>Internal Assessment</td>
<td>5 marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
</tr>
</tbody>
</table>

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:


-------
ENGLISH (Elective)
SEMESTER –I

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

Section -A

The following Units from Fluency in English Ed., Promodini Verma, Mukti Sanyal, Tulika Prasad, New Delhi: Macmillan India, 2009 (the prescribed text) are recommended for First Semester:
Units: 1, 3, 5, 6, 7, 8, 9, 10, 12, 14, 16, 17


Testing Pattern:

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

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

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

Section -B

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

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

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

SEMESTER –II

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

Section -A


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


Testing Pattern:

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

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

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

Section -B

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

Q. 5. Applied Grammar-

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

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

OR

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

पूरक : 90+10 = 100
समय : 3 महीने

1. विषयातिक:

| सं. | विषय | अंक
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>विशेषतातिक शब्द (सात में से पाँच करें होनें)</td>
<td>5 अंक</td>
</tr>
<tr>
<td>1.2</td>
<td>समानार्थक शब्द (सात में से पाँच करें होनें)</td>
<td>5 अंक</td>
</tr>
<tr>
<td>1.3</td>
<td>शब्द-शोध और वाक्य-शोधन (सात में से पाँच करें होनें)</td>
<td>5 अंक</td>
</tr>
<tr>
<td>1.4</td>
<td>वाक्यांश के लिए एक शब्द (सात में से पाँच करें होनें)</td>
<td>5 अंक</td>
</tr>
</tbody>
</table>

2. समीक्षा कशाशिविधा:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>विशेषतातिक शब्द (200 ग्राम)</td>
<td>10 अंक</td>
</tr>
<tr>
<td>2.2</td>
<td>समानार्थक शब्द</td>
<td>6 अंक</td>
</tr>
<tr>
<td>2.3</td>
<td>शब्द-शोध और वाक्य-शोधन</td>
<td>06 अंक</td>
</tr>
<tr>
<td>2.4</td>
<td>वाक्यांश के लिए एक शब्द</td>
<td>10 अंक</td>
</tr>
</tbody>
</table>

3. तीन-तीन अंकों के तीन लघू-उत्तरप्रेषी प्रश्न करते होंगे।

4. हिंदी-वाक्याकारिता का प्रश्नांक:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
<tr>
<td>4.2</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
<tr>
<td>4.3</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
</tbody>
</table>

5. वाक्याकारिता प्रश्न:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
<tr>
<td>5.2</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
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<tr>
<td>5.3</td>
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<td>10 अंक</td>
</tr>
</tbody>
</table>

6. सामान्य विषयांकन:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
<tr>
<td>6.2</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
<tr>
<td>6.3</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
</tbody>
</table>

7. वाक्याकारिता प्रश्न:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>20 अंक</td>
</tr>
</tbody>
</table>

8. परिस्थितिक सामग्रियों (सातवें शब्दावली):

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>5 अंक</td>
</tr>
</tbody>
</table>

9. आंशिक सूचीबांधन:

<table>
<thead>
<tr>
<th>सं.</th>
<th>विषय</th>
<th>अंक</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>इस पत्र के पूर्णांक तीनों शब्दों के संयोजन में 1-1 अंक का एक वाक्याकारिता प्रश्न</td>
<td>10 अंक</td>
</tr>
</tbody>
</table>

निर्देश: यह लेखक Text के और तीव्र लेखक व्याकरण के अधिवर्ध्य होंगे।
<table>
<thead>
<tr>
<th>A</th>
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</thead>
<tbody>
<tr>
<td>1. Abbreviation</td>
<td>संक्षेपित</td>
</tr>
<tr>
<td>2. Absence</td>
<td>अनुपस्थिति, बैठाविही</td>
</tr>
<tr>
<td>3. Accommodation</td>
<td>आवास</td>
</tr>
<tr>
<td>4. Advice</td>
<td>परामर्श, सलाह, सूचना, संबंधित</td>
</tr>
<tr>
<td>5. Allegiance</td>
<td>लिखा</td>
</tr>
<tr>
<td>6. Alteration</td>
<td>परिवर्तन, हेत-फैर</td>
</tr>
<tr>
<td>7. Amendment</td>
<td>संस्करण</td>
</tr>
<tr>
<td>8. Appendix</td>
<td>पृष्ठिलेख</td>
</tr>
<tr>
<td>9. Assistant</td>
<td>सहायक</td>
</tr>
<tr>
<td>10. Attendance</td>
<td>उपस्थिति, हाजिरी</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>11. Basic pay</td>
<td>सूचना रेट</td>
</tr>
<tr>
<td>12. Birth Date</td>
<td>जन्म तिथि, जन्म की तारीख</td>
</tr>
<tr>
<td>13. Block</td>
<td>खंड, व्याख्या</td>
</tr>
<tr>
<td>14. Board</td>
<td>बोर्ड, मंडल</td>
</tr>
<tr>
<td>15. Break in Service</td>
<td>सेवा में व्यवसाय</td>
</tr>
<tr>
<td>16. By Hand</td>
<td>दस्ती</td>
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<table>
<thead>
<tr>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>17. Cancel</td>
<td>रद्द कर्ता</td>
</tr>
<tr>
<td>18. Clarification</td>
<td>स्पष्टीकरण</td>
</tr>
<tr>
<td>19. Closing Balance</td>
<td>अंत-शेष, रेकड़ बाकी</td>
</tr>
<tr>
<td>20. Committee</td>
<td>समिति</td>
</tr>
<tr>
<td>21. Competence</td>
<td>समर्पण</td>
</tr>
<tr>
<td>22. Conference</td>
<td>सम्बोधन</td>
</tr>
<tr>
<td>23. Confirmation</td>
<td>पुष्टि</td>
</tr>
<tr>
<td>24. Consolidated fund</td>
<td>समेटित विधि</td>
</tr>
<tr>
<td>25. Conveyance allowance</td>
<td>वाहन भत्ता</td>
</tr>
<tr>
<td>26. Corruption</td>
<td>अरोप धारण</td>
</tr>
<tr>
<td>27. Covering letter</td>
<td>सहायता</td>
</tr>
</tbody>
</table>
D
28. Dealing Assistant
29. Dearness Allowance
30. Department
31. Deputy Secretary
32. Dissent
33. Duplicate
34. Duration
35. Duty

E
36. Encashment
37. Entry
38. Evidence
39. Expert
40. Export
41. Extract

F
42. Fitness Certificate
43. Fresh Receipt (F.R.)
44. Further Action

G
45. General Manager
46. General Meeting
47. Grant-in-aid
48. Guidance

H
49. Head Clerk
50. Head of Account
51. Head office
52. Head Quarter
53. Holiday
<table>
<thead>
<tr>
<th></th>
<th>Immediate officer</th>
<th>आसल अधिकारी</th>
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</thead>
<tbody>
<tr>
<td>55</td>
<td>Import</td>
<td>आयात</td>
</tr>
<tr>
<td>56</td>
<td>Increment</td>
<td>वेतन-इकट्ठी</td>
</tr>
<tr>
<td>57</td>
<td>Inquiry</td>
<td>पूछताछ, जाव</td>
</tr>
<tr>
<td>58</td>
<td>Inspector</td>
<td>निदेशक</td>
</tr>
<tr>
<td>59</td>
<td>Instruction</td>
<td>अद्वैत, हितार्थ</td>
</tr>
<tr>
<td>60</td>
<td>Instructor</td>
<td>अद्वैतक</td>
</tr>
<tr>
<td>61</td>
<td>Interpretation</td>
<td>विवेचन, व्याख्या</td>
</tr>
<tr>
<td>62</td>
<td>Intimation</td>
<td>प्रभाव, सूचना, इतिलाल</td>
</tr>
<tr>
<td>63</td>
<td>Investigation</td>
<td>अवेषण, तत्त्व, जैव-प्रवृत्ति</td>
</tr>
<tr>
<td>64</td>
<td>Irrelevant</td>
<td>अलंबण, विसंभल</td>
</tr>
<tr>
<td>65</td>
<td>Issue</td>
<td>(संबंध) निर्णय, प्रश्न, मसला, (क्रिया) आदि कार्य, भेदन, देता</td>
</tr>
<tr>
<td></td>
<td>Job</td>
<td>जॉब, जॉब, कार्य</td>
</tr>
<tr>
<td>67</td>
<td>Joining Date</td>
<td>कार्यवाहन-तारीख, कार्यांक-तारीख</td>
</tr>
<tr>
<td>68</td>
<td>Joint Secretary</td>
<td>संयुक्त सचिव</td>
</tr>
<tr>
<td></td>
<td>Labour Welfare</td>
<td>श्रम-कल्याण</td>
</tr>
<tr>
<td>70</td>
<td>Leave Salary</td>
<td>छुट्टी का देतव</td>
</tr>
<tr>
<td>71</td>
<td>Leave Vacancy</td>
<td>अवकाश-स्थिति</td>
</tr>
<tr>
<td>72</td>
<td>Length of Service</td>
<td>सेवकालाल</td>
</tr>
</tbody>
</table>

---------
1. कक्षात्मकोकः

सं. डा. संताना सर्वम, परिकल्पनालय आदि, पंजाब विश्वविद्यालय, पंजाब द्वारा प्रकाशित।

इन तीन कक्षाओं की तरह पाठ्यक्रम में हिंदी की नई हैं।

सीरीज, तुलसीदास, शिवराज, कविता-कवितागढ़

(क) 5-5 अंकों की दो संदर्भानुसार अवस्थाएँ जानिए होतीं। कुल 4 व्याख्याएँ पूरी जाएँगी।
(ख) 6 अंकों का एक समीक्षात्मक प्रश्न करना होगा। कुल 2 प्रश्न पूर्ण करें।

इन क्षण में से कवि-कविता, कविता-सार तथा उद्देश्य संबंधी प्रश्न पूछे जाएँगे। उत्तर की स्पष्ट सीमा 200 होती।

2. इतिहासी की राजी- बुद्धवन्दन, वर्मू, प्रवाह, इत्यादि।

वादकत्व, कविता-सार, सांरक्षण, उद्देश्य के आधार पर चार समीक्षात्मक प्रश्न पूछे जाएँगे, जिनमें से 8 अंकों के बीच दो प्रश्न करते हों। (तब- सीमा 200-250)

3. हिंदी भाषिकता की इतिहासः

भाषिकता :- निजन शीर्षकों पर आधारित 2 प्रश्न पूछे जाएँगी। एक का उत्तर देना होगा। (तब-सीमा 200)

भाषिकता की परिभाषाएँ, तत्त्वावलिक, प्रभावायताएँ, ग्रामकाल और कुण कविता की विशेषताएँ, अन्दर, फारसी, तुलसी और सुदर्शन।

4. वस्तुविद्याएँ प्रश्न

इस पत्र के पूर्णतः तीनों खण्डों के संबंध में 1-1 अंक के दस वस्तुविद्याएँ प्रश्नों के उत्तर देने होंगे। कुल पाच व्याख्या पूर्ण करें।

5. सामाजिक सिद्धांत

उपन्यास-पाठभांत्र, तथा और वर्गीकरण संबंधी दो प्रश्न पूछे जाएँगे। 7 अंकों का एकवाक्य प्रश्न करना होगा। (तब-सीमा 200)

6. मुहाद्रे और लोककविता (सात में से पांच के ऊपर देने होगे।)

7. विश्वस्तित विषय पर इटा-सेथत (तीन में से एक प्रश्न करना होगा।)

8. जीव जीव-सेथत (दो में से एक प्रश्न करना होगा।)

9. परिभाषात्मक शब्दावली- (उत्तरालय शब्दावली)

अतिकाकालिक मूल्यांकन

विरिता: इस लेखक Text के और तीन लेखक व्याख्यान के अधिकार होंगे।
<table>
<thead>
<tr>
<th>M</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management</td>
<td>प्रबंध</td>
</tr>
<tr>
<td>2. Medical</td>
<td>चिकित्सा</td>
</tr>
<tr>
<td>3. Medical Leave</td>
<td>चिकित्सा-पूर्वी</td>
</tr>
<tr>
<td>4. Medical Officer</td>
<td>चिकित्सा-अधिकारी</td>
</tr>
<tr>
<td>5. Messenger</td>
<td>लेखावाहक</td>
</tr>
<tr>
<td>6. Ministry</td>
<td>मंत्रालय, मंत्रिमंडल</td>
</tr>
<tr>
<td>7. Modification</td>
<td>संशोधन, स्पष्ट</td>
</tr>
<tr>
<td>8. Most Immediate</td>
<td>अति-तत्कालिक</td>
</tr>
<tr>
<td>N</td>
<td>हिन्दी</td>
</tr>
<tr>
<td>9. Nationality</td>
<td>राष्ट्रीयता</td>
</tr>
<tr>
<td>10. Necessary Action</td>
<td>आवश्यक कार्यवारी</td>
</tr>
<tr>
<td>11. Negligence</td>
<td>उपेक्षा, प्रमाद, गंभीर</td>
</tr>
<tr>
<td>12. No-Objection</td>
<td>अवरोध</td>
</tr>
<tr>
<td>13. Non-Official</td>
<td>नैत-सत्कारी, अत्याचारी</td>
</tr>
<tr>
<td>O</td>
<td>हिन्दी</td>
</tr>
<tr>
<td>14. Obedience</td>
<td>आश्वायन, आश्वायुक्तता</td>
</tr>
<tr>
<td>15. Objection</td>
<td>आवेदन</td>
</tr>
<tr>
<td>16. Offence</td>
<td>अपराध</td>
</tr>
<tr>
<td>17. Offer</td>
<td>प्रस्ताव</td>
</tr>
<tr>
<td>18. Office</td>
<td>कार्यालय, दफ्तर, पद</td>
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<tr>
<td>19. Office Copy</td>
<td>कार्यालय-प्रतिवेदन, दफ्तर की प्रति</td>
</tr>
<tr>
<td>20. Office Hours</td>
<td>कार्यालय-समय</td>
</tr>
<tr>
<td>21. Office Order</td>
<td>कार्यालय-आदेश</td>
</tr>
<tr>
<td>22. Officer</td>
<td>अधिकारी, अक्षर</td>
</tr>
<tr>
<td>23. Officer-in-charge</td>
<td>प्रभाती अधिकारी</td>
</tr>
<tr>
<td>24. Officiating</td>
<td>खातापत्र</td>
</tr>
<tr>
<td>25. Option</td>
<td>विकल्प</td>
</tr>
<tr>
<td>26. Original Copy</td>
<td>मूल प्रति</td>
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<tr>
<td>27. Outstanding</td>
<td>कार्या</td>
</tr>
<tr>
<td>28. Overtime</td>
<td>रामदोपरी, अतिरिक्त समय</td>
</tr>
<tr>
<td>P</td>
<td>हिन्दी</td>
</tr>
<tr>
<td>29. Part Time</td>
<td>अंशकालिक</td>
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<tr>
<td>30. Pay</td>
<td>वेतन</td>
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</tbody>
</table>
| 31. | Payment | अदायवी 
| 32. | Penalty | दंड, अर्ध-दंड, कुर्वाण 
| 33. | Pending | अविनाश एक हुआ, स्थान हुआ, लोपित 
| 34. | Pension | पेंशन 
| 35. | Planning | योजना, योजना बाला 
| 36. | Proceedings | कार्यवाही 
| 37. | Proposal | प्रस्ताव 
| 38. | Publicity | प्रबाह 
| 39. | Postpone | स्थगित करता, बुलंदी करता 
| 40. | Qualification | अहंता, योग्यता 
| 41. | Quarterly | त्रैमासिक 
| 42. | Rectification | परिलेख 
| 43. | Reference | संस्कर्ण, विरिंद्र, हवाला 
| 44. | Remark | विचार, अमूल्यता 
| 45. | Remuneration | परिशिष्ट, भेदस्थ जाओ 
| 46. | Renewal | वर्तीस्तिक 
| 47. | Revenue | रक्ष 
| 48. | Satisfactory | संतोषजनक 
| 49. | Scrutiny | संदीधा 
| 50. | Seal | मुद्रा, मोहर 
| 51. | Secret | गुप्त, गुप्त कार 
| 52. | Security | प्रतिस्फुटि, गुप्ता 
| 53. | Seniority | वरिष्ठता 
| 54. | State Government | राज्य सशक्त 
| 55. | Stores | सामग्री, सामग्री, शंकर 
| 56. | Summary | संक्षेप, रंगी 
| 57. | Superintendent | आवीशक 
| 58. | Supervisor | प्रबंधक 
| 59. | Target | लक्ष्य 
| 60. | Technical | तकनीकी 
| 61. | Testimonial | संसापत्र 
| 62. | Tour | ट्रिप 
| 63. | Training | प्रशिक्षण 
| 64. | Translation | अनुवाद 

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Hindi</th>
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<tbody>
<tr>
<td>65.</td>
<td>Travelling Allowance</td>
<td>यात्रा-सहा</td>
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<td>66.</td>
<td>Under Secretary</td>
<td>अब्द-सचिव</td>
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<tr>
<td>67.</td>
<td>Unemployment</td>
<td>बेकारी, बेलेजाटी</td>
</tr>
<tr>
<td>68.</td>
<td>Unofficial Letter</td>
<td>अतालकीय पत्र</td>
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<td>69.</td>
<td>Up-to-date</td>
<td>अदालत</td>
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<td>70.</td>
<td>Verification</td>
<td>सत्यापन</td>
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<td>71.</td>
<td>Violation</td>
<td>अतिक्रमण</td>
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<td>72.</td>
<td>Waiting list</td>
<td>प्रतीक्षा-सूटी</td>
</tr>
<tr>
<td>73.</td>
<td>Warning</td>
<td>चेतावनी</td>
</tr>
<tr>
<td>74.</td>
<td>Working days</td>
<td>कार्य-विद्यु, काम के दिन</td>
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<tr>
<td>75.</td>
<td>Working Hours</td>
<td>कार्य-समय, काम के पंटे</td>
</tr>
<tr>
<td>76.</td>
<td>Working Knowledge</td>
<td>कार्य-साधक-झान</td>
</tr>
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<td>77.</td>
<td>Write off</td>
<td>बदूँ-बाते ढलना</td>
</tr>
<tr>
<td>78.</td>
<td>Zone</td>
<td>जोल, अंखल</td>
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</tbody>
</table>
पंजी (िठठबटट)

शीषे मतदल जना पत्रिका संबंध 2019 दे थिन्डड़ल लड़ी नमूनसट पत्रिका

निर्देश अंक : 100
विषयी : 90
मिटटकल अंकामेट : 10
सम्म : 3 घटि

पाठ्वृत्ति

1. आत्मिक पंजी क्रिटा रा भविश्य
2. पंजी क्रिटीय
3. पंजी माधव रा थिन्डड़ (1901 दें 2000 दंक)
4. ब्राह्मण दे ब्राह्मण ब्राह्मण
5. माधव दे क्रिटा

वेळा

1. स्वस्थ (संघ,) डा. साहित्यिक मिश्र, आत्मिक पंजी क्रिटा( 1901 दें 2000 दंक),
वधस्विक्षित क्रिटों, पंजी पुत्रीक्षित, चंडीगढ़।
(स्थितरूप वरी: ब्राह्मण ब्राह्मण, प्र. पुत्र संघ, प्र. माधव मिश्र, माधव पुत्र, वधा
वधा, सिंह वधा धरकड़, डा. उक्तातिक मिश्र, डा. नगर)
2. 1. एक क्रिटा. संघ मिश्र ब्राह्मण, पुत्र संघिक्षित, पंजी पुत्रीक्षित, चंडीगढ़। ('स्थितरूप ब्राह्मण दंक' दिवंगी
दंक दे )

पृष्ठिट भाग वीभ

1. (ई) 'स्वस्थ ववमव' पुत्र संघ दें पृथ्वी माधव विधिक्षित (दे दिवंगी दिवंगी) 10 अंक
(अ) 'एक क्रिटा' दिवंगी दे धरकड़ नाना अंक दी पृथ्वी माधव विधिक्षित (दे दिवंगी
दिवंगी) 10 अंक
2. (ई) ब्राह्मण वनस्पति दिवंगी दे दिवंगी वक्ता रा दिवंगी-रमुड़ी वीभ सङ्क्षेप ववमव (दे दिवंगी
दिवंगी) 10 अंक
(अ) दिवंगी दी माधवि पुत्र (दे दिवंगी दिवंगी) (माधवि पुत्र दिवंगी दिवंगी, दिवंगी,
वधा, सिंह दे अंक वधिक्षित मिश्रित पृथ्वी पुत्रमे ववमव) 10 अंक
3. ब्राह्मण वनस्पति दे दिवंगी दी वनस्पति दिवंगी स्थु दिवंगी रुले पृथ्वी (अंत दिवंगी पुनः) (पृथ्वी रा
दिवंगी दिवंगी क्रिटा-रमुड़ी सङ्क्षेप दे दंक दे दंक) 2 x 5=10 अंक
4. पंजी माधव रा थिन्डड़ (1901 दें 2000 दंक): ब्राह्मण, संघ, ब्राह्मण दे
(ई) ववमवि पंजी माधव दिवंगी दे थिन्डड़ माधवि (सङ्क्षेप दिवंगी रुले पृथ्वी) (दे दिवंगी दे
(ई) रुले) 5 x 4=20 अंक
5. ब्राह्मण भवि ववमवि ब्राह्मण: ब्राह्मण दी थिन्डड़, पुत्र संघ, पुत्र संघ, ब्राह्मण भवि
(ई) दिवंगी दिवंगी (दे दिवंगी दिवंगी) 10 अंक
6. माधवि दे दंक: थिन्डड़ दे दंक
(ई) ववमवि, धीर, माधव, दिवंगी, रुले, दंकि (दे दिवंगी दिवंगी)

विसंबेत: मान्य साधारण रही दंक 6 + 6 - 12 वीभाग

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

पृष्ठभूमि (पृष्ठभूणित)

1. आपूर्तिक पृष्ठभूमि विभाग स्वायत्त
2. पृष्ठभूमि तालिका
3. पृष्ठभूमि माध्यम दर्शन दिनांक (1901 ईं 2000 ईं)
4. अब्दी आवश्यकता
5. माध्यम आवश्यकता

देखभाल

1. श्रम श्रम (मंग.) द्वा, समावेश संस्थ, आपूर्तिक पृष्ठभूमि विभाग (1901 ईं 2000 ईं), वर्तमान समय विभाग, पृष्ठभूणित, विभाग चौथी कक्षा, अनुसंधान संस्था, समावेश संस्था, तरंगेन तरंग, समावेश संस्था, वर्तमान समय विभाग, समावेश संस्था

2. पाठ्य पुस्तक, विभाग, पाठ्य प्रणाली, पाठ्य प्रणाली

पाठ्य पुस्तक विषय

1. (v) श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)
   अ) श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

2. (v) श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)
   अ) श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

3. वर्तमान समय विभाग (अ) श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

4. श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

5. श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

6. श्रम श्रम विभाग पृष्ठभूमि दर्शन पृष्ठभूमि विभाग (वे दिखें दिखें)

पाठ्य पुस्तक विषय

1. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
2. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
3. पृष्ठभूमि विभाग पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
4. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
5. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
6. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
7. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
8. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)
9. पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग), पृष्ठभूमि विभाग पृष्ठभूमि (आपूर्तिक वर्ग)

विशेष रेखा : नामांक पाठ्य पुस्तक उद्धेद दिखें 6 + 6 - 12 वींशंश।
संस्कृत (इलेक्ट्रिक)
सेमेस्टर-1

Paper - Sanskrit : कथा, नीति एवं व्याकरण
(आन्तरिक परीक्षा- 10, निर्दिष्ट परीक्षा- 90)

निर्देश तथा उदेश्य -

- प्रश्नपत्र का माध्यम हिंदी होगा। उत्तरों का माध्यम संस्कृत, हिंदी, पंजाबी या अंग्रेजी में से कोई एक भाषा होगी।
- विद्यार्थियों को राजक कथाओं के माध्यम से काम-कोध-लोम-मोह-अहंकार, मातस्मय तथा ईश्वर इत्यादि दुर्गुणों के वशीभूति न होकर जीवन-पथ पर अग्रसर होने, विधा का वास्तविक अर्थ एवं वृद्धि की महिमा की विश्वास देना।
- इसके अतिरिक्त व्यवहारिक चालुक्यली द्वारा विद्यार्थियों की संस्कृत के प्रति रुचि जागृत करना।
- संस्कृत पुर्ण वेधांतिक एवं व्याकरणिनिष्ठ भाषा है। अतः विद्यार्थियों को संस्कृत व्याकरण के अन्यपनार्थ, अवज्ञन का प्रयोग, संस्कृतायाची शब्द, शब्दरूप, प्रतूप एवं अन्य सामान्य ज्ञान से परिचित करवाना।
- पत्र का अभ्यास समय नौ पीरियड (प्रतिवर्षा) प्रतिष्ठाप होगा, जिसमें तीन पीरियड कम्प्यूटिज्ड से होंगे।
- सभी प्रश्नों में शान्ततिरिक्त अथवा निर्दिष्ट विकल्प आवश्यक हैं।

UNIT – I

(क) अपरिशिष्टकालमः (1-4 कहानी)

(i) गद्य-भाग (समान्स अनुवाद - तीन में से एक) 05अंक
(ii) शूक्ति/शोक (दो की समान्स-व्याख्या) 10अंक
(iii) कथासार 05अंक

(ख) नीतिविद्या (1-25 शोक)

(i) शोक (दो की समान्स व्याख्या) 10अंक
(ii) शूक्ति-समान्स अनुवाद/ व्याख्या (तीन में से एक) 05अंक

UNIT – II

(ग) व्यवहारिक संस्कृत शब्दावली:

शहीरांग, फल पव सहितयां सम्बन्धी (15 में से 10 शब्दों की संस्कृत) 10अंक

1. अगूँङ्गा-अजितः 2. अपूर्व-चुंबः 3. अंगुङ्गे-अजुलिः
4. ओप्प-अप्पः 5. कमर-अण्णः 6. कलाई-मण्णवचः
7. कार्य-करणः 8. गद्य-धीवा 9. घुटना-जानः
10. जीव-जित्तः 11. वीत-दत्तः 12. नाना-भाणः
13. पेट-पुङ्कः 14. बोध-बांधः 15. भू-भूः
UNIT-III

(घ) वर्णों के उचारण स्थान

(ड) निश्चितता अव्ययों का वाक्यों में प्रयोग

अट, तट, कुट, पट, अन्यट, सच्चेत एकट, इत्यादि; तट-; कुट-; कुदा, तदा, सदा, तथा, यथा

(छ) संख्या (गणना) व्याख्या (1 से 50 तक (पौंच शब्द)

(अ) सामान्य धातु - तिथि, नक्षत्र, योग, करण, वार

(ज) स्वर संधि (पौंच संधि प्रभाव)

UNIT-IV

(घ) शब्दरूप : राम, लता, फल, मुनि, मति, नदी (दो शब्दरूप प्रश्न)

(अ) पात्ररूप : पत, गम, पट, कीड, वट, पा (के वल लट, टुट, लोट, लड़, विचित्र लकार में, दो धातुरूप प्रश्न)

UNIT-V

(ट) हिन्दी से संस्कृत में अनुवाद (5 वाक्य)

सूचक पुस्तकें - 1. अप्रतिक्षतकारकम (विषयामर्म)। 2. नीतिशतकम (भविष्यार्थ)। 3. शीघ्रवोध, चौंकम्य, वाराणसी।
संस्कृत (इलेक्टिव)
सेमेस्टर-2

Paper - Sanskrit :
कथा, नीति एवं व्यकरण
(आत्मरिक परीक्षा- 10, जिक्रित 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।
• विषयांशों को चुनकर कथाओं के माध्यम से काम-कोद-लोम-मोह-अहंकार, मात्रात्वं तथा ईश्वर इत्यादि इत्यादि दुरुपाग के वातीय मूल्य न होंकर जीवन-पथ पर अग्रसर होने, विभाग का वास्तविक अर्थ एवं व्युत्क्रम की महिमा की विश्वास देना।
• इसके अतिरिक्त व्याकरणिक शब्दावली द्वारा विषयांशों की संस्कृत के प्रति रुचि जागृत करना।
• संस्कृत पूर्ण वेदांतिक एवं व्याकरणिक भाषा है। अतः विषयांशों को संस्कृत व्याकरण के अध्ययनार्थ, अव्ययों का प्रयोग, संस्कृतवाची शब्द, शब्दरूप, पुनरूप एवं अन्य सामाजिक ज्ञान से परिचित करवाए।
• पत्र का अध्ययन समय नी पीरियड(प्रतिवर्ष) प्रतिसहाय होगा, जिसमें तीन पीरियड कक्षापत्रिका के होंगे।
• सभी प्रश्नों में शांत प्रश्नमात्र अथवा निर्दिष्ट विकल्प आवश्यक है।

(५) अपरीक्षितकारक (५-८ कहानी) अंक-20
(i) गद्य-भाषा (सामसंगण अनुवाद - तीन में से एक) 05अंक
(ii) सूक्ति / शोक (दो की समस्त्वं-व्याख्या) 10अंक
(iii) कथासार 05अंक

(६) मीतिष्ठाकारक (26-50 शोक) अंक-15
(i) शोक (दो की समस्त्वं व्याख्या) 10अंक
(ii) सूक्ति-समस्त्वं अनुवाद/ व्याख्या (तीन में से एक) 05अंक

(७) व्याकरणिक संस्कृत शब्दावली : पश्चिम, पश्चिम एवं बनस्पति समवनी (15 में से 10 शब्दों की संस्कृत) अंक-10

1. उधु-उधुः 2. वरगोङा-शाश्त्रः 3. गद्य-गद्यम्; खरः
4. गाय-भैः 5. गीत-श्रोतः 6. गीता-गाण्डकः
7. घोड़ा-दशः; प्रभाकः 8. बुधुः - मूकः 9. छिप्सई-छलुखिका
10. नेबल-नकळः 11. ब्रह्म-वाणः, कपः 12. बक्र-अजः
13. विद्धी-मार्जः 14. कळुः-कळः; कल्लारः, बुःमः 15. मेस-महिषी
16. देष-सिंहः 17. हाथी-जनः, दृष्टि, कर्णः 18. हिन्दु-मृतः, हरिणः, कुरुः
19. उधु-उधुः, कौशिकः 20. कळुः-कळः, पाररः 21. कोष्ट-कोष्टिकः
<table>
<thead>
<tr>
<th>22. कोचा-क्राफ़्</th>
<th>23. गीत-गुप्त</th>
<th>24. चक्रवाच-चक्रवासः</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. फिडिया-नटकः</td>
<td>26. तोकत्र-शुकः</td>
<td>27. परीक्षा-पातकः</td>
</tr>
<tr>
<td>28. वंगला-वकः</td>
<td>29. बसल-बत्तकः, बच्चिकः</td>
<td>30. बाज-बच्चेनः</td>
</tr>
<tr>
<td>31. मोर-मुरूः</td>
<td>32. मुर्गा-कुकुटः</td>
<td>33. हंस-हदः</td>
</tr>
<tr>
<td>34. सारस-सारसः</td>
<td>35. आवला-आमलकः</td>
<td>36. आम(वृक्ष)-आमः</td>
</tr>
<tr>
<td>37. जामुन (दृश्य)-जामुः</td>
<td>38. नारियल(दृश्य)-नारिकेलः</td>
<td>39. नील-निम्बः</td>
</tr>
<tr>
<td>40. पीपल-अवधितः</td>
<td>41. बेल (दृश्य)-बिंदुः</td>
<td>42. गुड़ाव-स्थलपामः</td>
</tr>
<tr>
<td>43. कमल-कुन्ठकः, पुण्डरीकः, पदामः</td>
<td>44. गंगा-गंधपुष्पमः</td>
<td>45. चमेली-मालकः</td>
</tr>
<tr>
<td>46. चम्पा-चम्पकः</td>
<td>47. पराग-पारस्नदः</td>
<td>48. रात्रिकी रानी-रजनीगंधः</td>
</tr>
<tr>
<td>49. पत्ता-पत्रमः, परांतः</td>
<td>50. तमात-तमतितः, तमतितः</td>
<td></td>
</tr>
</tbody>
</table>

(3) निप्रस्तुतिः अब्ध्याः का वाच्यों में प्रयोग

| कथम, अद्वः, धरमः, परस्तः, पुरस्तः, गुरुः, बामतः, दृष्टिकोणः, नीचा, उच्चाः, बहुः, अन्तः |

(4) वर्णा (रणना) वाची शब्द (51 से 100 तक) पंच शब्दः 5x1=5अक

(5) सामान्य- शाखा (राष्ट्रीय, मास, यदि तथा दृश्य दिशाओं के नाम) 5अक

(6) शब्दरूपः गुरुः, पितुः, मातुः, भवतः, अस्तमः, सुप्रस्तुतः (दो शब्दरूप प्रदत्त) 2x5=10अक

(7) ग्रामवृक�ः विषा, नीचा, द्वारा, भू, त्वार, स्मृति प्रातः (केवल लड़, कुट, लोट, लुड़, विधिलिंग लक्षण में दो प्रातुरुप प्रदत्त) 10अक

(8) हिन्दी से संस्कृति में अनुवाद (10 वाक्य) 5x2=10अक

सदापि पुस्तकेऽ अपरिशिष्टकारकम् (विषयवाचोः)। नीतिशासकम् (अनुवाद)। श्रीग्रंथोऽ, चौधर्म्य वाराणसी।
URDU (Elective)

SEMESTER - I

Essay and Composition:

<table>
<thead>
<tr>
<th>Theory</th>
<th>90 marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Assessment (5+3+2)</td>
<td>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 2019-2020.

SEMESTER-I

Paper-A – Prose:

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

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

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

Books Prescribed for this Paper:

   Complete Prose section. Publisher: Ram Narayan, Beni Madhauv
   2, Katra Road Allahabad.
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
شندیدم که در وقت نزغ روان
شندیدم که دا راپی فرح تیار
مشتاقی وصوبری از حد گزشت پارا

2. غزلیات حافظ
دُش وقت سحر از غصه نجاتم دانند
دل می رود زدستما صاحب دلان خدار

Books Prescribed for this Paper:

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

SEMESTER - I

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

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

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

2. Comprehension of an unseen text (easier than the prescribed textbook). Ten questions to be put and answered in French. 10 marks

3. Translation from English into French and from French into English of a passage or short sentences based on the vocabulary of the prescribed textbook. 10+10 marks

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

5. Write a dialogue of 150 words on the topics covered in the syllabus. 10 marks

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


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

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

2. All questions are to be asked and answered in French (except questions on translation).

For the information of private candidates:

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

SEMESTER – II

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

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

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

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

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

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

CHOICE TO BE GIVEN IN ALL QUESTIONS

Courses of Reading


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

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

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

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

For the information of private candidates:

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

SEMESTER – I

Summary

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

Note : Use of dictionary is allowed

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

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

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

Internal Assessment : 10 marks (Total)

- Continuous Evaluation
- Attendance

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

Prescribed Textbook:

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

Supplementary Book:

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

SEMESTER – II

Summary

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

Note : Use of dictionary is allowed

I. Questions in applied grammer (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.

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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.

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RUSSIAN (Elective)
SEMESTER - II

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

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

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

The above Syllabus for B.A.(GENERAL) FIRST YEAR (SEMESTER SYSTEM) SYLLABUS has been KEPT 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 12 Marks

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

UNIT-II 12 Marks

Education:

• Meaning and concept of Education

Physical Education:

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

History of Physical Education:

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

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

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

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

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

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

SEMESTER-II

THEORY

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

INSTRUCTIONS FOR THE PAPER-SETTER AND STUDENTS :

(a) There shall be nine questions in all, spread over Five Units.
(b) First question/Unit is compulsory. It will contain six short answer type questions, spread over the whole syllabus to be answered in brief. It will carry 12 marks i.e., two marks each question.
(c) Rest of the paper shall contain four Units for descriptive questions. Each Unit shall have two questions and the students shall be given internal choice i.e. the students shall attempt one question from each Unit.
(d) All questions/Units will carry equal marks.
(e) Private candidates and the students of the University School of Open Learning (USOL) are not allowed to take this subject.
(f) The University paper shall be set in three languages i.e., English, Punjabi and Hindi.

UNIT-I

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

UNIT-II

Cell:

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

Skeletal System:

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

Muscular System:

- Introduction of Muscular system, structure and function of muscular system.
- Effect of short and long duration physical Exercise on the muscular system.
UNIT-III 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 : 03 Hours

GENERAL INSTRUCTIONS FOR THE PAPER-SETTER:
The question paper will consist of five Units: I, II, III, IV and V. Units I, II, III and IV will have two questions from the respective Units of the syllabus and will carry 9 marks each. Unit V will consist of 6 short answer type questions which will cover the entire syllabus uniformly and will carry 9 marks in all. Each short question will carry 1½ marks comprising 6 questions.

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

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

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

THEORY:

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

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


PRACTICAL/ FIELD WORK:

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

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

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

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


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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 would be upto 10 students in one section of Practical Class.

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

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

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

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

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

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

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

Total : 100 Marks

THEORY

Unit-I

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

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

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

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

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

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

1. **Sangeet Bodh** : Paranjpe, Shartchandra Shridhar.
2. **Sangeet Shastra Vigyan** : Panna Lal Madan.
3. **Sangeet Kala ka Itihas** : Panna Lal Madan
4. **Sangeet Sar Part (I)** : Mrs. Veena Mankaran
10. **Sangeet Kaumudi Part II** : V.S. Nigam.
11. **Sangeet Shastra Darpan Part II** : Shanti Goverdhan.
MUSIC (Vocal)

SEMESTER-II

GENERAL INSTRUCTIONS:

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

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

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

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

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

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

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

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

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

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

THEORY

Unit-I

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

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

2. Elementary knowledge of the Gun Dosh of Gayak

Unit-III

1. Elementary knowledge of the Laya & Taal in Music


Unit-IV

Notation and Description of the prescribed Ragas and Talas:

1. To write one drut khyal in each of the following ragas: Yaman, Kafi with Alap and Taans
2. To write one bada khyal in any raga of the syllabus with Alap and Taans
3. To write the notation of Talas: Ektal, Kehrwa.
4. To write the description of ragas of the syllabus

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

Unit-V

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

PRACTICAL

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

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

3. Ability to play Teen Tala on Tabla

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

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

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

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MUSIC (Instrumental)

SEMESTER-I

GENERAL INSTRUCTIONS :-

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

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

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

4. Harmonium can be used while singing Alankars.

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

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

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

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

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

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

(i) Viva  
: 35 Marks

(ii) Harmonium  
: 05 Marks

(iii) Tabla  
: 05 Marks

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

Unit – I

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

Unit – II

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

Unit – III

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

Unit – IV

Notation and Description of the prescribed Ragas and Talas:

1. Rag Bhopali (one Razakhani gat)
2. To write Alankars.
3. To write the notation of Tala (Dadra & Teental) with dugun layakaries

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

Unit-V

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

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

Books Recommended

2. **Sangeet Kaumudi Part-II (Punjabi)** : V.S. Nigam
3. **Sitar Marg, Part-II** : S. Bandopadhya.
4. **Sangeet Sar, Part-I** : Mrs. Veena Mankaran.
6. **Sangeet Manjusha** : Dr. Indrani Chakravarti.
7. **Sangeet Shastra Vigyan** : Sh. Panna Lal Madan
8. **Sangeet Kala ka Itihas** : Sh. Panna Lal Madan
MUSIC (Instrumental)

SEMESTER-II

GENERAL INSTRUCTIONS

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

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

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

4. Harmonium can be used while singing Alankars.

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

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

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

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

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

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

(i) Viva : 35 Marks

(ii) Harmonium : 05 Marks

(iii) Tabla : 05 Marks

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

Unit-I

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 atleast four todas
3. Write in notation Jhaptala, Keharva Tala with dugan layakaries.

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

Unit-V

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

PRACTICAL

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

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

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MUSIC (Tabla)

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 contain 02 questions each, out of which the candidates are to attempt one question from each unit, unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

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).

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

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

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<td>(i)</td>
<td>Viva</td>
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<td>(ii)</td>
<td>Harmonium</td>
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<td>(iii)</td>
<td>Tabla (Tuning)</td>
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<td>(iv)</td>
<td>Padhant on Hand</td>
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Internal Assessment (Theory+Practical) (5+5) : 10 Marks

Total: 100 Marks

**Paper-A THEORY**

**UNIT-I**

1. Brief history of Tabla
2. Elementry knowledge of Taal
3. Sangeet (definition & Importance).

**UNIT-II**

1. Definitions : Sam, Tali, Khali, Vibhag, Bol, Theka, Avartan, Thah, Dugun
2. Brief description of Tabla.
3. Description of playing techniques of ten vernal.
UNIT-III

1. Life sketches and contributions of the following:-
   a. Ustad Siddhar Khan
   b. Miyan Kadar Baksh
   c. Pt. Chatur Lal

UNIT-IV

1. Ability to write in notation the composition prescribed Taal: (Teentaal, Chautal, Kehrva)
   Quaida, Simple Tukra, Tihai
2. To write description of Taal of the syllabus.
3. To write the notation of Taal in Single and Double.

UNIT-V

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

Paper-B PRACTICAL

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

Books Recommended:

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

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. 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 contain 02 questions each, out of which the candidates are to attempt one question from each unit, unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each.

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).

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

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

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

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

Total : 100 Marks

Paper-A Theory

UNIT- I

1. Origin and development of Tabla
2. Definition of Baaj and Chhand.
3. Brief description of Bhatkhande Taal notation system.

UNIT- II

1. Importance of Taal in music.
2. Elementary knowledge of the following musical terms (not more than 100 words)
   Matra, Laya (Vilambit, Madya, Drut) Tukra, Ateet, Anagat
3. Gharana:- Definition and importance in the context of Tabla.
UNIT- III

1. Life sketches and contributions of the following:-
   a. Ustad Allah Rakha Khan.
   b. Ustad Ahmad Jaan Thirkava.
   c. Pt. Samta Parshad (Gudai Maharaj)

UNIT- IV

1. Teental, Ektaal, Dadra.
2. To write description of Taals of your syllabus.
3. To write the notation of Taal in Single Double and Chaugun

UNIT- V

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

Paper-B: PRACTICAL

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

Books Recommended:

2. Tabla Tarang : B.S. Nigam
4. Avanaddha Vadya : M.P. Sharma
6. Tabla ki Utpatti Evam Vikas : Yogmaya Sharma
7. Tabla Vadan Part-1 : Jagmohan Sharma
MUSIC (Indian Classical Dance)

SEMESTER-I

GENERAL INSTRUCTIONS:

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

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

Paper-A : Theory

Unit –I

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

Unit-II

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

Unit-III

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

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

Unit-V

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

Practical: Paper-B

(A) Teen Taal:

i) Tatkar in Ekgun, Dugun and Chaung laykaries. Theka and Tatkar with Ekgun. Dugun and Chaung Layakaries
ii) Salami - 1
iii) Amad - 1
iv) Tora - 4
v) Tihai - 1
vi) Tukra - 1

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

..................
MUSIC (Indian Classical Dance)

SEMESTER –II

GENERAL INSTRUCTIONS:

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

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

Paper-A: THEORY

Unit –I

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

Unit-II

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

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

Unit IV

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

Unit-V

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

Paper-B : PRACTICAL

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

(B) Jhaptaal:-

   i) Tatkar in Ekgun, Dugun and Chaugun layakaries.
   ii) Tora - 2
   iii) Amad - 1
   iv) Paran - 1
   v) Chakardar paran - 1
(C) Practice of prescribed material in both the taals on hand.

(D) Practical knowledge of Samyukta Mudras.

(E) Ability to play nagma in teentaal on Harmonium.

(F) Ability to play theka of Jhaptaal on Tabla.
FINE ARTS

SEMESTER – I

Theory (History of Art)

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)

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<td>Written Paper</td>
<td>54 Marks</td>
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<tr>
<td>Internal Assessment</td>
<td>06 Marks</td>
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<tr>
<td>Total</td>
<td>60 Marks</td>
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INSTRUCTIONS TO PAPER-SETTERS

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

The first question shall be of short answer type containing 9 questions, spread over the whole syllabus. Each question is to be answered in about 25 to 30 words. It shall carry 18 marks and shall be a Compulsory question. 8 questions are to be set from the entire syllabus consisting of 4 Units. Two questions will be set from each Unit and the candidates shall be given internal choice i.e. a candidate shall attempt one question from each Unit. So, the candidate shall attempt 4 questions in all out of 8 questions. Each question would be of 9 marks.

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

Unit-I : History of Indian Painting

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

Unit-II : History of Indian Sculpture

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

Unit-III : History of Western Art

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

Unit-IV : Definition of Key Terms and General Concepts

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

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


PRACTICAL

This paper consists of three sections:

1. Still Life Study Max. Marks: 30 Max. Time: 5 hours
2. Drawing from Life Max. Marks: 30 Max. Time: 5 hours
3. Landscape Painting (on the spot) Max. Marks: 30 Max. Time: 5 hours
Total: 90 Marks
SECTION-I  Still Life Study (30 Marks)

1. Drawing and Painting of a number of objects to study proportion, volume and rhythmic : relationship of masses, study and rendering of texture of different objects.
2. Number of objects : Three objects with display at the back.
3. Medium : Oil, acrylic or water colours.
4. Size : ½ Imperial sheet or Canvas Pad

SECTION-II Drawing from Life (30 Marks)

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

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

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

1. Medium : Oil, acrylic or water colours.
2. Size : ½ Imperial sheet or Canvas pad

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

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

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

SEMESTER – I

Note:

1. Each paper carries 100 marks.

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

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

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

HISTORY OF INDIAN PAINTING AND SCULPTURE

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 :


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ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

SEMESTER – I

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

Paper-I : 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 321 BC.

Pedagogy of the Course Work :
Students are familiarized with sources and with methods of reconstructing ancient history. An attempt is made to view the 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. Sharma, R.S. : Material Culture and Social Formation in Ancient India, Machmillan, Delhi, 1983
8. 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-II : 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 the Post Kushana period.

Pedagogy of the Course Work:
The students are taught with the help of slides, photographs, topographical maps and political maps. In addition to it, lectures, workshops and seminars are 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; social; political; economic; cultural and religious conditions.

Essential Readings:

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

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, inters conversion of statement, into representative fraction, construction of simple scale line and comparative scale lines.

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


SECTION-B

Marks: 10

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

(Students be asked to prepare on current topics of general interest)
HISTORY

SEMESTER – I

PAPER : HISTORY OF INDIA UPTO 1200 A.D.

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 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 and 4 questions 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.

Paper:

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

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

Pedagogy : Lectures, library work and discussions.
UNIT I

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

UNIT II

IV. Republics and Kingdom 600-321 B.C.: Mahajanpadas; the rise of Magadha.
V. Jainism and Buddhism: Life and teachings of Vardhman Mahavir; Life and teachings of Gautam Buddha.
VI. The Mauryan Empire: Central and Provincial 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 Guptaas and social, economic, cultural and scientific Developments under Guptas.
IX. The Rise of Southern Kingdoms: Administration Under Pallavas; Rashtrakutas and 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:

(i) Map on important Historical places: Ajanta, Bodhgaya, Ellora, Harrappa, Indraprastha, Kalibangan, Kalinga, Kannauj, Lothal, Nalanda, Patliputra, Sanchi, Sopara, Taxila, Ujjain, Varanasi.
(ii) Extent of Harappan Civilization.
(iii) Mauryan Kingdom under Ashoka.

Reading List:

HISTORY

SEMESTER – II

PAPER : HISTORY OF INDIA 1200-1750 A.D.

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 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 and 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.

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

Explanations:

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.

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 Ilutmish and Balban.

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

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

IV. Vijaynagar Kingdom: Establishment; Administration and Economy.

V. Formation of the Mughal Empire: Political condition of India on the eve of Babur’s invasions; conquests and causes of his success.

VI. The Afghans: Establishment of Afghan power under Sher Shah Suri; administrative reforms.

UNIT III

VII. The Mughal Empire: Central and Provincial administration; land revenue system.

VIII. The Mughal Empire: Mansabdari system; Jagirdari System.

IX. Debates on the Decline of the Mughal Empire.

UNIT IV

X. The Rise of the Marathas: Conquests of Shivaji; administration.

XI. Evolution and main features: Bhakti movement; Sufism.

XII. MAP:

(i) Important Historical places: Lahore, Delhi, Agra, Mathura, Fatehpur Sikri, Chittor, Jaipur, Udaipur, Panipat, Lucknow, Ahmednagar, Poona, Surat, Golkonda, Bijapur, Daulatabad,

(ii) Extent of Empire under Allauddin Khalji.

(iii) Mughal Empire in 1707.

Reading List:


POLITICAL SCIENCE

SEMESTER – I

POLITICAL THEORY-I

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

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

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

(a) There shall be 9 questions in all.

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

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

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

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

Unit-I

1. Political Science : Meaning, Definition and Scope.

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

Unit-II

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

Unit-III

1. **State**: Liberal, Marxian and Gandhian View.
2. **Welfare State**: Liberal and Socialist Perspective.

Unit-IV

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

**Books Recommended**:


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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

1. **Liberty**: Meaning, Types & its Safeguards.
2. **Equality**: Meaning, Types and Relationship between Liberty and Equality.

Unit-IV

1. **Social Change**: Meaning, Characteristics and Factors.
2. **Democracy**: Meaning, types, necessary conditions for the success of Democracy.
3. **Theories of Democracy**: Elite and Marxian.

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


**Recommended Readings:**


**Supplementary Readings:**


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ECONOMICS

SEMESTER – II

Paper : MACRO ECONOMICS

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

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:**

SOCIOMETRY
SEMESTER - I

FUNDAMENTALS OF SOCIOLOGY

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

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES :

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

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

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

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

Objective :

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

Course Content :

Unit-I

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

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

Unit-II


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

Unit-III

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

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

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

Essential Readings:


Further Readings :

SOCIOLOGY

SEMESTER - II

SOCIOLOGY STRATIFICATION

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

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

(i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine short answer type questions out of 12, i.e. $9 \times 2 = 18$ marks.

In addition to it, Question Nos. II to IX will consist of long answer (essay type) questions, two questions from each Unit with internal choice carrying 18 marks each i.e. $4 \times 18 = 72$ marks.

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

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

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

Objective:

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

Course Content

Unit-I

Social Stratification – Meaning, feature and functions; Inequalities – Social and Natural.

Elements: Differentiation, Hierarchy, Ranking, Reward, Evaluation.

Unit-II

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

Unit-III

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

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

Essential Readings:


Further Readings:

PUBLIC ADMINISTRATION

SEMESTER - I

PAPER : ADMINISTRATIVE THEORY

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

Objective of the Paper :

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

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES :

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

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

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

Unit-I

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

Unit-II

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

Unit-III

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

Unit-IV

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


Further Readings

PUBLIC ADMINISTRATION
SEMESTER - II

PAPER : INDIAN ADMINISTRATION

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 L) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

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

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

Unit-I

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

Unit-II

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

Unit-III

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

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

Essential Readings


Further Readings


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:

OBJECTIVES:

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

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

PAPER: GENERAL PSYCHOLOGY-I

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

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

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

UNIT I

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

UNIT II

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

UNIT III

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

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

PSYCHOLOGY PRACTICALS

Four practicals have to be performed out of six:

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

Suggested Readings:

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-Correlation and Interpretation.
Unit III

*Development:* Concept, Heredity and Environmental Influences. Theories of Development: Erickson, Psychosocial Theory, Piaget’s theory of Cognitive Development.

Unit IV

Intelligence: Concept, Theories of Intelligence: Spearman, Thurstone, Cattell, Guilford. Measurement of Intelligence (Verbal and Non Verbal Test and Individual and Group Tests).

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

**PSYCHOLOGY PRACTICALS**

Max Marks: 20
Time: 3 Hrs.

Four practicals have to be performed out of the following:

1. Verbal Test of Intelligence
2. Non Verbal Test of Intelligence
3. Performance Test of Intelligence.
4. McCosta & Crae NEO Big Five Personality Inventory.
5. Interest Inventory.
6. Familiarization of any five apparatuses

**Suggested Readings:**

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). (8 lectures)

Interior of the Earth: Constitution, Isostasy, Continental Drift (with special reference to Wegener’s Theory and Plate Tectonics). (12 lectures)

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) (20 lectures)

UNIT-III

Rocks: Origin, classification and characteristics. (8 lectures)

Major Land Forms: Mountains, plateaus and plains in the world. (10 lectures)

UNIT-IV

Geomorphic Agents and Landscapes: Fluvial, Glacial, Aeolian, Coastal and Karst. (22 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. Internal assessment will be based on written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (5) in the question paper

List of Readings:

Essential Readings:


Further Readings:


Pedagogy:
- Use of Audio-visual aids, maps, diagrams and other forms of illustrations especially in the Indian context are recommended.
- Relevant educational field trips must be arranged to illustrate the theory being taught.

Paper-II: CARTOGRAPHY-I

*Max. Marks: 30*

**Time**: 3 Hours

Written paper of 3 hours duration at college level (except USOL) : 20 marks
Viva and Practical Record (5+5) : 10 marks

Objective:
- To introduce the concept of maps and relevance of maps in Geography.
- To explain the elements of Map (Scale and Orientation) and steps in Map making.
- To introduce relief representation.
Course Content:

UNIT-I

Maps: Brief history of map making and types of maps.

Geometry of the Earth: Latitude, Longitude (Time Zones and International Date Line), Size and Shape of the Earth. (3 lectures, 6 lab sessions)

UNIT-II

Scales: Methods of representing scale;

Methods of construction of Graphic scales: Plain, Comparative, Time and Diagonal. (6 lectures, 12 Lab. sessions)

UNIT-III

Directions and Bearings: Plotting of a course, True North, Magnetic North, finding True North with the Pole star, a watch and a rod; Bearing and its conversion. (6 lectures, 12 Lab. sessions)

UNIT-IV

Representation of Relief: Hill-shading, Hachures, and Layer Tints, Spot heights, Benchmarks, Contours. (6 lectures, 12 Lab. sessions)

Note:

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.

2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of Geography in the college.

3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared for USOL students from the prescribed syllabus.

4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should be in about 25 words. Each part will carry 1 mark (Total 4 Marks).

5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks (Total 16 marks). The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question.

6. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 15 sheets are to be prepared by the students. There will be no laboratory exercise at that time.

7. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).
8. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.


10. For practical classes, the number of students in one group shall not exceed fifteen.

11. There will be 3 hours of teaching per week for this paper.

12. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

   The paper-setter must put note (12) in the question paper.

**List of Readings**

**Essential Readings:**


**Further Readings:**


**Pedagogy:**

- The use of topographical sheets of Survey of India
- A well equipped cartographic laboratory with necessary instruments to prepare exercises.
GEOGRAPHY

SEMESTER - II

Paper-III: PHYSICAL GEOGRAPHY-II: Climatology & Oceanography

Max. Marks : 70
Theory : 60 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives:

• To acquaint the students with the elements and attributes of climatology and oceanography
• To underscore the role of climate in human life
• To emphasize the significance of oceans within the global environmental system

Course Content:

UNIT-I

Definition of Climatology: Concepts of Climate and Weather, Nature and Scope of Climatology. (2 Lectures)
Climate: Elements and Controls. (4 Lectures)
Physical Structure of the Atmosphere: Troposphere, Tropopause, Stratosphere, Ozonosphere, Mesosphere, Thermosphere and Exosphere (attributes of these layers).
Physical and Chemical Composition of the Atmosphere: Dust particles, Vapour Particles, Active gases, Inert gases.
Insolation and Temperature: Distribution of Insolation (horizontal); Distribution of Temperature (vertical, horizontal, annual, seasonal and diurnal)

UNIT-II

Atmospheric Pressure and Wind Distribution: Atmospheric disturbances: Tropical Cyclones, (8 Lectures)
Temperate Cyclones and Anticyclones.
Atmospheric Moisture: Condensation forms: cloud, dew, fog, frost and snow. (8 Lectures)
Precipitation: forms and types, world patterns (spatial and seasonal).
Introduction to Koppen’s classification of world climate (4 lectures)
Role of Climate in Human Life: Atmospheric pollution and global warming: causes, consequences and measures of control (4 lectures)

UNIT-III

Oceanography: Definition, Nature and Scope (5 lectures)
Topography of the Ocean Basins; Continental Shelf, Continental Slope, Abyssal Plain, Ridges, Deeps and Trenches (5 lectures)
Temperature and Salinity of ocean waters: World patterns and controlling factors (6 lectures)

UNIT-IV

Movements of Oceanic Waters: Waves, Tides and Currents; Surface currents of the oceans; Role of Ocean Currents in heat distribution over the globe. (10 lectures)
Marine Deposits and Corals: Origin and types. (10 lectures)
Note: 1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 10 parts. The answer of each part should be about 25 words. Each part will carry 2 marks (Total 20 marks).

2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, two from each Unit. The students will be required to attempt one question from each Unit. Each question will carry 10 marks. These will be in addition to the compulsory question I.

3. Special credit will be given to suitable use of maps and diagrams. Use of unmarked map stencils and colour pens/pencils are allowed.

4. Internal assessment will be based on written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

5. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (5) in the question paper.

Essential Readings:


Further Readings:

Pedagogy:

- Conscious effort be made to make the students aware of the significance of climate and oceans to human life.
- Use of Slides, photographs and documentaries on climates and oceans strongly recommended.

Paper-IV: CARTOGRAPHY-II

Max. Marks: 30
Time: 3 Hours

Written paper of 3 hours duration at college level (except USOL) : 20 marks
Viva and Practical Record (10+10) : 10 marks

Objective:

- To introduce the concept of maps and relevance of maps in Geography
- To explain the elements of Map (Scale and Orientation) and steps in Map making
- To introduce relief representation and weather symbolization on maps

COURSE CONTENT

UNIT-I

Brief History of Cartography
Elements of Map Design

(6 lectures, 12 lab. sessions)

UNIT-II

Enlargement and Reduction of Maps: Graphic methods – Square and Similar Triangles.
Introduction to concept of Global Positioning System (GPS).

(6 lectures, 12 Lab. sessions)

UNIT-III

Interpretation of Indian Weather Maps: General introduction to the study of weather maps, the scheme of weather symbols including Beaufort’s scale employed in Indian Daily Weather Maps.

(6 lectures, 12 lab. sessions)

UNIT-IV

Weather in India: Summer season (period of summer monsoon), winter season, Weather Forecasting through the study of weather maps and recent advances in weather forecasting.

(6 lectures, 12 lab. sessions)
Note :

1. The written and practical examination including viva-voce shall be conducted at the respective college itself except USOL. However, the format of the question paper shall be uniform. A separate paper of 20 marks shall be prepared on the spot by the examiners from the prescribed syllabus.
2. Practical examination at the respective colleges shall be conducted by one internal and one external examiner. The external examiner shall be appointed by the Principal of the respective colleges in consultation with the senior most teacher of Geography in the college.
3. For students of USOL, a written theory paper for 20 marks shall be conducted by the University along with the University examination. A separate paper of 20 marks shall be prepared for USOL students from the prescribed syllabus.
4. A compulsory question containing 6 short answer type questions shall be set covering the whole syllabus. The students shall attempt any 4 parts. The answer of each part should be about 25 words. Each part will carry 1 mark (Total 4 Marks).
5. The whole syllabus has been divided into 4 Units. Eight questions will be set out of the whole syllabus, i.e. 2 from each Unit. Each question will carry 4 marks The students will be required to attempt one question from each Unit. These will be in addition to the compulsory question I.
6. Evaluation of Practical Record will be done at the time of viva-voce examination. A minimum of 15 sheets are to be prepared by the students. There will be no laboratory exercise at that time.
7. There will be no viva-voce examination for the candidates appearing through USOL. They will be required to submit their Practical Note Book (Practical files) with the University School of Open Learning (Department of Geography) at least 10 days before the commencement of their examination. Their Note Books (Practical files) will be evaluated by two examiners (including at least one from the USOL).
8. For the students of University School of Open Learning, there will be an internal assessment of 10 marks in lieu of the viva-voce examination.
10. For practical classes, the number of students in one group shall not exceed fifteen.
11. There will be 3 hours of teaching per week for this paper.
12. For USOL, reappear/improvement candidates(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

The paper-setter must put note (12) in the question paper

Essential Readings :

Further Readings:


Pedagogy :

- The use of topographical sheets of Survey of India and weather maps.
- A well equipped cartographic laboratory with necessary instruments to prepare exercises.
GANDHIAN STUDIES
SEMESTER –I

MAHATMA GANDHI: FAMILY AND EARLY LIFE (INDIA, ENGLAND AND SOUTH AFRICA)

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

Course Objectives:
The paper is designed to acquaint the students with the early life of Mahatma Gandhi in India and in London.

Pedagogy of the Course Work:
90% Lectures (including expert lectures)
10% Unit Tests, Snap Tests, assignments, attendance and classroom participation.

Note:
1. The syllabus has been divided into four (4) units.
2. There shall be 9 questions in all.
3. The first question is compulsory and shall be short answer type containing 15 short answer type questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 18 marks i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question.
4. Rest of the paper shall contain four (4) units and each units shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each unit – 4 in all. All questions shall carry 18 marks.
5. For the private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (5) in the question paper.

UNIT-I

Family and Schooling
a) Family Background – Parents, Rambha & others
b) Neighbourhood and Early Impact
c) Schooling
d) Influence of Indian Scriptures

UNIT-II

As a Law Student in London
a) Dilemma Before Going to London
b) As a Law Student
c) Vegetarianism
d) Self-transformation and Home Coming
UNIT-III

Gandhi in South Africa
a) Journey to South Africa
b) Encounter with Racial Discrimination/Apartheid
c) Conditions of Indians in South Africa
d) Birth of Satyagraha

UNIT-IV

Satyagraha in Practice
a) Disfranchisement of Indians
b) Establishment of Natal Indian Congress
c) Asiatic Law Amendment Ordinance
d) Home Coming

ESSENTIAL READINGS:


FURTHER READINGS:

GANDHIAN STUDIES

SEMESTER –II

GANDHI IN FREEDOM STRUGGLE - SOUTH AFRICA AND INDIA

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

Course Objectives:
The paper is designed to acquaint the students with life in South Africa and struggle against racial discrimination.

Pedagogy of the Course Work:
90% Lectures (including expert lectures).
10% Unit Tests, Snap Tests, assignments, attendance and 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

INTRODUCTION TO MASS COMMUNICATION - I

Max. Marks : 100
Theory : 70 marks
Internal Assessment : 10 marks
Time : 3 Hours
Practical : 20 marks

A. Objectives:

The course will introduce to the students the general concepts and historical viewpoints in communication and media. The students would also get an understanding of the basic models communication and gain an understanding of the current scenario of media industry in India.

B. Pedagogy of the Course Work:

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

INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. The first question shall be short answer type containing 10 short questions spread over the whole syllabus and each to be answered in about 50 to 75 words. The candidate is required to attempt any 7 short answer type questions i.e. of 2 marks each. It shall carry 14 marks and is a compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all. Each question will carry 14 marks.

Unit-I : Definition, nature and concept of communication; types of communication: intra; inter; group and mass.

Unit-II : Basic models of mass communication: S-R model; Schramm’s Model; Model based on Lasswell formula; Mathematical Model.

Unit-III : Early Press History in India (1782-1947); Role of nationalist newspapers in freedom struggle; Laws to curb press freedom before Indian independence; Role of press in Post Independence era (1947-1975); Role of Press during Emergency (1975-1977); Press in modern India (1978-present)

Unit-IV : Brief overview of media industry in India with emphasis on growth of
- Press
- Radio
- TV
- New Media

PRACTICALS

Max. Marks : 20 Marks

1. Project on any one aspect of communication : 10 Marks
2. Case study of any one early newspaper : 10 Marks
Books Recommended:

Essential Reading:


Additional Reading:


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JOURNALISM & MASS COMMUNICATION

SEMESTER- II

PAPER : INTRODUCTION TO MASS COMMUNICATION-II

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<th>Max. Marks</th>
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<tr>
<td>Theory</td>
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<tr>
<td>Internal Assessment</td>
<td>10 marks</td>
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<tr>
<td>Time</td>
<td>3 Hours</td>
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<tr>
<td>Practical</td>
<td>20 marks</td>
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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

<table>
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<tr>
<th>Max. Marks : 20 Marks</th>
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<tbody>
<tr>
<td>1. Case study of any one newspaper, radio station or TV channel : 10 Marks</td>
</tr>
<tr>
<td>2. Project on either folk or new media : 10 Marks</td>
</tr>
</tbody>
</table>
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:


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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

(a) Definition,
(b) Rationale for Women’s Studies,
(c) Evolution of Women’s Studies,
(d) Women’s Studies as a discipline.
NOTE:
- In each of the papers, the candidate will be assessed for 90 marks on the basis of a written examination and internal assessment will be for 10 marks.
- There shall be 9 questions in all. The first question shall be compulsory containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidate is required to attempt any 09 short answer type questions carrying 2 marks each (18 marks). Rest of the paper shall contain 4 units. Each Unit shall have two questions and the candidate shall attempt one question from each unit- 4 in all. Each question will carry 18 marks.

Essential Readings:


Further Readings:

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 :


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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 9×2=18 marks.

(ii) In addition to it, Questions Nos. II to IX will consist of long answer (Essay Type) questions i.e., 2 questions from each unit with Internal choice carrying 18 marks each i.e., 4×18=72

UNIT-I

THE CONCEPT OF HUMAN RIGHTS:

• Meaning and nature of Human Rights
• Classification of Rights
• The Concept of Human Rights

UNIT-II

CONCEPT OF HUMAN DUTIES:

• Meaning and nature of Human Duties; Moral, ethical, social, economic, political and cultural universal
• Classification of Human Duties: Individual, family, Community, Nation-State, Human kind and Mother Earth.
• Relationship between Rights and Duties.

UNIT-III

INTRODUCTION TO THEORIES OF HUMAN RIGHTS:

• Natural Rights Theory
• Liberal Theory of Rights,
• Legal/ positivist Theory of Rights
• Marxist Theory of Rights.
• Feminist Theory of Rights
UNIT-IV

DEMOCRATIC GOVERNANCE:

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

Essential Readings:


Further Readings


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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 \times 2 = 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 \times 18 = 72 \text{ 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


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RELIGIOUS AND SIKH STUDIES

SEMESTER- I

PAPER-I, HINDUISM

Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious and Sikh Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course as one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness regarding the origin, features and teachings of different religions.

Pedagogy:
The Pedagogy of the course involves classroom lectures, assignments, discussions, special lectures. Field trip and feedback from the students.

INSTRUCTIONS FOR PAPER-SETTER AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9x2).

In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. The students are required to attempt any four out of these eight essay type questions selecting one question from each Unit. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4x18).

Course Contents
Unit. I. Vaishnavism: origin, development; features and institutions
Unit. II. 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:

5. *Gkosh doÙB eh o{go/yk (fjzdh)*, pRkwSn hwaUs, id`lI, 2016 pypr bYk.

Further readings:

PAPER-II NEW FAITHS AND SAINTS

Maximum Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives:
The course is designed for the students who want to pursue semester based graduate degree programme with Religious Studies as an elective subject. It is open to any student drawn from multiple disciplinary backgrounds after completion of 10+2 course. As one of the elective subject at the graduate level curriculum, it purports to develop a broad understanding of Indian Religions and awareness about the origin, features and purpose of different religions.

Pedagogy:
The Pedagogy of the course involves classroom lectures, assignments, discussions, special lectures. Field trip and feedback from the students.

INSTRUCTIONS FOR PAPER-Setter AND CANDIDATES:
Note: (i) For written paper, the students will be required to attempt five questions in all. Question No. I will be compulsory comprising of 12 short answer type questions of 2 marks each and will cover the entire syllabus. The students are required to attempt nine answer type questions out of twelve. Question No. I would carry 18 marks (9X2).

In addition to it, Questions No. II to IX will consist of eight long answer (Essay Type) questions which will be further divided into four units with each Unit having two questions to ensure internal choice to the candidate. The students are required to attempt any four out of these eight essay type questions selecting one question from each Unit. In all, each question in this section shall carry 18 marks and this section shall carry 72 marks (4X18).

Course Contents
Unit I. Jainism: Life and Teachings of Mahavira; origin and development of Jainism
Unit II. Buddhism: Life and Teachings of Lord Buddha; origin and development of Buddhism
Unit III. Sant Kabir: Life, Teachings and Contribution
Unit IV. Sant Ravidas: Life, Teachings and Contribution
Essential Readings:

5. पदवासंस्थित सिध्द, द्रा.(मेघ.) ‘विभूति यथा ब्रजस नृथं, मंथुरान्त आनं चिंत्व’ द्राजा जीता, ध्वासवेशस्व विधिति, ध्वासवेशस्व प्रतिशालस्त, पप्ति, 2009
6. सिञ्ज, यथा श्रावं द्रा., यथा श्रावं, नासर उन विभाग, तेशत्रेव प्रवक्त, सरविष, 2001
7. सर, तत्त्वदेव सिध्दं, प्रतीत ब्रजस्ती नृथं तथा: विंयट, विलग्न वे धृत, ध्वासवेशस्व प्रतिशालस्त, पप्ति, 2007.
8. बुभव ब्रजस्ती क्षेत्र, ‘बाहविध ब्रजस्ती क्षेत्र, भूटल दाः पचामी रघुम, दिन्नेश 2006 (दिन्नेश)
9. सेषी, भृगु, शैल. (मेघ.), दिन्नेश, ध्वासवेशस्व प्रतिशालस्त, पप्ति, 1990.
10. बुभवमुक्तीमुख सिध्द, नासर श्रावं, नासर रक्षक आनं ब्रजस्ती, विभूति आनं ब्रजस्ती रक्षक, अहिम्सक, 2002
11. तत्त्वदेव पुष्पं धंड्राः: ‘यथा मंथुरान्त विभूति आनं’ लम्बक 2005-अनं द्राजा ध्वासवेशस्व विधिति, ध्वासवेशस्व पप्ति, 2001

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 in hrs.</th>
<th>Marks allotted</th>
<th>Int. Ass.</th>
<th>Total Marks</th>
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<tr>
<td>1</td>
<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
<td>3</td>
<td>45</td>
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**Total**: 100

Note: 1. Each Practical group will have 12-15 students.

**PAPER : FAMILY RESOURCE MANAGEMENT, HYGIENE & HEALTH**

Max. Marks : 50
Theory : 45
Int. Ass. : 05
Periods : 6 Hours per Week

**INSTRUCTIONS FOR THE PAPER SETTER :**

The question paper will consist of five Sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 8 marks each. Section E will consist of objective type questions covering the entire syllabus uniformly and will carry 8 marks.

**INSTRUCTIONS FOR THE CANDIDATES :**

Candidates are required to attempt one question each from the Sections A, B, C and D of the question paper and the entire section E.

**Section A**

I (a) Meaning & Importance of Home Science.
(b) Functions of Home.

II (a) Home Scientist as an Entrepreneur.
(b) Agencies promoting Entrepreneurship- Commercial Banks, District Industries, Co-operative Societies.
Section B

III Interior Decoration

(a) Elements of Art - Line, Form, Pattern, Texture, Colour, Light and Space.
(b) Principles of Art in relation to interior decoration - Harmony, Balance, Rhythm, Proportion & Emphasis.

IV Colour

(a) Characteristics of colour
(b) Colour wheel
(c) Colour schemes

Section C

V Hygiene & Health

(a) Definition of Hygiene, Health
(b) Definition of infection, sources, carrier and control
(c) Definition and types of immunity.
(d) Immunization schedule

VI Causes & Spread of following diseases.

(a) Caused by insects – Malaria & Dengue
(b) Conveyed by ingestion – Enteric Fever, Cholera, Dysentery & 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.
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>
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<th>Sr. No.</th>
<th>Theory</th>
<th>Practical</th>
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<tr>
<td>1.</td>
<td>Family Resource Management, Hygiene &amp; Health</td>
<td>1</td>
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</tbody>
</table>

Note: 1. Each Practical group will have 12-15 students.

PAPER: FAMILY RESOURCE MANAGEMENT, HYGIENE & HEALTH

Max. Marks: 50
Theory: 45
Int. Ass.: 05
Periods: 6 Hours 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 : 45 Marks
Inter. Asses. : 05 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. Deshpandae : 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.
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**

**UNIT-I**


Ecosystem: Concept of Ecosystem, Biotic & abiotic components, food chain, food web trophic levels, types of ecosystems, terrestrial and aquatic. Biogeochemical cycles - nitrogen, carbon, phosphorous and sulphur cycle.

**UNIT-II**

Natural Resources: Definition, type of natural resources (Renewable and nonrenewable natural resources) and the policies of their conservation. Energy resources; Fossil fuel, Alternative source of energy (Solar energy, wind power, geothermal energy, dung energy and wood energy.

**UNIT-III**

UNIT-IV

**Indoor Environment:** Pollution of the in house environment pollutants in the offices, workplaces (School, Bus stand, College and Kitchens). Environmental problems linked to urban and rural lifestyle, Adulterants; Food adulterants (Wheat flour, milk, red chili powder, mustard oil, desi ghee, sweets, artificial sweetness, dyes, food allergens).

**PRACTICAL**

*(Based on theory paper)*

Laboratory work: Tests of food adulterants.

Study the forest products with help of charts and specimens.

Survey reports of indoor environmental pollutants and local forests.

A visit to forest to study different components of these ecosystems.

**Books Recommended :**


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ENVIRONMENT CONSERVATION

SEMESTER – II

PAPER : SOIL AND WATER POLLUTION

<table>
<thead>
<tr>
<th>Theory hours</th>
<th>Practical hours</th>
<th>Theory marks</th>
<th>Internal Assessment Marks</th>
<th>Practical marks</th>
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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, and 20 marks will be allotted to laboratory practical.

Instructions for paper setters:
There will be 9 questions in all, two each from Section I to IV. All questions will carry equal marks (13 marks each). Question No. I will be short answer type & will cover the whole syllabus. Candidates will attempt five questions in all, selecting one each from Section I to IV and the first compulsory question.

PAPER : SOIL AND WATER POLLUTION

UNIT-I

Lithosphere: Meaning of Soil profile, its components, types of soil, physical-chemical properties of soil.

Soil Fertility: Micro-and macro-nutrients, technique of testing soil sample. Methods of increasing soil fertility, merits and demerits of fertilizers, role of soil microorganisms.

UNIT-II

Degradation of soil: Soil erosion (Water and Wind erosion) causes of effect of erosion. Soil pollution: Different types of soil pollutants (Chemicals, Pesticides, Fertilizers & manure, discarded material. Pollution and control measures.

UNIT-III

Hydrosphere: Major sources and uses of water. Overutilization of surface & ground water, floods, drought. Conflicts over water. Potable water, its characteristics. Water cycle (Global and Biological)

UNIT-IV

Water pollution: Definition, Types & Sources of water pollution, its consequences and control measures. Different types of diseases due to water pollution. Treatment of wastewater by green method (Root-zone technology), Marine pollution - a brief account.
PRACTICAL

Determination of soil pH
Use of Portable Kit
Determination of organic matter in soil
Determination of CaCO₃ in soil.
Determination of available Nitrogen in soil.
Identifcation 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
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\textsuperscript{th} root of unity. Expansions of sin n\theta, cos n\theta, sin^n\theta, cos^n\theta (n\epsilon\mathbb{N}). The exponential, logarithmic, direct and inverse circular and hyperbolic functions of a complex variable. Summation of series including Gregory Series.

Unit-II


References:


.................
MATHEMATICS

SEMESTER – II

Paper-I : SOLID GEOMETRY

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Transformation of axes:
Shifting of origin and rotation of axes.

Sphere:
Section of a sphere and a plane, spheres through a given circle, intersection of a line and a sphere, tangent line, tangent plane, angle of intersection of two spheres and condition of orthogonality, power of a point w.r.t. a sphere, radical axis, radical center, co-axial family of spheres, limiting points.

Cylinder:
Cylinder as a surface generated by a line moving parallel to a fixed line and through a fixed curve, different kinds of cylinders such as right circular, elliptic, parabolic and hyperbolic cylinders in standard forms, enveloping cylinders.

Unit-II

Cone:
Cone with a vertex at the origin as the graph of a homogeneous equation of second degree in x,y,z, cone as a surface generated by a line passing through a fixed curve and a fixed point outside the plane of the curve, reciprocal cones, right circular and elliptic cones, right circular cone as a surface of revolution obtained by rotating the curve in a plane about an axis, enveloping cones.

Conicoid:
Equations of ellipsoid, hyperboloid and paraboloid in standard form. Reduction of second degree equation in three variables in standard form.

References:

Paper-II : CALCULUS - II

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I

Concavity, convexity and points of inflexion, Multiple points, Asymptotes, Tracing of curves (Cartesian and parametric co-ordinates only).

Curvature:
Curvature of a curve at a point, radius of curvature of cartesian, parametric, polar curves and for implicit functions, evolute and involute, chord of curvature.

Unit-II

Integral calculus:
Integration of hyperbolic and inverse hyperbolic functions. Reduction Formulae.

Numerical Integration:
Trapezoidal, Prismoidal and Simpson Rules.

Application of definite integral:
Summation of Series, Quadrature, rectification, volumes and surfaces of solids of revolution (Cartesian co-ordinates only)

References:

Paper III: THEORY OF EQUATIONS

Max. Marks : 30
Time : 3 Hours

Note:
1. The syllabus has been split into two Units: Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will be asked to attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.
3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.
4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester

Unit-I


Unit-II

Newton’s method of divisors, Solution of cubic and bi-quadratic equations, Cardan’s method of solving a cubic, discriminant and nature of roots of real cubic, trigonometric solutions of a real cubic with real roots. Descartes’ and Ferrari’s method for a bi-quadratic.

References:

COMPUTER SCIENCE

SEMESTER-I

SCHEME OF EXAMINATION

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext.</th>
<th>Int.</th>
<th>Max. Marks</th>
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<tr>
<td>Paper – CS01 Theory-A</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
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<tr>
<td>Paper – CS02 Theory-B</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>35</td>
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<td>Paper – PCS01 Practical-C</td>
<td>3</td>
<td>30</td>
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<td>30</td>
</tr>
</tbody>
</table>

**Note:** Practical marks will include the appropriate weightage for proper maintenance of Lab. Record.

**Paper-CS01 : Computer Fundamentals**

**Objective:** To teach the students the fundamentals of computer related to its hardware & software.

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

**UNIT - I**

**Computer Appreciation:** Introduction to computers, characteristics of computer; History of computers; Classification of computers on size: (Micro, Mini, Mainframe and super computers), Working Principles, Generations; Applications of computers; commonly used terms–Hardware, Software, Firmware. Basic Computer Organization: Block diagram of computer system, Input unit, Processing Unit and Output Unit; Description of Computer input devices: Keyboard, Mouse, Trackball, Pen, Touch screens, Scanner, Digital Camera; Output devices: Monitors, Printers, Plotters.

**UNIT –II**

**Computer Memory:** Representation of information: BIT, BYTE, Memory, Memory size; Units of measurement of storage; Main memory: main memory organization, RAM, ROM, PROM, EPROM; Secondary storage devices: Sequential Access Memory, Direct Access Memory Magnetic Tapes, Magnetic disks, Optical disks: CD, DVD; Memory storage devices: Flash Drive, Memory card;
UNIT – III


UNIT – IV


Suggested Readings :


Paper-CS02: PC Software

Objective : To teach the basic functionality of Disk Operating System & Windows. To impart detailed knowledge for creating word processing, spreadsheet & presentation documents.

Note :

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

(ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.

(iii) The students are required to attempt ONE question from each unit and the compulsory question.

(iv) All questions carry equal marks unless specified.

UNIT – I

Concept of files and directories; Disk Operating System: DOS, System Files, types of DOS commands: Internal and External commands: Introduction to AUTOEXEC.BAT, Directory commands: XCOPY, DEL, RENAME, ATTRIB, BACKUP, RESTORE, FIND, SYS; General commands: TYPE, DATE, TIME, PROMPT; Batch Files, Wild Cards, Line Editor.
UNIT – II

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

UNIT – III

Word Processing : Basics of Word Processing; Opening, Creating, Saving, Printing and Quitting Documents, Using the Interface (Menu Toolbars), Editing Text (Copy, Delete, Move), Finding and Replacing Text, Spell Check, Autocorrect; Auto Text, Character formatting, Page formatting; Document Enhancement; Adding Borders and shading, Adding Headers and Footers, Setting up Multiple columns, Sorting blocks, Adjusting Margins and Hyphenating Documents, Creating Master Documents, Creating Data Source, Merging Documents, Using Mail merge feature for labels and envelops; Inserting Pictures, Tables, Working with equations.

UNIT – IV

Spread Sheet : Worksheet overview, Row, Column, Cells, Menus, Creating Worksheet, Opening, Saving, Printing Worksheets; Calculations, Auto fill, Working with Formulae, Data Formatting (number formatting, date formatting), Working with Ranges, Establishing Worksheet links; Creating, Sorting and Filtering Data Base; Creating chart, Adding Titles, Legends etc. to charts, Printing Charts, Creating Macros, Record Macros, Running Macros, Assigning Macros to Buttons, Functions (Statistical, Financial, Mathematical, String, Date and Time).

MS-Power Point: Creating, Saving, Printing Presentation; Selecting Design Templates, Animations and Transitions, Auto Content Wizard.

Suggested Readings :

1. Ludd Robbins : Mastering DOS.
3. Richard Allen King : MS-DOS H. B.

Paper – PCS01 : Practical : Practicals Based on Paper CS02
COMPUTER SCIENCE
SEMESTER-II

SCHEME OF EXAMINATION

<table>
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<th>SECOND SEMESTER</th>
<th>Exam. Hrs</th>
<th>Ext. Hrs</th>
<th>Int. Hrs</th>
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<td>Theory-A</td>
<td>Operating System Concepts</td>
<td>3</td>
<td>30</td>
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<tr>
<td>Paper – CS04</td>
<td>Theory-B</td>
<td>C Programming</td>
<td>3</td>
<td>30</td>
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<tr>
<td>Paper – PCS02</td>
<td>Practical-C</td>
<td>Practical Based on Paper – CS04</td>
<td>3</td>
<td>30</td>
</tr>
</tbody>
</table>

Paper-CS03: Operating System Concepts

Objective: To teach the students various operating system concepts relating to managing processes, memory and deadlocks.

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

UNIT - I

Operating Systems (OS): Introduction, need of operating system and functions of operating system, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems; Structure of Operating System;

UNIT - II


UNIT - III

UNIT - IV

Memory Management: Logical vs Physical address space, Swapping, Introduction to Paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU

Suggested Readings :

Essential :


Further Reading :

2. Brinch, Hansen, Operating System Principles, Prentice Hall of India

Paper-CS04 : C Programming

Objective : To teach the student basic constructs of ‘C’ programming language and enable them to create ‘C’ based applications.

Note : (i) The question paper will consist of Four units.

(ii) Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering the whole syllabi.

(iii) The students are required to attempt ONE question from each unit and the compulsory question.

(iv) All questions carry equal marks unless specified.

UNIT – I


Fundamentals of C Languages: History of C, Character Set, Identifiers and Keywords, Constants, Types of C Constants, Rules for Constructing Integer, Real and character Constants, Variables, Data Types, rules for constructing variables.

UNIT – II

Operators and Expressions: C Instructions, Arithmetic operators, Relational operators, Logical operators, Assignment Operators, Type Conversion in Assignments, Hierarchy of Operations, Standard and Formatted Statements, Structure of a C program, Compilation and Execution.
Decision Control Structure: Decision making with IF-statement, IF-Else and Nested IF-Else, The else if Clause.

Loop Control Structure: While and do-while, for loop and Nested for loop,

Case Control Structure: Decision using switch, The goto statement.

UNIT – III

Functions: Library functions and user defined functions, Global and Local variables, Function Declaration, Calling and definition of function, Methods of parameter passing to functions, recursion, Storage Classes in C.

Arrays: Introduction, Array declaration, Accessing values in an array, Initializing values in an array, Single and Two Dimensional Arrays, Initializing a 2-Dimensional Array, Memory Map of a 2-Dimensional Array, Passing array elements to a function.

UNIT – IV

String Manipulation in C: Declaring and Initializing string variables, Reading and writing strings, String Handling functions (strlen(), strcpy(), strcmp(), strcat()).

Structures and Unions: Declaration of structures, Structure Initialization, Accessing structure members, Union, Difference between Structure and Union.

Suggested Readings:

Essential:

Further Reading:

STATISTICS

SEMESTER - I

Note:
1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. There are two papers code named papers 101 and 102 in the subject of Statistics in B.A./B.Sc. 1st Semester. These are to be taught simultaneously throughout the Semester.
3. 8 lectures (45 minutes each) for theory per week and 4 lectures (45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

Paper- 101: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-I

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

Objective: The objective of the course is to make the students conversant with various techniques used in summarization and analysis of data. The focus will be both on theoretical as well as practical approach. This course will lay the foundation to probability theory of outcomes of real life random experiments. The focus will be on theoretical as well as practical approach.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit-I

Important Concepts in Probability: Random experiment, trial, sample point and sample space, definition of an event, mutually exclusive, exhaustive, independent and equally likely events. Definition of probability – classical and relative frequency approach to probability, their demerits and axiomatic approach to probability. Properties of probability based on axiomatic approach, conditional probability, Bayes’ theorem and its applications (concepts and simple applications).

Random Variables: Definition of discrete random variables, probability mass function, continuous random variable, probability density function, illustrations of random variables and their properties, distribution function and its properties, expectation of a random variable and its properties – moments, (only definition), moment generating function. Two dimensional random variables- joint, marginal and conditional distributions . Distribution of random variables.
Unit-II

Collection of Data: Primary data – designing a questionnaire and a schedule. Secondary data- its major sources including some government publications. Concept of a Statistical Population and samples from a population; qualitative and quantitative data; discrete and continuous data.

Presentation of Data: Diagrammatic representations of data, frequency distribution, graphical representation, histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display, Box and whisker plot.

Analysis of Quantitative Data: univariate data concepts of central tendency, dispersion and relative dispersion, skewness and kurtosis and their measures including those based on quartiles and moments. Sheppard’s correction for moments (without derivation).

Suggested Readings


Additional Readings


Paper-102: PRACTICAL (SEMESTER-I)

Maximum Marks : 25
Time Allowed : 3 Hours

(Viva voce: 5 marks; record of the semester; 5 marks; Annual Paper: 15 marks)

Note: The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.

Viva voce and record of the year will carry 5 marks each.

1. Presentation of data by Frequency tables
2. Diagrams: Bar, Multiple Bar, Stacked Bar, Line and Pie
3. Graphs: histogram, frequency polygon, frequency curves and ogives, stem-and-leaf-display
4. Measures of central tendency
5. Measures of dispersion
6. Measures of Skewness
7. Box and Whisker Plot
STATISTICS

SEMESTER-II

Note: 1. A candidate shall offer this subject in B.A./B.Sc. only if he/she takes up Mathematics as a subject in B.A./B.Sc.
2. There are two papers code named papers 103 and 104 in the subject of Statistics in B.A./B.Sc. 2nd semester. These are to be taught simultaneously throughout the semester.
3. 8 lectures (45 minutes each) for theory per week and 4 lectures (45 minutes each) for practical per week amounting in all to 12 lectures per week for two papers (one theory and one practical) shall be allotted for the teaching.

Paper - 103: PROBABILITY THEORY and DESCRIPTIVE STATISTICS-II

Maximum Marks : 75
Theory : 65
Internal Assessment : 10
Time allowed : 3 hours

Objective: This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions.
The objective of the course is to make the students conversant with various techniques used in analysis of data.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculator is allowed.
3. Statistical tables and log tables will be provided on request.

Unit-I

Standard Univariate Distributions and their Properties: Discrete uniform, Binominal, Poisson, Hyper geometric, Geometric and negative binomial distributions, uniform, normal, exponential, gamma, beta distributions.

Bivariate normal distribution and associated marginal and conditional probability distributions (without derivation).

Chebyshev’s inequality and its applications, statements and applications of weak law of large numbers, and Central Limit Theorems (De-moivre’s – Laplace and Lindeberg -Levy).

Unit-II

Bivariate Data: scatter diagram, product moment correlation coefficient, properties and coefficient of determination. Spearman’s rank correlation coefficient. Simple linear regression and its properties, principle of least square, fitting of linear regression and related results.
Multivariate Data: multiple and partial correlation in three variables. (only results no derivations).

Analysis of Categorical Data (using 2x2 contingency table): consistency of categorical data independence and association of attributes. Various measures of association:-Yule coefficient, coefficient of colligation & coefficient $V_{AB}$.

References:


Additional References:


**Paper - 104: PRACTICAL (Semester-II)**

Maximum Marks: 25
Time allowed : 3 hours

(Viva voce: 5 marks; record of the semester; 5 marks; Annual Paper: 15 marks)

**Note:** The Practical Question Paper will contain five questions from the following topics. A student will be required to attempt three questions, each of 5 marks, in three hours duration.

Viva voce and record of the year will carry 5 marks each.

1. Product Moment Correlation.
2. Spearman’s rank correlation
3. Linear Regression of two variables.
4. Fitting of Curves (reducible to linear form) by the least square method.
5. Multiple and Partial correlations
6. Fitting of Binomial, Poisson and Normal distributions

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APPLIED STATISTICS

SEMESTER - I

Note:  1. This course shall not be opted for along with courses in B.A. /B.Sc Mathematics and/or B.A. / B.Sc. Statistics.
2. The candidate opting for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
3. There is one paper with code 101AS in B.A. /B.Sc. Semester-I having a total of 100 marks.
4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching.

Paper- 101AS: MATHEMATICAL METHODS – I

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: The objective of the course is to provide knowledge of the basic concepts in Calculus, Trigonometry, Algebra and Geometry.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.

2. Simple non-programmable calculator is allowed.

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

UNIT-I (CALCULUS AND TRIGONOMETRY)

Limits and continuity of functions, derivatives and their geometrical interpretations. Applications of derivatives to maxima and minima, exponential and logarithmic functions, integrals of functions of one variable, geometrical interpretation of integral as area, integration of standard functions, integration by substitution and parts.

Trigonometry: Definition of an angle, its various measures and relations between them, graphs circular functions.

UNIT-III (ALGEBRA AND GEOMETRY)

The solution of linear and quadratic equations in one variable, arithmetic, geometric and harmonic progressions, permutations and combinations, principle of induction, Binomial theorem for positive integral index.

Elementary Analytical Geometry: Equations of straight line, parabola, and hyperbola.
Books Recommended

1. Allen, R.G.D (2006) : Mathematical Analysis for Economists, Chapter-II (Units 2.1, 2.2, 2.8), Chapter-III (Units 3.1, 3.6), Chapter – IV (Units 4.1, 4.7), Chapter VI (Units 6.1 – 6.8), Chapter VII, Chapter VIII (Unit 8.2), Chapter IX (Units 9.1 – 9.4), Macmillan Delhi.


Additional references:

APPLIED STATISTICS

SEMESTER – II

Note:
1. This course shall not be opted for along with courses in B.A. /B.Sc Mathematics and/ or B.A. / B.Sc. Statistics.
2. The candidate opted for this course will not be eligible for admission to M.A./ M.Sc. Statistics.
3. There is one paper with code 102AS in B.A./B.Sc. Semester-II having a total of 100 marks.
4. 9 Lectures of 45 minutes each per week shall be allotted for the teaching.

Paper- 102AS: PROBABILITY

Maximum Marks : 100
Theory : 90
Internal Assessment : 10
Time allowed : 3 hours

Objective: This course will lay the foundation to probability theory of outcomes of real life random experiments through various Statistical distributions.

Notes:
1. There will be in all nine (9) questions, all of equal marks. The first question is compulsory and will be of short answer type covering the entire syllabus. Out of the remaining eight (8) questions, four (4) questions will be set from each Unit. The candidate will be required to attempt five questions in all including the compulsory first question and two questions from each Unit.
2. Simple non-programmable calculators are allowed.
3. Statistical tables and log tables will be provided on request.

UNIT-I

Random experiments, sample space, events probability, Finite sample spaces, equally likely outcomes, conditional probability, Bayes theorem, independent events, random variables, discrete and continuous probability density functions.

UNIT –II

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

Books Prescribed


Additional References:

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

PHYSICS

B.Sc. (GENERAL) FIRST YEAR (1st and 2nd Semester) EXAMINATION, 2019-20

General Instructions for teachers, students and paper setters:

1. There will be three papers of theory and one laboratory (practical course). Each of the theory papers is allocated 25 marks including 3 (three) marks for the Internal assessment. The Practical examination is of 50 marks including 5 (Five) marks for the Internal assessment and will be held along with the second semester examination.

2. The number of lectures per week will be three for each theory paper and six for practicals.

3. The examination time for each theory paper as well as practical paper will be three hours.

4. Each theory paper will consist of seven questions comprising of three sections. First two sections will comprise of three questions from each of Units I and II of syllabus, and the third section will comprise of one compulsory question of ten short answer type parts covering whole syllabus. The question paper will be set for 44 marks - All the questions in first and second sections will carry 9 (nine) marks each and the compulsory question will carry 8 marks. Student will attempt two questions from each of the first two sections and any eight parts of the compulsory question. After evaluation of the answer books out of 44 marks, the marks will be given out of 22 marks.

5. The numerical problems/exercises in the question paper should be 25-30%.

6. Student will attempt two questions from each Unit (I-II) and any six parts of question seven.

7. The use of Non-programmable calculators will be allowed (paper setter should explicitly mention this in the question paper) in the examination centre but these will not be provided by the University/College. Mobile phones and pagers are not allowed in the examination hall.

Papers, marks and teaching hours allocation:

| Paper A :       | Mechanics | Total Teaching hrs. 30 |
| Paper B :   | Vibrations, Waves and EM Theory | Total Teaching hrs. 30 |
| Paper C : | Electricity and Magnetism | Total Teaching hrs. 30 |
| Physics Practicals | | Total Teaching hrs. 45 |

* marks allotted for internal assessment.
PHYSICS
SEMESTER – I

Paper A: MECHANICS-I (30 Hrs.)

UNIT-I
Cartesian and spherical polar co-ordinate systems, Two- and three-dimensional coordinate systems, area, volume, displacement, velocity, and acceleration in these systems, solid angle.
Centre of mass, linear momentum, angular momentum, torque, potential energy and kinetic energy of a system of particles.
Relationship of conservation laws of linear momentum, angular momentum and energy, and symmetries of space and time.

UNIT-II
Various forces in nature, relative strengths and spatial dependence,
Motion under force obeying inverse square law, equivalent one body problem.
Motion under central forces, equation of motion under central force, equation of orbit and turning points, Kepler’s Laws.
Elastic collision in Lab. and C.M. systems, relationships of velocities, angles, and kinetic energies in these two systems, cross section of elastic scattering, Rutherford scattering.

Books Suggested:

Essential Readings:

Further Readings:
1. An Introduction to Machines, Daniel Kleppner & Robert J. Kolenkow (TMH).

Paper B: VIBRATIONS, WAVES & E.M. THEORY-I (30 Hrs.)

UNIT-I
Simple harmonic motion, energy of a SHM, Compound Pendulum, Torsional Pendulum, Electrical Oscillations, Transverse Vibrations of a mass on a string, composition of two perpendicular SHM of same period and of period in ratio 1: 2. Decay of free vibrations due to damping, differential equation of motion, types of damping, determination of damping co-efficient; Logarithmic decrement, relaxation time and Q- Factor. Electromagnetic damping (Electrical oscillator).

UNIT-II
Differential equation for forced mechanical and electrical oscillators, Transient and steady state behaviour.
Displacement and velocity variation with driving force frequency, variation of phase with frequency, resonance. Power supplied to an oscillator and its variation with frequency. Q-value and band width.
Q-value as an amplification factor. Stiffness, coupled oscillators, Normal co-ordinates and normal modes of vibration, Inductance coupling of electrical oscillators.
Books Suggested :

Essential Readings :
1. *Text Book of Vibrations and Waves* by S.P. Puri (Macmillan India Ltd.).

Further Readings :

Paper–C : ELECTRICITY AND MAGNETISM-I

(30 Hrs.)

UNIT-I

Basic ideas of Vector Calculus, Gradient, Divergence, curl in Cartesian coordinates and their useful relations, physical significance and applications. Conservative field, Greens’s theorem in a plane, Laplacian in Rectangular coordinates. Stoke’s theorem, Gauss’s divergence theorem, Coulomb’s Law for point charges and continuous distribution of charges, electric field due to dipole, line charge, charged ring, circular disc and sheet of charge, Gauss’s Law and its differential form.

UNIT–II

Work and potential difference, Potential difference as line integral of field, Electric potential due to dipole and quadrupole and its applications in Electrostatic field, Electric field as gradient of scalar potential, curl $\mathbf{E} = 0$. Calculation of $\mathbf{E}$ due to a point charge and dipole from potential. Poisson and Laplace’s equation, Concept of electrical images. Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet.

Polarisation of matter, atomic and molecular dipoles, induced dipole moment and atomic polarizability. Electric susceptibility and polarization vector. Relation $K= 1 + \chi$, Gauss’s law for dielectrics. Displacement vector, Div. $\mathbf{D} = 0$, Energy stored in dielectric medium.

Books Suggested :

Essential Readings :
4. *Introduction to Classical Electrodynamics* by David Griffith, Prentice Hall.

Further Readings :
PHYSICS PRACTICALS

The activities given in the section “Analysis of Experimental Data” are compulsory for all the students in the First semester.

The students are required to perform all the Nine experiments from each of the Units I and Unit II. The Practical examination will be held along with the second semester examinations.

The aim of project work is to develop the scientific and technical temper in the students and as such it may consist of development of a laboratory experiment, fabrication of a device or electronic circuit etc. The student will prepare a project report of about 10 pages. Assessment of the project work will be done on the basis of effort put in the execution of the project, report prepared, and viva-voce.

General Guidelines for Physics Practical Examinations:

Total: 50 marks

1. The distribution of marks is as follows:
   (i) One full experiment out of section–A requiring the student to take some data, analyse it and draw conclusions. (Candidates are expected to state their results with limits of error).
   (ii) One exercise based on experiment or Computer Programming from the Unit assigned to the student for the semester
   (iii) Viva-Voce and Record (Practical file)
   (iv) Project
   (v) Internal Assessment

   Note for Examiners:

   2. The marks scored under each head must be clearly written on the answer sheet.
   3. There will be one session of 3 hours duration. The paper will have two sections. Section-A will consist of 4 experiments from each of Unit I and Unit II, out of which an examinee will mark 3 experiments from either of units and one of these is to be allotted by the external examiner.
   4. Section–B will consist of exercises which will be set by the external examiner on the spot. The length of the exercises should be such that any of these could be completed in one hour.
   5. The examiner should take care that the experiment allotted to an examinee from section–A and exercise allotted from section–B are not directly related to each other.
   6. Number of candidates in a group for practical examination should not exceed 12.
   7. In a single group, no experiment to be allotted to more than three examinees in the group.

Analysis of Experimental Data (Compulsory for all students in first semester):

Objectives:

(i) Knowledge of propagation of errors.
(ii) Knowledge of significant figures, Determination of standard deviation and probable error and their use in interpretation of the experimental result.
(iii) Familiarity with the method of least square fitting of experimental data to a curve.
LIST OF EXPERIMENTS:

MECHANICS

UNIT-I

I. Measurements:

Objectives:
(i) Measurements of time, length, thickness and curvature, pressure, humidity
(ii) Concepts of least count, horizontal, vertical and angular alignments

Activities:
(i) To measure internal/external diameter of a hollow cylinder using Vernier calipers
(ii) To measure thickness of wire
(iii) To measure curvature of a lens
(iv) To measure pressure using Barometer
(v) To measure humidity using dry and wet thermometer

II. Rotation:

Objectives:
(i) Study of rotational motion.
(ii) Establishing relationship between different quantities.

Activities:
(i) To study the dependence of moment of inertia on distribution of mass (by noting time periods of oscillations using objects of various geometrical shapes but of same mass).
(ii) To establish relationship between torque and angular acceleration using fly wheel.

III. One-Dimensional Collisions:

Objectives:
(i) Conservation of linear momentum and kinetic energy in elastic collisions.
(ii) Dependence of fraction of kinetic energy transferred on the masses of colliding bodies.
(iii) Idea of coefficient of restitution.

Activities:
To determine energy transfer, coefficient of restitution and verify laws of conservation of linear momentum and kinetic energy in elastic collisions using one dimensional collisions of hanging spheres.

IV. Compound Pendulum:

Objectives:
(i) Idea of equivalent simple pendulum.
(ii) Concepts of centre of suspension and oscillation.
(iii) Dependence of time period on moment of inertia.
(iv) Radius of gyration.
(v) Determination of g.

Activities:
(i) Measure time period as a function of distance of centre of suspension (oscillation) from centre of mass, plot relevant graphs, determine radius of gyration and acceleration due to gravity.
(ii) Find the value of g by Katers' or Bar pendulum.
V. Torsion Pendulum:

Objectives:

(i) Idea of torsional vibration, dependence of time period on M.O.I. and restoring torque.
(ii) Modulus of rigidity.

Activity:

Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.

VI. Damped Oscillator:

Objectives:

(i) Study damped oscillations.
(ii) Coefficient of damping, quality factor etc.

Activities:

To measure/obtain logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

VII. Elasticity:

Objective:

Knowledge of elastic constants and related quantities.

Activities:

(i) Study of bending of beams and determination of Young’s Modulus.
(ii) Determination of Poisson’s ratio for rubber/plastic.

VIII. Standing waves:

Objective:

Standing waves on a string and in air.

Activities:

(i) Melde’s experiment.
(ii) Kundt’s tube.

IX. Viscosity:

Objective:

Knowledge of viscosity of liquids.

Activity:

Determination of coefficient of viscosity of a given liquid by Stoke's method and study its temperature dependence.

Computer based activities: Elementary C language programs, flowcharts and their interpretation.
1. To print out all natural even/odd numbers from a given series of natural numbers.
3. To calculate first ten prime numbers.

UNIT-II

ELECTRICITY AND MAGNETISM

I. Objective:
   Measurement of resistance, voltage, current and electric energy.

Activities:
(i) To use a multimeter for measuring AC and DC voltage and resistance.
(ii) Measurement of resistance of LDR - To study inverse-square law (concept of solid angle and inverse square law) using linear LDR and light source.
(iii) Observations and measurements using an Electric energy meter. To find wattage of given bulb or heater.
(iv) To study the efficiency of an electric kettle or heater element with varying input voltage.

II. Low Resistance Measurements:

Objectives:
(i) Inadequacy of Wheatstone bridge to measure low resistances.
(ii) Acquaintance with a method of measuring low resistances.

Activity:
To determine low resistance with Carey Fosters Bridge.

III. Magnetic Field:

Objectives:
(i) Familiarity with the magnetic field produced by a solenoid.
(ii) Dependence of solenoidal field on number of turns and current.
(iii) Permeability of air.

Activities:
To study the magnetic field produced by a current carrying solenoid using a search coil and calculate permeability of air.

IV. Electromagnetic Induction:

Objective:
Verification of laws of electromagnetic induction.

Activity:
To study the induced e.m.f. as function of the velocity of the magnet.
V. Magnetism and current:
   Objectives and Activities:
   Force on a conductor carrying current in a magnetic field.

VI. LCR Circuits:
   Objective:
   Study of phase relationship between currents and voltages in ac circuits.
   Activity:
   Study of phase relationships using impedance triangle for LCR circuit and calculate impedance.

VII. Resonant Circuits:
   Objective:
   Concepts of resonance and Q-value.
   Activities:
   (i) Resonance in a series LCR circuits for different R-value and calculate Q-value.
   (ii) Resonance in a parallel LCR circuits for different R-value and calculate Q-value.
   (iii) To determine the dielectric constant of a solid by resonance method.

VIII. Capacitance:
   Objectives:
   (i) Measurement of capacitance, dielectric constant.
   (ii) Concept of time constant and time base circuit.
   (iii) Knowledge of a-c Bridges.
   Activities:
   (i) Capacitance by flashing and quenching of a neon lamp.
   (ii) Measurement of capacitance, determination of permittivity of a medium, air and relative permittivity by De-Sauty’s bridge.

IX. Self Inductance:
   Objectives:
   (i) Knowledge of a-c bridges.
   (ii) Concept of self-inductance.
   Activities:
   (i) To determine L using Anderson Bridge.
Computer based activities: Elementary C language programs, flowchart and their interpretation.

1. To rearrange a list of numbers in ascending and descending orders.
2. To compile a frequency distribution and evaluate moments such as mean; standard deviation etc.
3. To evaluate sum of finite series and the area under a curve.

Texts and Reference Books:

3. “Programming with C, Schaum series” by Byron Gottfried & Jitender Chhabra
PHYSICS

SEMESTER–II

Paper A : MECHANICS – II

UNIT-I

Rigid Body motion; Rotational motion, principal moments and Axes, Euler’s equations, precession and elementary gyroscope.

Galilean transformations and Invariance, Transformation equations for inertial frames inclined to each other, Non-Inertial frames. Fictitious forces in a rotating frames of reference, Centrifugal and Coriolis forces due to rotation of earth, Foucault’s pendulum.

Concept of stationery universal frame of reference and ether, Michelson-Morley experiment and its results.

UNIT-II

Postulates of special theory of relativity, Lorentz transformations, Kinematical consequences of Lorentz transformations – length contraction and time dilation, Twin paradox, Transformation of velocities, Simultaneity of relativity, Velocity of light in moving fluid, Relativistic Doppler effect.

Variation of mass with velocity, mass-energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Minkowski space, four vector formulation.

Books Suggested :

Essential Readings :


Further Readings :

1. Mechanics & Relativity (3rd Edition), Vidwan Singh Soni (PHI Learning, New Delhi, 2013)
4. Basic Concepts of Relativity, R.H. Good (East-West Press, New Delhi, 1974).

Paper B: VIBRATIONS, WAVES & E.M. THEORY-II

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 \( J = \sigma \mathbf{E} \) and conductivity. Failure of Ohm’s Law. Invariance of charge. \( \mathbf{E} \) in different frames of reference. Field of a point charge moving with constant velocity. Force between parallel currents.
Behaviour of various substances in magnetic field. Definition of \( M \) and \( H \) and their relation to free and bound currents. Permeability and susceptibility and their interrelationship. \( B-H \) curve and energy loss in hysteresis, Langevin theory of diamagnetism.

UNIT-II
Lorentz’s force. Definition of \( \mathbf{B} \), Biot Savart’s Law and its application to long straight wire, circular current loop and solenoid. Ampere’s Circuital law and its application. Divergence and curl of \( \mathbf{B} \). Hall effect, expression and co-efficient. Vector potential, Definition and derivation, current density— definition, its use in calculation of change in magnetic field at a current sheet. Energy stored in magnetic field, Faraday’s Law of EM induction, Displacement current, Mutual inductance and reciprocity theorem. Self inductance for solenoid.
Books Suggested:

Essential Readings:

4. *Introduction to Classical Electrodynamics* by David Griffith, Prentice Hall.

Further Readings:


PHYSICS PRACTICALS

The Practical examination will be held along with the second semester examinations. General Guidelines for Physics Practical Examinations and syllabus is given in syllabus for Semester I.
## CHEMISTRY
### SEMESTER – I

#### Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Inorganic Chemistry-A</td>
<td>30</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>
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<tr>
<td>IV</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>6 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15 periods/week</td>
<td>100</td>
</tr>
</tbody>
</table>

Paper 1 – INORGANIC CHEMISTRY-A
- Time: 3 Hrs.
- Max. Marks: 22+3
- 30 Hrs. (2 Hrs/week)
- 3 Periods/week

### OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

### UNIT-I

#### 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

#### 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

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

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⁻, SnCl₆²⁻. Valence shell electron pair repulsion (VSEPR) theory to NH₃, H₂O⁺, SF₄, ClF₃, ICl₂ and H₂O. MO theory, homonuclear (elements and ions of 1st and 2nd row), and heteronuclear (BO, CN, CO², NO⁺, CO, CN⁻), diatomic molecules. Percentage ionic character from dipole moment and electronegativity difference.

Instructions for paper setters and candidates:

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

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.

Books suggested

Paper-II: ORGANIC CHEMISTRY-A

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)
Structure and Bonding:
Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, Van der Waals interactions, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding.

Mechanism of Organic Reactions:
Curved arrow notation, drawing electron movements with arrows, half-headed and double-headed arrows, homolytic and heterolytic bond breaking. Types of reagents-electrophiles and nucleophiles. Types of organic reactions. Energy considerations.

Reactive intermediates-Carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species.

Methods of determination of reaction mechanism (product analysis, intermediates, isotope effects, kinetic and stereochemical studies).

UNIT –II (7 Hrs.)
Alkanes and Cycloalkanes:
Isomerism in alkanes, sources, methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids), physical properties and chemical reactions of alkanes
Mechanism of free radical halogenation of alkanes: Orientation, reactivity and selectivity. Cycloalkanes – nomenclature, methods of formation, chemical reactions, Baeyer’s strain theory and its limitation. Ring strain in small rings (cyclopropane and cyclobutane), theory of strainless rings. The case of cyclopropane ring: banana bonds

UNIT-III (8 Hrs.)
Stereochemistry of Organic Compounds I:
Concept of isomerism, Types of isomerism.
Optical isomerism – Elements of symmetry, molecular chirality, enantiomers, stereogenic center, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centers, diastereomers, 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.


Difference between configuration and conformation.

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

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 whole syllabi.*

ii.  *The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.*

iii.  *Compulsory question carries six marks and remaining all questions carry four marks each.*

**Books suggested**

Paper-IV: LABORATORY PRACTICALS

INORGANIC CHEMISTRY

(a) QUALITATIVE ANALYSIS:
Semimicro Analysis, cation analysis, separation and identification of ions from groups I, II, III, IV, V and VI. Anion analysis (4 ions).
Instruction to Examiners: Four ions with no interference (anions such as $\text{PO}_4^{3-}$, $\text{BO}_3^{3-}$ and similar anions like Cl, Br, I etc. and cattons from the same group) may not be given.

(b) QUANTITATIVE ANALYSIS:
Volumetric titrations involving acid-base, $\text{KMnO}_4$ and $\text{K}_2\text{Cr}_2\text{O}_7$.
There are three experiments - one involving acid-base titrations, one involving $\text{KMnO}_4$ and one involving $\text{K}_2\text{Cr}_2\text{O}_7$.

1. Determination of strength of $\text{Na}_2\text{Co}_3$ solution by titrating it against a standard solution of HCl.
2. Determination of molarity of $\text{KMnO}_4$ solution by titrating it against a standard solution of Oxalic acid.
3. Standardise the given $\text{K}_2\text{Cr}_2\text{O}_7$ solution by titrating it against a standard solution of Mohr’s Salt.

General Instruction to the Examiners:
Note: Practical examination will be of four hours duration & shall consist of the following questions:

Q.No. I. Qualitative Analysis : 10 marks
Q.No. II. Quantitative Analysis : 06 marks
Q.No. III. Viva-Voce :03 marks
Ask three questions (1 marks each) related to chemistry practicals. :03 marks
Q.No. IV. Note Book

Books Suggested (Laboratory Courses)

CHEMISTRY
SEMESTER –II

Scheme of Teaching and Examination

<table>
<thead>
<tr>
<th>Paper</th>
<th>Course</th>
<th>Teaching Hrs.</th>
<th>Max. Marks</th>
</tr>
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<tbody>
<tr>
<td>V</td>
<td>Inorganic Chemistry-B</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>VI</td>
<td>Organic Chemistry-B</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>VII</td>
<td>Physical Chemistry-B</td>
<td>30</td>
<td>3 periods per week 22 + 3 internal assessment</td>
</tr>
<tr>
<td>VIII</td>
<td>Laboratory Practicals</td>
<td>6</td>
<td>22 + 3 internal assessment</td>
</tr>
</tbody>
</table>

Total: 15 periods/week 100
Paper V – INORGANIC CHEMISTRY –B

Time: 3 Hrs.
Max. Marks: 22+3
30 Hrs. (2 Hrs/week)
3 Periods/week

OBJECTIVE OF THE COURSE
To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

UNIT-I (7 Hrs.)
Chemical Bonding-II
Ionic Solids – Concept of close packing., Ionic structures, (NaCl type, Zinc blende, Wurtzite, CaF$\text{_2}$ and antifluorite), radius ratio rule and coordination number, limitation of radius ratio rule, lattice defects, semiconductors.

UNIT-II (8 Hrs.)
Chemical Bonding-III
Lattice energy and Born-Haber cycle, solvation energy and solubility of ionic solids, polarizing power and polarisability of ions, Fajan’s rule. Metallic bond-free electron, valence bond and band theories. Weak Interactions – Hydrogen bonding, Van der Waals forces.

UNIT-III (7 Hrs.)
p-Block Elements-I
Comparative study (including diagonal relationship) of groups 13-14 elements, compounds like hydrides, oxides, oxyacids and halides of groups 13-14, hydrides of boron-diborane and higher boranes, borazine, borohydrides, fullerenes, carbides, fluorocarbons.

UNIT-IV (8 Hrs.)
p-Block Elements-II
Comparative study of groups 15-17 elements, compounds like hydrides, oxides, oxyacids and halides of groups 15-17, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

Instructions for paper setters and candidates:
i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. Compulsory question carries six marks and remaining all questions carry four marks each.
Books suggested

Paper-VI: ORGANIC CHEMISTRY-B

**OBJECTIVE OF THE COURSE**

To teach the fundamental concepts of Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

**UNIT-I** (8 Hrs.)

**Alkenes, Cycloalkenes**

Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydration. The Saytzeff’s Rule, Hofmann elimination, physical properties and relative stabilities of alkenes.


**UNIT-II** (7 Hrs.)

**Dienes and Alkynes**

Methods of formation, conformation and chemical reactions of cycloalkenes. Nomenclature and classification of dienes: Isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization. Chemical reactions – 1,2 and 1,4 additions, Diels-Alder reaction.


**UNIT-III** (8 Hrs.)

**Arenes and Aromaticity:**


Aromaticity: The Huckel rule, aromatic ions.

UNIT-IV  
(7 Hrs.)

Alkyl and Aryl Halides

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms of nucleophilic substitution reactions of alkyl halides, $S_N2$ and $S_N1$ reactions with energy profile diagrams. Polyhalogen compounds: chloroform, carbon tetrachloride.

Methods of formation of aryl halides, nuclear and side chain reactions. The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative relativity of alkyl halides vs. allyl, vinyl and aryl halides.

Instructions for paper setters and candidates:

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

ii. **The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.**

iii. **Compulsory question carries six marks and remaining all questions carry four marks each.**

Books suggested

OBJECTIVE OF THE COURSE

To teach the fundamental concepts of Physical Chemistry and their applications. The syllabus pertaining to B.Sc. (GENERAL) (Semester System) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance may be given to requisite intellectual and laboratory skills.

UNIT-I (8 Hrs.)
Thermodynamics-I:
Definition of Thermodynamic Terms: System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.


UNIT-II (7 Hrs.)
Thermochemistry:

UNIT-III (7 Hrs.)
Colloidal State:

UNIT-IV (8 Hrs.)
Solutions, Dilute Solutions and Colligative Properties:
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 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


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**Paper-VIII: LABORATORY PRACTICALS**

Max. Marks: 22+3

6 Periods/week

**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)**


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# BOTANY

## SEMESTER-I

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int</th>
<th>Max</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper- A</td>
<td>Plant Diversity-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>Theory Paper-B</td>
<td>Cell Biology</td>
<td>3 hrs.</td>
<td>36</td>
<td>04</td>
<td>40</td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td></td>
<td>3 hrs.</td>
<td>18</td>
<td>02</td>
<td>20</td>
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</table>

| Second Semester | | | |
|-----------------|-------------------|
| Theory Paper –A | Plant Diversity-II | 3hrs | 36 | 04 | 40 |
| Theory Paper-B | Genetics | 3hrs | 36 | 04 | 40 |
| One practical pertaining to entire syllabus included in both theory papers | | 3hrs. | 18 | 02 | 20 |

Total | 200 |

**Note:**
1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.
2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each Unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.

**Paper-A: PLANT DIVERSITY-I**

**Objective:** The basic objective of this paper is to make students aware about the diversity in various life forms of plant kingdom. It gives an idea about the most simple group of plants. A systematic study of algae and fungi included in this group would familiarize students not only with structural differentiation but also provide an insight about the heterotrophic and autotrophic modes of nutrition in the plant kingdom. This paper in fact forms the basis of any advance study in Botany.

**Teaching Methodology:** Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.
UNIT – I

Bacteria: Salient features, types and cell structure.

Algae: General Characters; systematic position, structure and life history of *Oscillatoria* (Cyanophyceae) *Volvox, Cladophora* (Chlorophyceae); *Vaucheria* (Xanthophyceae).

UNIT-II

Systematic position, structure and life history of *Dictyota* (Phaeophyceae); *Batrachospermum* (Rhodophyceae) and economic importance of algae.

UNIT-III

Fungi: General characters; systematic position, structure and life history of *Albugo* (White rust of crucifers: *Albugo candida*), *Rhizopus* and *Saccharomyces*.

UNIT-IV

Systematic position, structure and life history of *Agaricus, Ustilago* (Loose smut of wheat: *Ustilago tritici*), *Puccinia* (Black rust of wheat: *Puccinia graminis tritici*), *Colletotrichum* (Red rot of sugarcane: *Colletotrichum falcatum*); general account of Lichens and their economic importance.

Suggested Readings :

Paper-B: Cell Biology

Objective: This paper deals with the basic structural unit of life i.e. Cell & its organelles. It provides an insight into structural and cytological basis of functional differentiation in plants. Coupled with the study of prokaryotic and eukaryotic diversity of life forms included in Paper-A, the course material of this paper gives an idea about cellular, molecular and biochemical basis of such differentiation.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT – I

Ultrastructure and functions of a typical plant cell and its organelles: Nucleus, Mitochondrion, Plastids, Ribosome, Endoplasmic reticulum, Golgi apparatus, Lysosomes; Structure and functions of cell wall and plasma membrane: fluid mosaic model only.

UNIT-II

Physical structure of chromosome; Giant chromosomes: Polytenic 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>Max. Marks</th>
<th>Practical</th>
<th>Internal Assessment</th>
<th>Time</th>
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<tr>
<td>20</td>
<td>18</td>
<td>02</td>
<td>3 hrs</td>
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1. Identify and write illustrated morphological note on specimens A and B. 05
2. Prepare a squash mount of specimen C to show the stage of cell division visible in the slide and show it to the examiner. Identify it giving at least one reason. Draw the stage of cell division and show it to the examiner. 05
3. Identify and the slides D and E giving at least two reasons for each. 04

1. Practical Note-book 02
2. Viva-voce 02

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B. A./B.Sc. (General) First Year (Semester System) Syllabus

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)
   - *Riccia* (V.S. Thallus)
   - *Anthoceros* (V.S. Thallus)
   - *Equisetum* (T.S. Aerial stem passing through internode)
   - *Funaria* (T.S. Stem)
   - *Selaginella* (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:

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<th>Time</th>
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<td></td>
<td>20</td>
<td>18</td>
<td>02</td>
<td>3 hrs</td>
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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. 06

2. Problem related to Mendalism or gene interaction (to be announced by the examiner). 04

3. Identify the slides B and C giving at least two reasons for each. 04

4. Viva-voce & Practical Note-book. 2+2= 04
ZOOLOGY

FIRST SEMESTER

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<th>Time</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
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<tbody>
<tr>
<td>Paper-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
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<tr>
<td>Paper-II</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Practical</td>
<td>4 hrs.</td>
<td>18</td>
<td>2</td>
<td>20</td>
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Total marks: 100

SECOND SEMESTER

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<th>Time</th>
<th>Theory</th>
<th>Internal Assessment</th>
<th>Marks</th>
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<tbody>
<tr>
<td>Paper-I</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Paper-II</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Practical</td>
<td>4 hrs.</td>
<td>18</td>
<td>2</td>
<td>20</td>
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Total marks: 100

Note: The number of hours for Theory and Practical per week shall be 6 and 4 hours, respectively.

OBJECTIVES OF THE COURSE

The syllabus pertaining to B.Sc. (General) Semester-I and Semester-II in the subject of Zoology has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Zoology working in the Panjab University, Chandigarh and affiliated colleges.

The syllabus contents are duly arranged section wise as well as unit wise. The contents are included in such manner so that due importance may be given to skill oriented components.

The course contents are also given due stress for excursion/field trips to Zoological Parks, Sea-shores, Hill Stations, Museum, Fossil Park and Apiary/godowns for better academic outlook. The Department of Zoology, P.U., Chandigarh usually organizes workshop/seminars from time to time for updating the teachers.
ZOOLOGY
FIRST SEMESTER

PAPER–I : BIODIVERSITY & CELL BIOLOGY-I (ZOO. 01)

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, Veleda, 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 : Phereetima

Classification upto orders with brief ecological note and economic importance (if any) of the following:
Annelida : Nereis, Polynoe, Eunice, Arenicola, Aphrodite, Amphitrite, Chaetopterus, Tubifex and Pontobdella.

UNIT – III

Lysosomes : Lysosomal enzymes, Polymorphism and functions.
Ribosomes : Types of ribosomes, their structure and functions.
Centrosome : Structure and functions.

UNIT-IV

Nucleus : Structure and functions of nuclear membrane, nucleolus and chromosomes. Euchromatin & Heterochromatin
An elementary idea of cell transformation in Cancer : Introduction, difference between normal and Cancer cells, types of cancer, basic idea of transformation.
An elementary idea of cellular basis of immunity : Cellular & Humoral immunity. Elementary idea of cells & organs of immune system.
Books Recommended:


PRACTICALS : Practical based on Theory Papers ZOO-101 & ZOO-102 (ZOO-151)

1. Examination of cultures of *Euglena* and *Paramecium*.
2. Classification upto orders with ecological notes and economic importance, if any, of the following animals:
   - Slides: *Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramoecium* (Binary fission and conjugation), *Opalina, Vorticella, Balantidium, Nyctotherus & Polystomella*.
   - *Parazoa (Porifera)*: Specimens: *Sycon, Grantia, Euplectella, Hyalonema, Spongilla, Euspongia*.
   - *Cnidaria (Coelenterata)*
     - Specimens: *Porpita, Velella, Physalia, Aurelia, Rhizostoma Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia and Astrapogia*.
   - *Aschelminthes* : *Ascaris* (male and female), *Trichinella, Ancylostoma*.
   - *Platyhelminthes*
     - Specimens: *Dugesia, Fasciola, Taenia, Echinococcus*.
     - Slides: *Miracidium, Sporocyst, Redia, Cercaria of Fasciola, Scolex and Proglottids of Taenia (mature and gravid)*.


3. Study of the following permanent stained preparations:
   - L.S. and T.S. Sycon, gemmules, spicules and spongins fibres of a sponge.
   - T.S. Hydra (Testis and ovary region).
   - T.S. Pheretima (Pharyngeal and typhlosolar regions); setae, septal nephridia, spermathecae and ovary of Pheretima
   - T.S. Fasciola (Different regions).
   - T.S. Ascaris (Male & female).

4. Preparation of the following slides:
   - Temporary preparation of Paramecium, Euglena and vorticella.

5. Demonstration of dissection of earthworm through video clipping/models/charts etc.

6. Make a preparation of sex-chromatin from buccal smear.

7. Introduction to the following through photographs/lab. visits:
   - Gel electrophoresis, TEM & SEM, ultrastructure of cell organelles.

8. Study of slide of striated muscle fibre and Animal cell.

Note: Candidates will be required to submit their original note books containing record of their laboratory work (Drawing etc.) initialed and dated by their teachers at the time of practical examination.

Guidelines for the conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks
Time : 3 hours

1. Draw a labelled sketch of the any given system and show to examiner/Spot any four parts of anatomy in given models/charts. 2 marks

2. Make a temporary mount of the material “A”. Identify and draw its labelled sketch and show it to the examiner. 1 marks

3. Identify the slides (B-C) and give two important reasons for each identification. 3 marks

4. Identify and classify the specimens (D-G) up to orders. Write a short note on the habitat, special features, feeding habit and economic importance. 6 marks

5. Identify the cell organelle through photograph and give two important reasons for Identification/Buccal smear/striated muscle fibre/paper chromatography. 2 marks

6. Viva voce 2 marks

7. Practical records and chart 2 marks
ZOOLOGY
SECOND SEMESTER

Paper- I : BIODIVERSITY & ECOLOGY - I (ZOO-201)

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

Note : Nine questions are to be set. Question No.1 is compulsory consisting of short answer type Questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT –I

Detailed study of the following animal types :

Arthropoda : Periplaneata
Social organizations in insects (honey bee and termite).

Classification upto orders with brief ecological note and economic importance (if any) of the following:

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

Peripatus, Prawn, Lobster, Cancer (Crab), Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Julus
(Millipede), Scolopendra (Centipede), Palamnaeus (Scorpion), Aranea (Spider) and Limulus (King crab).
UNIT – III

Ecology : Subdivisions and Scope of ecology.

Ecosystem : Components, ecological energetics, food web, introduction to major ecosystems of the world.

Ecological factors : Temperature, light and soil as ecological factors.

UNIT – IV

Nutrients : Biogeochemical cycles & concept of limiting factors.

Ecological Adaptations : Morphological, physiological and behavioural adaptations in animals in different habitats.

Population : Characteristics and regulation of population.

Books Recommended:

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

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.

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**

   **Mollusca**

   **Echinodermata**
   - *Asterias*, *Echinus*, *Ophiothrix* 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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<td></td>
<td>18 marks</td>
<td>2 marks</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

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BIOCHEMISTRY
Semester I

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper-A: Carbohydrates and Lipids Marks: 45+5
(Three periods per week)

Objective: To learn about biomolecules, their structure and functional significance.

SECTION-I
(Lectures: 6)
Introduction to biochemistry and its scope. Water: physical properties, as a biological solvent and structure of water, dissociation of water. pH and pOH, buffer solution. Henderson Hasselbalch equation, acid-base indicators, buffers and physiologically important buffers, dialysis and osmosis.

SECTION-II
(Lectures: 8)

SECTION-III
(Lectures: 8)

SECTION-IV
(Lectures: 6)
Suggested Books:


PRACTICALS:  
Marks: 25  
One practical of 3 hours per week

1. Qualitative tests for carbohydrates,  
2. Estimation of carbohydrate by anthrone method,  
3. Estimation of ascorbic acid by dye method,  
4. Verification of Beer-Lambert law for nitrophenol or cobalt chloride,  
5. Qualitative tests for cholesterol and lipids  
6. Determination of saponification value of fats  
7. Determination of iodine value of fats.  
8. Estimation of phospholipids by vanillin method.

Paper-B: Nitrogen containing Biomolecules Marks: 45+5

SECTION–I

Amino acids: common structural features. Stereoisomerism and RS system of designating optical isomers.  
Classification based on the nature of “R” groups. Amino acids present in proteins and non-protein amino acids.  

SECTION–II


SECTION–III

Nucleic Acids: structure and properties of purine and pyrimidine bases. Nucleosides and nucleotides.  

SECTION–IV

Suggested Books:


PRACTICALS: Marks: 25
One practical of 3 hours per week

1. Qualitative tests for Amino acids and proteins
2. Titration curve for amino acids and determination of pKa value.
3. Estimation of:
   (a) Amino acids by ninhydrin method.
   (b) Protein by biuret and Lowery method
   (c) DNA by diphenylamine method
   (d) RNA by orcinol method
4. Spectrophotometric measurements of DNA and RNA solutions
BIOCHEMISTRY
Semester II

INSTRUCTIONS FOR PAPER SETTER AND STUDENTS:
1. Total No. of questions will be nine. All questions carry equal marks.
2. Q. No. 1 will be compulsory. It will consist of short questions covering the entire syllabus.
3. Besides question Number 1, there will be 4 sections of 2 questions each.
4. All other questions may contain 2-3 parts.
5. Questions should be uniformly spread over the entire syllabus.
6. Students will be required to attempt 5 questions in all including Q. No. 1 and at least one question from each of the 4 sections.

Paper- A: Biochemical Techniques
Marks: 45+5
Credit: 3+0+0
Objective: To learn various biochemical techniques

Section-I
(Lectures: 7)
Beer-Lambert’s law. Light absorption and its transmittance. Determination and application of extinction coefficient. Applications of following spectroscopic techniques in elucidating structure of Biomolecules:-visible, U.V., Infra-red and fluorescence spectroscopy

Section-II
(Lectures: 8)
Chromatography: general principles, distribution coefficient, partition chromatography-normal phase and reverse phase liquid chromatography. Modes of chromatography-column, thin layer and paper chromatography. Principles, matrices and applications of gel permeation, adsorption, ion exchange and affinity chromatography. Gas chromatography (GC) and High Performance Liquid Chromatography (HPLC).

Section-III
(Lectures: 7)

Section-IV
(Lectures: 8)

SUGGESTED BOOKS
3. Fundamentals of analytical chemistry by Skoog /West/Holter/Crouch Thompson/Brooks/Cole
PRACTICALS: Marks: 25
One practical of 3 hours per week

I. Estimation of proteins using UV absorbance and biuret method.
II. Estimation of proteins using Lowry/Bradford method.
III. Isoelectric pH of casein.
IV. Ammonium sulphate fractionation of serum proteins.
V. Separation of albumin from serum using anion-exchange chromatography.
VI. SDS-PAGE analysis of proteins.

Paper-B: Enzymes and Bioenergetics Marks: 45+5

Objective: To learn principles of thermodynamics, nature of enzymes, their mode of action and enzyme kinetics

SECTION-I (Lecture: 7)

SECTION-II (Lectures: 8)

SECTION-III (Lectures: 8)

SECTION-IV (Lectures: 8)

Books Recommended:
PRACTICALS:  

Marks: 25  
One practical of 3 hours per week

I. Preparation of casein from milk  
II. Determination of achromatic point of saliva  
III.  
   (a) Assay of serum alkaline phosphatase activity.  
   (b) Effect of pH on enzyme activity.  
   (c) Effect of temperature on enzyme activity and determination of energy of activation.  
   (d) Effect of substrate concentration on enzyme activity and determination of Km.  
IV. Inhibition of alkaline phosphatase by EDTA.  
V. Demonstration of potato polyphenoloxidase activity.

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INTRODUCTION TO COMPUTER SCIENCE
(Additional Optional Subject)

Note: The students with no background of Computer knowledge will opt for Module I while those familiar with the use of Computer system at the operating system level and application level, may opt either Module II or Module III.

Course Duration for each semester: 60 hours for Theory and 60 hours for Practical

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Paper</th>
<th>Name of Paper</th>
<th>Lecturers per week</th>
<th>Max. Marks</th>
<th>Exam Hours</th>
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<tr>
<td>1</td>
<td>A</td>
<td>Fundamentals of Information Technology</td>
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<td>2</td>
<td>C</td>
<td>Practical on Paper – A</td>
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<td>3</td>
<td>B</td>
<td>Computer Programming Using C</td>
<td>6</td>
<td>25</td>
<td>5</td>
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<td>D</td>
<td>Practical on Paper – B</td>
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SEMESTER I

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

Time : 3 Hrs.

Theory : Ext. 25 + Int. 5 = 30
Practical : Ext. 20 -- = 20

Total Periods (6 Periods/week): 60

Objective : To familiarize students with basic concepts of Computer and Information Technology, Students will get understanding of concepts related to operating systems and application softwares.

Note:

i. The Question Paper will consist of Four Units.

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

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

iv. All questions carry equal marks unless specified.

UNIT-I

1. Basics of Computers: Characteristics of computer; History of computers; classification of computers based on size, architecture, and chronology; Applications of computers; Hardware, Software, and Firmware. Types of software: System and Application software; Input, Process and Output, Block diagram of a computer.

2. Representation of information: BIT, BYTE, Memory, Memory size; RAM, ROM, PROM, EPROM, Magnetic tapes, Disks, Organization of data on disks: Tracks, sectors, cylinders, heads, access time, seek time and latency time.

ASCII and EBCDIC Codes, Binary, Octal, Decimal and Hexadecimal Number Systems and their Conversion, Integer and Floating Point Representation. Input/Output devices.
UNIT-II

3. **Disk Operating System**: Booting sequence; Warm and Cold Booting; Concept of File and directory, Types of DOS commands: Internal and External; Internal Commands: DIR, MD, CD, CLS, COPY, DATE, DEL, PATH, PROMPT, REN, RD, TIME, TYPE, VER, VOL; External Commands: XCOPY, ATTRIB, BACKUP, RESTORE, FORMAT, DISKCOPY, Introduction to CONFIG.SYS and AUTOEXEC.BAT files.

4. **Windows**: GUI, Icons, Toolbar, Control panel, Files and folder management under windows, Accessories, Network Neighborhood, System Tools, Recycle Bin

5. **LINUX**: Overview of LINUX structure, Basic Linux commands such as date, echo, cal, bc, passwd, File and Directory commands such as ls, mkdir, pwd, cd, rmdir, cat, cp, mv, rm Understanding File Access Permissions using chmod, chown, chgrp.
Comparison of main features of DOS, LINUX and Windows Operating Systems.

UNIT-III

**Editing Text**: Copy, Paste, Delete, Move etc., Finding and Replacing Text, Spell Check, Autocorrect feature, language setting and thesaurus
**Formatting**: Character, Paragraph and Page formatting, working with indents, Bulleted and numbered lists, adding Headers and Footers, setting up Multiple Columns
**Working with tables**: Inserting/creating table using toolbar and drawing, formatting table, adding/deleting rows/columns, Applying borders to tables
**Clipart**: Using clip art, Creating Word Art
**Mail merge**: Creating merged envelopes, creating merged mailing labels

UNIT-IV

7. **Spreadsheet Software**: Worksheet overview: Row, Column, Cells, Menus, creating, opening, saving, and printing worksheet; working with Range
**Editing information**: Entering text, numbers and formulae, AutoSum, AutoFill, spell checking
**Working with Functions**: Statistical, Mathematical and String functions, date and Time functions, Trigonometric functions
**Working with charts**: Line graphs, Pie charts, Bar graphs, adding Titles, Legends etc. to charts, Printing Charts

8. **Presentation Software**: Basic features, selecting design templates, creating, saving and printing a simple presentation, various views, Adding pictures, shapes, clipart, audio and movie.

References:

<table>
<thead>
<tr>
<th>No.</th>
<th>Author</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Basandra, S.K.</td>
<td>Computers Todays by Galgotia Publications, N.Delhi</td>
</tr>
<tr>
<td>3</td>
<td>Sinha, P.K.</td>
<td>Computer Fundamentals by. BPB Pubs, New Delhi</td>
</tr>
<tr>
<td>5</td>
<td>Rajaraman, V.</td>
<td>Fundamentals of Computers, PHI, New Delhi</td>
</tr>
<tr>
<td>6</td>
<td>Curtin</td>
<td>Information Technology TMH, New Delhi</td>
</tr>
<tr>
<td>8</td>
<td>Norton, P.</td>
<td>Complete guide to LINUX, Techmedia</td>
</tr>
</tbody>
</table>
Paper – C: Practical on Paper - A

Total Periods (6 Periods/week): 60  Max Marks: 20  Exam Hours: 4
Note for the Paper setter: Paper will be set at the time of examination. Due weightage may be given to practical note-book and assignments.

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INTRODUCTION TO COMPUTER SCIENCE

SEMESTER II

Paper B
Paper Title: Computer Programming Using C

Max. Marks : 25 Time : 3 Hrs
Theory: Ext. 25 + Int. 5 = 30
Practical : Ext. 20 -- = 20

Total Periods (6 Periods/week): 60
Objective : To make student understand programming concepts of ‘C’ language including functions, arrays, input/output etc.

Note:

i. The Question Paper will consist of Four Units.
ii. Examiner will set total of NINE questions comprising TWO questions from each Unit and ONE compulsory question of short answer type covering whole syllabi.
iii. The students are required to attempt ONE question from each Unit and the Compulsory question.
iv. All questions carry equal marks unless specified.

UNIT-I


2. C Language Fundamentals: ‘C’ Language: History, Structure of a C program, Data types, Constants and variables, Operators and Expressions, Type casting, Type conversion, Scope Rules:Local and Global variables, I/O functions, Input/Output, Control constructs( Sequencing, alteration and iteration)

3. Header files: stdio.h, ctype.h, string.h, math.h, stdlib.h, time.h

4. Storage classes: automatic, external, static, register

5. Preprocessor: #define, #include, #undef, #conditional compilation directives (#if, #else, #elif, #endif, #ifdef and #ifndef)

UNIT-II

6. Functions: library functions, user defined functions, scope rule of functions, Parameter passing: call by value and call by reference, Recursion

7. Arrays: One dimensional and two dimensional arrays, declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to functions

UNIT-III

8. Strings: Declaring String, built-in string functions-strlen(), strcpy(), strcat(), strcmp(), array of strings, two dimensional array of characters, Array of Pointers to Strings

9. Structure: Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, array of structures, Array in Structures, Difference between array and structure, nested structures

UNIT-IV

10. Console Input/Output: Console I/O Functions, Formatted Console I/O Functions, printf() and scanf() 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:

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<tbody>
<tr>
<td>2.</td>
<td>Gottfried, B.</td>
<td>Theory and problems of Programming in C, Schaum Series, N.D., TMH</td>
</tr>
</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 (2019-20)

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.

<table>
<thead>
<tr>
<th>Scheme of Examination</th>
<th>Duration</th>
<th>Marks</th>
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<tbody>
<tr>
<td>FIRST YEAR</td>
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<tr>
<td>Semester I</td>
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<tr>
<td>THEORY</td>
<td>6 hrs</td>
<td>75</td>
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<tr>
<td>MIC 101:</td>
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<tr>
<td><strong>Fundamentals of Microbiology -I</strong></td>
<td>3 hrs.</td>
<td>37.5</td>
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<tr>
<td>MIC 102:</td>
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<tr>
<td><strong>Microbial Physiology—Metabolism – I</strong></td>
<td>3 hrs.</td>
<td>37.5</td>
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<td>PRACTICAL</td>
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<tr>
<td>One Practical examination pertaining to the entire syllabus</td>
<td>6 hrs</td>
<td>25</td>
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<td>included in Theory Papers MIC 101 and MIC 102</td>
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<tr>
<td>Semester II</td>
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<tr>
<td>THEORY</td>
<td>6 hrs</td>
<td>75</td>
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<tr>
<td>MIC 201:</td>
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<tr>
<td><strong>Fundamentals of Microbiology -II</strong></td>
<td>3 hrs.</td>
<td>37.5</td>
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<td>MIC 202:</td>
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<tr>
<td><strong>Microbial Physiology—Metabolism –II</strong></td>
<td>3 hrs.</td>
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<td>Practical</td>
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<td>One Practical examination pertaining to the entire syllabus</td>
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<td>included in Theory Papers MIC 201 and MIC 202</td>
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Note: * Denotes marks for the Internal Assessment.
MICROBIOLOGY
OUTLINES OF TESTS AND SYLLABI

MICROBIOLOGY
B.Sc. (GENERAL) FIRST YEAR EXAMINATION
MIC 101 : FUNDAMENTALS OF MICROBIOLOGY (I)

Semester-I

MAX. MARKS: 37.5 MARKS
THORY: 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, 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:


MICROBIOLOGY
B.Sc. (GENERAL) FIRST YEAR EXAMINATION
MIC 102 : MICROBIAL PHYSIOLOGY—METABOLISM (I)

Semester-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, 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

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:


MICROBIOLOGY

B.Sc. (GENERAL) FIRST YEAR EXAMINATION
Semester 1

MAX. MARKS: 25 MARKS
PRACTICAL: 22 MARKS
INTERNAL ASSESSMENT: 3 MARKS
TIME: 3 HRS.

PRACTICALS

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
B.Sc. (GENERAL) FIRST YEAR EXAMINATION
MIC 201 : FUNDAMENTALS OF MICROBIOLOGY (II)

Semester-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, 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. 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:**


**MICROBIOLOGY**

**B.Sc. (GENERAL) FIRST YEAR EXAMINATION**

**MIC 202 : MICROBIAL PHYSIOLOGY—METABOLISM (II)**

**Semester – 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, 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

Microbial Metabolism:
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:

MICROBIOLOGY

B.Sc. (GENERAL) FIRST YEAR EXAMINATION
Semester -II

MAX. MARKS: 25 MARKS
PRACTICAL: 22 MARKS
INTERNAL ASSESSMENT: 3 MARKS
TIME: 3 HRS.

PRACTICALS
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.
**Environment, Road Safety Education, Violence against Women/Children**

**SEMESTER II**

**Part - I (Environment)**

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

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

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

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

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

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

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

7. **Management of Solid Waste:**
   Merits and demerits of different ways of solid waste management—open dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.
8. **Indoor Environment**: 
Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

9. **Global Environmental Issues**: 
Global concern, creation of UNEP; Conventions on climate change, Convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.

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

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

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

13. **Human Population and Environment**: 

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

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

**Practicals**: 
Depending on the available facility in the college, a visit to Vermicomposting units or any other such non-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 unattempted question), and of 1 hour duration.

The students have to obtain 33% marks to qualify the paper. The marks are not added/included in the final mark sheet.
Part - II (Road Safety Education)

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)
Part - III (Violence against Women / Children)

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

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

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

4. **Protective Provisions of IPC regarding Sexual Violence against Children:**
   - Section 293(sale etc. of obscene objects to young persons); 294 (obscene acts & songs); 305(abetment of suicide of child); 315 to 317 (act causing death after birth of a child etc.); 361(kidnapping from lawful guardianship); 362 (abduction); 363 (punishment for kidnapping); 363A (kidnapping or maiming a minor for purposes of begging); 364A (kidnapping for ransom etc.); 366 (kidnapping etc. to compel woman for marriage etc.); 366A (procuration of minor girl for illicit forced intercourse); 366B (importation of girl from foreign country); 367 (kidnapping/abduction in order to subject person to grievous hurt, slavery etc.); 369 (kidnapping adductive child under 10 year with intent to steal from its person); 372 & 373 (selling & buying minor for purposes of prostitution etc.).
4.1 The Protection of Children from Sexual Offences Act, 2012: An overview of the POCSO, relevant legal provisions and guidelines for the protection of children against sexual offences along with punishments; role of doctors, psychologists & mental experts as per rules of POCSO.

Note: Instructions for Examination:

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

Pedagogy:

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

RELEVANT READING MATERIAL

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