SYLLABUS

FOR

B.A./B.Sc.
(12+3 SYSTEM OF EDUCATION)
(Semester: III)

Examinations: 2019-20

GURU NANAK DEV UNIVERSITY
AMRITSAR

Note: (i) Copy rights are reserved.
Nobody is allowed to print it in any form.
Defaulters will be prosecuted.

(ii) Subject to change in the syllabi at any time.
Please visit the University website time to time.
**INDEX OF SEMESTER–III**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Subject</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>FACULTY OF ARTS &amp; SOCIAL SCIENCES</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Political Science</td>
<td>5-6</td>
</tr>
<tr>
<td>2.</td>
<td>History</td>
<td>7-8</td>
</tr>
<tr>
<td>3.</td>
<td>Journalism and Mass Communication (Vocational)</td>
<td>9-10</td>
</tr>
<tr>
<td>4.</td>
<td>Mass Communication and Video Production (Vocational)</td>
<td>11-12</td>
</tr>
<tr>
<td>5.</td>
<td>Sociology</td>
<td>13-14</td>
</tr>
<tr>
<td>6.</td>
<td>Psychology</td>
<td>15-17</td>
</tr>
<tr>
<td>7.</td>
<td>Defence and Strategic Studies</td>
<td>18-21</td>
</tr>
<tr>
<td>8.</td>
<td>Geography</td>
<td>22-25</td>
</tr>
<tr>
<td>9.</td>
<td>Public Administration</td>
<td>26</td>
</tr>
<tr>
<td>10.</td>
<td>Women Empowerment</td>
<td>27</td>
</tr>
<tr>
<td>11.</td>
<td>Punjab History &amp; Culture</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td><em>(Special Paper in Lieu of Punjabi Compulsory)</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>(For those Students who are not domicile of Punjab)</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>FACULTY OF ECONOMICS &amp; BUSINESS</strong></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Economics</td>
<td>29</td>
</tr>
<tr>
<td>13.</td>
<td>Industrial Economics</td>
<td>30</td>
</tr>
<tr>
<td>14.</td>
<td>Quantitative Techniques</td>
<td>31</td>
</tr>
<tr>
<td>15.</td>
<td>Agricultural Economics and Marketing</td>
<td>32</td>
</tr>
<tr>
<td>16.</td>
<td>Rural Development</td>
<td>33</td>
</tr>
<tr>
<td>17.</td>
<td>Office Management and Secretarial Practice (Vocational)</td>
<td>34</td>
</tr>
<tr>
<td>18.</td>
<td>Travel and Tourism</td>
<td>35</td>
</tr>
<tr>
<td>19.</td>
<td>Tourism and Hotel Management (Vocational)</td>
<td>36</td>
</tr>
<tr>
<td>20.</td>
<td>Tax Procedure and Practice (Vocational)</td>
<td>37-38</td>
</tr>
</tbody>
</table>
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)

<table>
<thead>
<tr>
<th></th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Advertising Sales Promotion and Sales Management (Vocational)</td>
<td>39-40</td>
</tr>
<tr>
<td>22</td>
<td>Commerce</td>
<td>41-42</td>
</tr>
<tr>
<td>23</td>
<td>Tourism and Travel Management (Vocational)</td>
<td>43</td>
</tr>
</tbody>
</table>

**FACULTY OF SCIENCES**

<table>
<thead>
<tr>
<th></th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Mathematics</td>
<td>44-45</td>
</tr>
<tr>
<td>25</td>
<td>Statistics</td>
<td>46-48</td>
</tr>
<tr>
<td>26</td>
<td>Chemistry</td>
<td>49-53</td>
</tr>
<tr>
<td>27</td>
<td>Physics</td>
<td>54-57</td>
</tr>
<tr>
<td>28</td>
<td>Home Science</td>
<td>58-60</td>
</tr>
<tr>
<td>29</td>
<td>Cosmetology (Vocational)</td>
<td>61-62</td>
</tr>
<tr>
<td>30</td>
<td>Clinical Nutrition and Dietetics (Vocational)</td>
<td>63-67</td>
</tr>
<tr>
<td>31</td>
<td>Fashion Designing and Garments Construction (Vocational)</td>
<td>68-69</td>
</tr>
<tr>
<td>32</td>
<td>Early Childhood Care and Education (Vocational)</td>
<td>70-71</td>
</tr>
<tr>
<td>33</td>
<td>Food Science and Quality Control (Vocational)</td>
<td>72-74</td>
</tr>
</tbody>
</table>

**FACULTY OF VISUAL ARTS & PERFORMING ARTS**

<table>
<thead>
<tr>
<th></th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>Fine Art</td>
<td>75-77</td>
</tr>
<tr>
<td>35</td>
<td>Gemology and Jewellery Design (Vocational)</td>
<td>78-79</td>
</tr>
<tr>
<td>36</td>
<td>Still Photography and Audio Production (Vocational)</td>
<td>80-81</td>
</tr>
<tr>
<td>37</td>
<td>Applied Art</td>
<td>82-83</td>
</tr>
<tr>
<td>38</td>
<td>Sculpture</td>
<td>84-85</td>
</tr>
<tr>
<td>39</td>
<td>Music (Vocal)</td>
<td>86-87</td>
</tr>
<tr>
<td>40</td>
<td>Music (Instrumental)</td>
<td>88-89</td>
</tr>
<tr>
<td>41</td>
<td>Indian Classical Dance</td>
<td>90-92</td>
</tr>
<tr>
<td>42</td>
<td>Tabla</td>
<td>93-95</td>
</tr>
<tr>
<td>No.</td>
<td>Course Description</td>
<td>Code</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>43.</td>
<td>Computer Science</td>
<td>96-97</td>
</tr>
<tr>
<td>44.</td>
<td>Information Technology (Vocational)</td>
<td>98-99</td>
</tr>
<tr>
<td>45.</td>
<td>Computer Maintenance (Vocational)</td>
<td>100-101</td>
</tr>
<tr>
<td>46.</td>
<td>Computer Applications (Vocational)</td>
<td>102-104</td>
</tr>
<tr>
<td>47.</td>
<td>Automobile Maintenance (Vocational)</td>
<td>105-106</td>
</tr>
<tr>
<td>48.</td>
<td>Refrigeration &amp; Air Conditioning (Vocational)</td>
<td>107-108</td>
</tr>
<tr>
<td>49.</td>
<td>Information Technology Specialization Software Development (Vocational)</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td><strong>FACULTY OF HUMANITIES &amp; RELIGIOUS STUDIES</strong></td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>Religious Studies (यान्त्रिक अध्ययन)</td>
<td>110-111</td>
</tr>
<tr>
<td>51.</td>
<td>Philosophy</td>
<td>112-115</td>
</tr>
<tr>
<td></td>
<td><strong>FACULTY OF LIFE SCIENCES</strong></td>
<td></td>
</tr>
<tr>
<td>52.</td>
<td>Zoology</td>
<td>116-121</td>
</tr>
<tr>
<td>53.</td>
<td>Botany</td>
<td>122-124</td>
</tr>
<tr>
<td>54.</td>
<td>Environmental Studies (Compulsory)</td>
<td>125-127</td>
</tr>
<tr>
<td>55.</td>
<td>Microbiology</td>
<td>128-129</td>
</tr>
<tr>
<td>56.</td>
<td>Industrial Microbiology (Vocational)</td>
<td>130-132</td>
</tr>
<tr>
<td>57.</td>
<td>Microbial &amp; Food Technology</td>
<td>133-134</td>
</tr>
<tr>
<td>58.</td>
<td>Bioinformatics (Vocational)</td>
<td>135-137</td>
</tr>
<tr>
<td>59.</td>
<td>Biotechnology (Vocational)</td>
<td>138-139</td>
</tr>
<tr>
<td></td>
<td><strong>FACULTY OF EDUCATION</strong></td>
<td></td>
</tr>
<tr>
<td>60.</td>
<td>Education</td>
<td>140</td>
</tr>
<tr>
<td>61.</td>
<td>Human Rights</td>
<td>141-142</td>
</tr>
<tr>
<td>FACULTY OF AGRICULTURE &amp; FORESTRY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>62. Dairy Farming (Vocational)</td>
<td>143-144</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACULTY OF LANGUAGES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>63. Russian</td>
<td>145-147</td>
</tr>
<tr>
<td>64. French</td>
<td>148-150</td>
</tr>
<tr>
<td>65. Urdu</td>
<td>151</td>
</tr>
<tr>
<td>66. Persian</td>
<td>152</td>
</tr>
<tr>
<td>67. Sanskrit (Elective)</td>
<td>153-154</td>
</tr>
<tr>
<td>68. Functional Sanskrit (Vocational)</td>
<td>155</td>
</tr>
<tr>
<td>69. English (Compulsory)</td>
<td>156</td>
</tr>
<tr>
<td>70. English (Elective)</td>
<td>157-158</td>
</tr>
<tr>
<td>71. Functional English (Vocational)</td>
<td>159</td>
</tr>
<tr>
<td>72. Punjabi (Compulsory) (ਪੰਜਾਬੀ)</td>
<td>160</td>
</tr>
<tr>
<td>73. Punjabi (Elective) (ਪੰਜਾਬੀ ਟੀਲਵਰਟਿਟ)</td>
<td>161</td>
</tr>
<tr>
<td>74. Functional Punjabi (ਪੰਜਾਬੀ ਟੀਲਵਰਟਿਟ) (Vocational)</td>
<td>162-163</td>
</tr>
<tr>
<td>75. ਪੰਜਾਬੀ ਟੀਲਵਰਟਿਟ (in lieu of Punjabi Compulsory)</td>
<td>164</td>
</tr>
<tr>
<td>76. Hindi (Elective)</td>
<td>165</td>
</tr>
<tr>
<td>77. Hindi Patrakarita (Vocational)</td>
<td>166-167</td>
</tr>
<tr>
<td>78. Functional Hindi (Vocational)</td>
<td>168-176</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACULTY OF PHYSICAL EDUCATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>79. Physical Education</td>
<td>177-178</td>
</tr>
</tbody>
</table>
INDIAN CONSTITUTION

Time: 3 Hours
Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Constitution Assembly and making of India’s Constitution.
2. Basic features of the Indian Constitution.
3. Preamble and its importance.
4. Nature of Indian Federalism and Centre-State Relations.

SECTION–B

1. Fundamental Rights, features, kinds and evaluation.
2. Fundamental Duties.

SECTION–C

1. Parliament: Composition, Powers and Role.
4. Supreme Court and High Court: Composition, Powers and Role.

SECTION–D

1. Governor: Appointment, Powers and Role.
2. State Legislature: Composition, Powers and Role.
Books Recommended:

20. *Indian Journal of Political Sciences*
21. *Punjab Journal of Politics*
22. Seminar
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)  
(Faculty of Arts & Social Sciences)

SEMESTER–III  
HISTORY

HISTORY OF INDIA (AD 1707-1947)

Time: 3 Hours  
Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Foundation of British Rule: Advent of the British; Battles of Plassey and Buxar, Clive and Warren Hastings; Subsidiary Alliance Policy, Doctrine of Lapse.


SECTION–B
3. Economic Changes: Agriculture, British commercial policies and the impact on the trade balance; Destruction of indigenous industries; the growth of modern industry; The drain theory.


SECTION–C
5. Early Political Associations and Emergence of Revolutionary Terrorism: Early Political Association and Indian National Congrence; Swadeshi Movement, Partition of Bengal and its impact; Revolutionary Terrorism in Bengal, Maharashtra and the Punjab, Impact on the National Movement.

6. The Phase of Non-Co-operation : Emergence of Gandhi; The Jallianwala Bagh Massacre and its impact; Khilafat agitation; the Non-cooperation Movement; Withdrawal and impact; the Swarajists; The Simon Commission; The Phase of Civil Disobedience : The programme and the course of the Civil Disobedience Movement, the Round Table Conferences; Communal Award; Poona-pact; Withdrawal of Civil Disobedience Movement
SECTION–D


8. **Towards Partition and Independence:** Growth of communal politics; Lahore resolution, Cripps proposals; Quit India Movement; the INA Trials; Cabinet Mission and towards Independence.

**Suggested Reading:**

SEMESTER–III
JOURNALISM AND MASS COMMUNICATION

WRITING FOR PRINT MEDIA
(THEORY)

Time: 3 Hours

Max Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION-A
News: Writing a news story; chronological, logical and inverted pyramid styles, Headlines: Types of headlines. Leads; Types of leads, Sources of News, Elements of News

SECTION-B
Organisational setup of a news paper office; Role of editor, a sub-editor and news editor, How to produce a news paper, How to get a news paper registered

SECTION-C
Qualities of a journalist, Functions of the Press, Printing Process
New Technology in Print Media, Editing the news story: editing symbols

SECTION-D
Various departments of a newspaper office and their hierarchy, Middles, Editorial, columns and letter to editor, Web Journalism
SEMESTER–III
JOURNALISM AND MASS COMMUNICATION

WRITING FOR PRINT MEDIA
(PRACTICAL) (20 Marks)

Writing news stories in various news writing styles
Writing features and articles
Writing letter to editor and getting it published

Books Recommended:-
Time: 3 Hours

Max. Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Question Paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

SECTION-A
**Sound:** Meaning, Characteristics, Propagation, Acoustic Reverberation

SECTION-B
**Microphones:** Selection of Microphones, Types of Microphones

SECTION-C
**MAGNETIC RECORDING PRINCIPLES**
**Audio Cables & Connectors (Types & Uses),** Noise & Distortion, Dope Sheet/Exposure Sheet
Sound Recordist’s role in production crew, Audio console

SECTION-D
**Script Writing:** Basics, Elements of Good Script Writing, Role of Writer, Structure of Script
Subject Research (Idea, Visualisation & Script Sources of Information), Formats of Script Writing, Story Board
SEMESTER–III

MASS COMMUNICATIONS & VIDEO PRODUCTION (VOCATIONAL)

(PRACTICAL)

Marks: 20

Writing script for various radio formats.
Visit to sound recording studio.
Practical acquaintance with sound equipments.

Books Recommended

2. Basics of Video Sound Das Lyver Focal Press

Note: Practicals to be conducted by External Examiner.
SEMESTER-III
SOCIOLOGY

SOCIETY IN INDIA

Time: 3 Hours      Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
(a) Indian Society: Features and Unity in Diversity.
(b) Caste: Features, Functions, Changing patterns, Difference between caste and class.

SECTION–B
(a) Social Issues: Communalism, Casteism, Gender, Human Rights.

SECTION–C
(a) Marriage: Meaning, Types, Functions and Changes.
(b) Family: Meaning, Types, Functions and Changes.
(c) Kinship: Meaning and Terminology.

SECTION–D
(a) Society in India: Rural, Urban and Tribal.

Recommended Books:
1. Abraham, M. Francis: Contemporary Sociology, Oxford University, New Delhi, 2006.


SEMESTER–III
PSYCHOLOGY

EXPERIMENTAL PSYCHOLOGY-I
(THEORY)

Time: 3 Hours
Pass Marks: 35% of the subject
(Theory and Practical Separately)
Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Experimental Method: Introduction to Experimental Method, Advantages and Disadvantages, Study of cause and effect relationship

Variables: Concept and Nature, Types of Variables, Stimulus, Organismic and Response Variables, Process of experimentation-manipulation and control of variables, Introduction to Experimental Designs

SECTION–B
Sensation and Perception: Types of sensations, Visual sensation, Structure and functions of the Eye, Theories of Colour Vision (Young-Helmholtz, Opponent-Process & Evolutionary), Auditory Sensation: Structure and functions of the Ear, Theories of Hearing, Cutaneous, Olfactory and Gustatory Sensations

SECTION–C
Attention: Concept and Nature of Attention, Characteristics of Attention
Perception: Concept, Nature and factors affecting perception, Approaches to Perception (Gestalt and Behaviouristic), Perception of Form, Shape, Depth and Distance, Perceptual Constancy

SECTION–D
Perception of Space and Movement:
Illusions: Types, causes and Theories
Statistics: Normal Probability Curve, Concept, Nature and Characteristics (Numericals of Areas under NPC only)

References:
SEMESTER–III
PSYCHOLOGY
(PRACTICAL)

Marks: 25

Instructions for the Practical Examination:

Students are supposed to perform five practicals out of 6 mentioned in the syllabus. Practical examination will be of 3 hours duration. External examiner will conduct the practical examination. The students will perform one practical in the exam carrying 25 marks. Evaluation of the practical would be done on the basis of write-up of file book (5 Marks), performance and viva-voce (20 Marks) relating to the practicals. In case students have not completed 5 practicals, the examiner will deduct marks at the rate of 5 for each left practical out of total evaluation of the student. No reappear will be allowed in the practical examination. Fail in the practical will be considered fail overall in the subject.

Five Practicals have to be performed out of the following:

1. Role of Set in Perception
2. Span of Attention/Division of Attention.
3. Muller-Lyer Illusion
4. Figure-ground differentiation
5. Paired Comparison Method for Colour Preference
6. Reaction Time (Simple Vs. choice RT or Auditory Vs. Visual RT)
SEASON-III
DEFENCE AND STRATEGIC STUDIES

EVOLUTION OF WARFARE OUTSIDE INDIA
(THEORY)

Time: 3 Hours
Max. Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: Practicals are only meant for the regular students. For the private students the paper shall be 100 marks. For private students, each question will be 20 marks.

SECTION–A

1. Military Organisations and techniques of fighting of Macedonians and Persians with particular reference to the Battle of Arbela, 331 B.C.:
   (a) Military organisations of Macedonians and Persians.
   (b) Battle of Arbela
      (i) Introduction
      (ii) Opposing forces and their deployment.

2. Military organizations and techniques of fighting of Romans and Carthaginians with particular reference to the Battle of Cannae 216 B.C.:
   (a) Military organisations of Romans and Carthaginians.
   (b) Battle of Cannae
      (i) Introduction
      (ii) Opposing forces and their deployment.
      (iii) Description of the battle.
      (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

3. Military organizations and techniques of fighting of Romans and Barbarians with particular reference to the Battle of Adrianople 378. A.D.: Military organizations and techniques of fighting of Romans and Barbarians.
   (a) Military organisations of Romans and Barbarians.
   (b) Battle of Adrianople
      (i) Introduction
      (ii) Opposing forces and their deployment.
(iii) Description of the battle.
(iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

SECTION B
4. Military organizations and techniques of fighting of the English and Romans with particular reference to the Battle of Hastings 1066 AD:
   a) Military organisation of the English and Romans.
   b) Battle of Hastings
      (i) Introduction
      (ii) Opposing forces and their deployment.
      (iii) Description of the battle.
      (iv) Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

5. The Mongol art of war under Changez Khan and Taimur
   a) Organisation of Mongol Army.
   b) Mongol Art of War.

SECTION C
6. Industrial Revolution and its impact
   a) Impact on Society
   b) Impact on weapons for land and naval warfare
   c) Impact on means of communications
   d) Impact on tactics for land and naval warfare.

7. Napoleonic Warfare
   a) Elements of Napoleonic Warfare.
   b) Principles of Napoleonic Warfare.

SECTION D
8. Naval Warfare with particular reference to the Battle of Trafalgar 1805 A.D.:
   a) Background of the English and Franco-Spanish rivalry for naval supremacy.
   b) Battle of Trafalgar.
      (i) Opposing forces and their deployment.
      (ii) Description of the battle.
      (iii) Analysis (strategy, tactics, application of principles of War and causes of defeat and victory).

9. American Civil War (1861-65)
   i) Introduction
   ii) Causes
   iii) Events in brief
   iv) The Character of the Civil War
   v) Tactical development
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20) (Faculty of Arts & Social Sciences)

SUGGESTED READINGS:

SEMESTER–III
DEFENCE AND STRATEGIC STUDIES

(PRACTICAL)

Time: 3 Hrs.  
Marks: 20
Written: 10  
Discussion: 05  
Record & Viva-Voce: 05

Instructions for the Examiners:
1. Examiners are required to set a question paper containing 10 marks of 1 hour duration in which he is supposed to set at least 3 questions of 5 marks each and students are required to attempt any two.
2. In the written practical Examination, choice in questions may be given to the students. The question paper is to be set at least half an hour before the examination.
3. Each student should be asked to deliver a talk/make short presentation for 5–10 minutes on any of the given topics.
4. Examiners should devote reasonable time for Viva–Voce Test and assess the practical record of a student.
5. For practical paper one group of Students will not comprise of more than 20 students at a time.

A. WRITTEN TEST  
Marks: 10
1. Liquid Prismatic Compass (LPC): Features and functions of its various parts.  
Attempt following exercise on the LPC:
   a. To determine magnetic north.
   b. Setting of the Map.
   c. To find out the bearing of a point from other point situated on the ground.
   d. To determine one’s and enemy’s position on the map by resection and intersection methods with the help of compass.
   e. To set the compass in a particular direction for night march
2. Determination of individual compass error.

B. TOPICS FOR DISCUSSION/PRESENTATION:  
Marks: 05
a. Historical Warfare
b. Modern Warfare
c. Impact of Industrial Revolution on Warfare

C. RECORD & VIVA-VOCE  
Marks: 05
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)  
(Faculty of Arts & Social Sciences)

SEMESTER–III  
GEOGRAPHY

RESOURCES AND ENVIRONMENT: WORLD PATTERNS  
(THEORY)

Time: 3 Hours  
Max. Marks: 100  
Theory Marks: 70  
Practical Marks: 30

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: Stencil/outline maps and coloured pencils are allowed.

Objective:
1. To understand concept of resources and their interface with environment;
2. To examine use and misuse of various resources, and analyse future prospects;
3. To study various methods and approaches of conservation and management of natural resources;
4. To understand the quantitative and qualitative aspects of human resources in spatial perspectives and the associated environmental problems.

Course Contents:

SECTION–A  
Environment and Resources:
Classification of Resources: Biotic and abiotic, Exhaustible and inexhaustible, Potential and Developed, Agricultural and Pastoral, Mineral and Industrial.

SECTION–B  
Utilization of Natural Resources:
Distribution availability, utilization and conservation of water, minerals (in general) and energy resources; their economic and environmental significance and sustainability.
Types and distribution of forests—their economic and environmental significance and conservation.
Types and distribution of fisheries—their economic and environmental significance and conservation.
Major soil types and their distribution; problems of soil erosion and soil conservation.
SECTION–C

**Human Resources:** Number, Growth, Distribution and Density.

**Population Resources Relationship:** Population- Resource Regions of the world.

SECTION–D

**Environment:** Natural and Human, Man-environment relationship—determinism, Possibilism, ecology.

**Biodiversity:** Loss of natural and agro-biodiversity.

**Environmental Issues:** Pollution; food security; deforestation; conservation of wild life.

**Books Recommended:**

SEMESTER–III
GEOGRAPHY
CARTOGRAPHIC REPRESENTATION OF GEOGRAPHIC DATA
(PRACTICAL)

Time: 3 Hours
Max. Marks: 30
Written Paper of 3 Hours: 15 Marks
Practical Record (File): 08 Marks
Viva: 07 Marks

Objective:
1. To apprise the students with symbolization of different types of geographical data and
depiction of various spatial data.
2. To provide training in application of various graphical methods of depicting geographic data.

Course Contents:

SECTION–A

Symbolization of Geographical Data:
a) Point Symbols: Dot, circle, sphere.
b) Line Symbols: Isopleths and flow lines.
c) Areas Symbols: Choropleth.

SECTION–B

a) Representation of Point symbols, Line symbols and area symbols in Cartographic
Representation of: Population data (distribution, density, growth, migration and literacy)
b) Agriculture data (land utilization, distribution of crops, percentage of cropped area and
irrigated areas).
c) Industrial data (distribution, employment and production)
d) Transport data (traffic flow).

Note:
1. A compulsory question containing 10 short answer type questions will be set covering the
whole syllabus. The students will attempt 6 short answer type questions in about 25–30
words each. Each short answer type question will carry ½ mark (Total 3 marks).
2. The whole syllabus will be divided into 2 units. Eight questions will be set out of the whole
syllabus, four from each unit. The students will be required to attempt two questions from
each unit. Each question will carry 3 marks. These will be in addition to the compulsory
question at serial number 1. (Total 12 marks)
3. Evaluation of Practical Record will be done at the time of viva-voice examination.
4. A minimum of 16 sheet are to be prepared by each student.
5. In case, the candidate has applied for improvement, he/she should be required to make a
fresh practical note book.
6. For practical classes, the number of students in one group shall not exceed fifteen.
Books Recommended:

Essential Readings:


Further Readings:

SEMESTER–III
PUBLIC ADMINISTRATION
PERSONNEL ADMINISTRATION IN INDIA

Time: 3 Hours    Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Introduction:
Meaning, Nature and Scope of Personnel Administration.
Characteristics of Public Personnel Administration in India.
Functions and Significance of Personnel Administration.
Public Services and their role in Administrative System.

SECTION–B
Civil Services in India: Role and rationale of All India Services.
Recruitment: Meaning, Methods
Promotion: Meaning, Principles.
Training: Meaning, Objectives and Types, Training System in India.

SECTION–C
Personnel Agencies:
Functions and Role of Department of Personnel and Public Grievances, Union Public Service Commission, State Public Service Commissions & Staff Selection Commissions.

SECTION–D
Employer—Employee Relations and Working Conditions:
Employee’s participation in Management.
Rights of Public Servant, Conduct and Discipline.
Integrity in Public Services - Problem of Corruption.
Lok Pal and Lok Ayukta. Central Vigilance Commission.

Suggested Readings:
SEMMESTER–III

WOMEN EMPOWERMENT

WOMEN EMPOWERMENT: BROAD ISSUES

Time: 3 Hrs.  Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Women Empowerment and role of Social Institutions:-
1. Women Empowerment: Meaning and Efforts.
2. Role of Social Institutions (Family, educational institutions, media, press and Khap Panchayats.

SECTION–B
Women Empowerment: Commissions and Govt. Policies:-
1. Commissions and bodies for gender equality: central, State and local.
2. Recent policies of Government of India for Women Empowerment.

SECTION–C
Women Empowerment: Patriarchy, Matriarchy and Social Movements

SECTION–D
Women Empowerment: Legal Rights
1. Women, work and livelihood: Sexual Harassment at work place.
2. Women and Legal Rights: Matrimonial, Property and old Age Rights.
SEMESTER–III
Punjab History & Culture (From 1000 to 1605 A.D)
(Special Paper in lieu of Punjabi compulsory)
(For those students who are not domicile of Punjab)

Time: 3 Hours Max. Marks: 50

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Society and Culture of Punjab during the Turko-Afghan rule.
2. The Punjab under the Mughals

SECTION–B
3. Bhakti movement and its impact on Society of Punjab

SECTION–C
5. Guru Nanak-Life and travels

SECTION–D
8. Compilation of Adi Granth and martyrdom of Guru Arjun Dev

Suggested Readings

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Economics & Business)

SEMESTER–III
ECONOMICS
MACRO ECONOMICS

Time: 3 Hours
Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Distinction between Micro and Macro Economics; Determination of Income and Employment: Classical and Keynesian models; Say's Law of Market and aggregate demand and aggregate supply.
Consumption functions; average (short-run and long run) and marginal propensity to consume; static and dynamic multipliers.

SECTION–B
Trade cycles-meaning, characteristics and phases. Samuelson and Hicks Models of trade cycles.

SECTION–C
Banking: Definitions of banks. Credit creation and credit control.

SECTION–D
Macroeconomic Policies: Fiscal policy – meaning, objectives and instruments.
Monetary policy – meaning, objectives and instruments.

Recommended Texts:

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Economics & Business)

SEMINER–III

INDUSTRIAL ECONOMICS-III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Organisational forms of the firm; Ownership, Control and management and goal conflict in a firm; alternative objectives of the firm; active and passive firm.

SECTION–B

Market Structure: Buyer’s concentration; entry conditions and economies of scale; Market structure and association.

SECTION–C

Market Conduct: Investment decisions: Theory and evidence; Financial decisions : retention pay-out ratio; advertising costs, profitability and market structure

SECTION–D

Industrial Performance: Industrial productivity, efficiency and capacity utilization – concept and measurement; firm size, optima and their reconciliation.

Recommended Texts

SEMESTER–III

QUANTITATIVE TECHNIQUES-III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Differentiation: Maxima and Minima of Functions, Partial derivatives, Higher order partial derivatives.

SECTION–B

Integration (Excluding Trigonometric and Inverse Functions): Indefinite Integrals; Integration by Partial Fractions; Integration by substitution; Integration by parts; Definite Integrals.
Application of Integration in Consumer Surplus and Producer Surplus.

SECTION–C


SECTION–D

Linear Programming: Formulation of problem, Assumptions, Graphical solution, Simplex method. Use of Artificial Variables, Dual Simplex method.
Input-Output Analysis: Basic concepts, Input-Output tables for closed and open economies, Leontief Basic Input-Output Model.

Recommended Texts:

Instructions for the Paper Setters:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Institutional Changes, land reforms, consolidation of holdings, abolition of intermediaries, ceiling on land-holdings-need, nature and evaluation with special reference to India.

New Agricultural Technology, its nature, role adoption and impact on output, employment and income distribution.

SECTION–B

Agricultural Price-Policy, demand and supply of Agricultural products. Evolution of price policy function, objectives, instruments, impact on income, output and employment.

SECTION–C

Agricultural Finance-Need for agricultural credit, agencies, role of finance in developing agriculture, role of Co-operative, Commercial Banks, RRBS, Role of NABARD.

Self help groups, joint liability groups. Service Area Approach, Lead Bank scheme, Kisan Credit Card. Growth in Agricultural credit, Repayment performance, Principals of credit worthiness.

SECTION–D

Agricultural taxation case for agriculture taxation, case for special treatment, effect of agricultural taxation on economic development, agricultural taxation in India.

Readings:

SEMESTER–III
RURAL DEVELOPMENT

RURAL DEVELOPMENT–III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Marketing concepts and types, Importance and features; Defects and consequences; Co-operative Marketing; Government and marketing; Sales Promotion.
Agricultural Exports: Agro Processing; Present Position, Problems and Policy.

SECTION–B
Agricultural Prices: Market forces and Government intervention; Trends and causes of Rise and Fluctuations; Stabilisation and Policy, Buffer-Stocks and Imports.

SECTION–C
Rural Indebtedness: Nature, magnitude and consequences; Causes and remedial measure. Commercial Banks, Magnitude of help, Assessment of performance; Regional Rural Banks.

SECTION–D
Cooperative Credit: Importance and Growth, Weaknesses and Improvements. Students should be given an elementary exposure to the subject.

Suggested Readings:
2. A.N. Aggarwal: Rural Economy of India, Kundan Lal.
SEMESTER–III

OFFICE MANAGEMENT AND SECRETARIAL PRACTICE (VOCATIONAL)

OFFICE MANAGEMENT AND METHODS

Time: 3 Hrs.  Marks: 100
Theory Marks:  60
Practical Marks: 40

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

SECTION–B
Filing and Indexing – Meaning and importance of filing, essential of good filing system. Centralized and decentralized filing system. Meaning, need and types of indexing used in the business organization.
Office forms– Meaning and types of forms used in business organization, advantages, forms controls, objectives, form designing, principles of forms designing and specimens of forms used in office. Office Record Management – Meaning, importance of record keeping management, principles of record management and types of records kept in a business organization.

SECTION–C
Office Machines and equipments – Importance, objectives of office machines.
Office Safety and Security – Meaning, importance of office Safety, safety hazards and steps to improve office safety. Security hazards and steps to improve office security.

SECTION–D
OFFICE MANAGEMENT AND SECRETARIAL PRACTICE (VOCATIONAL)

OFFICE MANAGEMENT AND METHODS
(PRACTICAL)

Marks: 40

1. Filing System: Centralised & Decentralised.
2. Indexing: Learning Various types of indexing.
3. Office forms: Developing and maintaining various forms used in office.
4. Record Management: Learning how to manage various office records.
5. Practice on various office machines & equipments.

Suggested Reading Materials:

2. Office Management and Commercial Correspondence, By Balraj Duggal 1998. Published by Kitab Mahal.
3. Office Management and Secretarial Practice, Gyan Publishers House, Delhi by V.P. Singh.
4. Business Correspondence and Office Practice by Thakkar Publication, Bombay, Nagamia and Bhal.
6. Commercial Correspondence by Majumdar.
7. Modern Commercial Correspondence by R.S.Sharma.
8. Modern Commercial Correspondence by Chandgadkar& Tele. Vikas Publications, Pune.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Economics & Business)

SEMESTER–III
TRAVEL AND TOURISM
MANAGEMENT OF TRAVEL AND TOURISM

Time: 3 Hrs.                                                   Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four
Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are
required to attempt five questions, selecting at least one question from each Section. The fifth
question may be attempted from any Section.

SECTION–A
Strategic Planning and Strategic Marketing: Business Environment, Alliances - Market
Sharing, Takeovers and Mergers
Operations Management: Booking, Reservation, Blocking, Reconfirmation.

SECTION–B
Project Review: Need for a project review, Project appraisal and evaluation, Destination
Development

SECTION–C
Commission, Direct sales.
Banking and Forex: Banking Operations, Forex Management, Money Transfers.

SECTION–D
New Trends in Tourism: Health tourism, Ski resorts and Adventure sports, Heritage tours and
Eco-tourism, Rural tourism and Space tourism
Event Management and MICE: Role of events for promotion of tourism, Ganga Mahotsava,
Lucknow Mahotsava and Taj Mahotsava, Concept of MICE, Conference/conventions and
exhibitions.
Role of Government in promoting tourism in India

Suggested Readings:
   Butterworth Heinemann: UK.
   Promotion of Destination Region, UK.
5. National Geographic and Discovery, Channel Programs.
 Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Front Office: Types of Hotels, Pre-registration activities, Registration, Post registration activities, Front Office Salesmanship, Front Office procedures for Emergencies, Calculation of Room position, Job description of Front Office Cashier and Front Office Assistant, Foreign Currency, Night Auditor and its duties

SECTION–B

House Keeping: Role of Housekeeping in hospitality industry, Classification of Equipments, Cleaning Agents and Types; House Keeping Supervision—Importance, Checklist, typical areas usually neglected where special attention is required; Storage facilities and conditions, Cleaning procedures—Cleaning of occupied room, Cleaning of just vacated room, Inspection, Second Service, Replenishment of supplies and lines, Room checklist.

SECTION–C

Food and Beverage Service: Sectors of Food & Beverage, French Classical Menu, Food and their Accompaniments, Restaurants and their subdivisions—Coffee Shop, Room Service, Bars, Banquets, Discotheques, Grill Room, Snack Bar, Night Club, Back area of Food and Beverage service—Still Room, Wash Up, Plate Room, Kitchen Stewarding; Classification of Crockery, Cultery, Glassware, Hollowware, Flatware; Maintenance of Equipments.

SECTION–D

Food and Beverage Production: Classification of Raw Materials; Foundation ingredients—Meaning, Action of Heat on Carbohydrates, Fats, Proteins, Minerals and Vitamins; Preparation of Ingredients; Classification of Equipments; Stocks—Meaning, Uses, Types, Points to be observed while preparing stocks; Sauces—Meaning, types and Recipes; Staff Arrangement in Kitchen.

Note: Industrial Training for one month.
SEMESTER-III

TAX PROCEDURE AND PRACTICE (VOCATIONAL)

REGULATORY FRAMEWORK-DIRECT TAXES

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: The candidates are allowed to use simple (Non-Scientific) calculators.

SECTION–A


Permanent Account No.: Procedure for obtaining Permanent Account No. (PAN)—Filling and filing of application under Form No.49A.

Payment of Tax: Tax deducted at source, Advance Tax, Self Assessment Tax.

SECTION–B

Tax Deducted at Source: Filling and filing of applications from for obtaining TDS number under Form No.49B obligation of the person making payment, who and when the person is liable to deduct tax at source. Procedure and rate of Tax deducted at source on various payments.

Employers Obligations:

Stage I: Certificate to be issued to the recipient's-filing and issue of the various TDS Forms (16,16A and 16B).

Stage II: Deposit of tax deducted at source-filling and filing of the challan and deposit of tax.

Stage III: Submission of returns of TDS under Form No.24, Form No.26, 26A, 26B, 26C, 26D, 26E

Recipient's Obligations:

To obtain TDS certificate from payer; filling and filing of relevant certificates for lower or no deduction of tax at source (Form No.13C, 14, 14B, 15, 15A, 15AA, 15B, 15D, 15E, 15F, 15G, 15H, 15I).

(B) Advance Tax: Who is liable to pay advance tax, computation of advance tax, instalment and due date of Advance Tax, Interest payable by the assessee. Filing of challan and deposit of Advance Tax
SECTION–C

Return of Income: Who is liable to file return of income, time limit, return of loss, Belated Return, Revised Return, Defective Return, Return by whom to be signed, filling and filing of Return of Income Tax under:

Assessment Procedures: Inquiring before assessment. Assessment under Section 143 (1), Self-assessment Tax, Regular Assessment under Section 143 (2), Best Judgment assessment, income escaping Assessment, issue of notice where income has escaped assessment. Time limit for Notice, Time limit for completion of assessment and reassessment.

SECTION–D

Post Assessment Procedures: Refund - Who can claim refund, Form No. 30 for Refund, Time Limit for claiming refund, Refund of appeal, interest on refunds; Rectification of mistake(s); Appeals and revisions: When an assessee can file appeal, appellate authorities, procedure for filing appeal, filling and filing of Form No.35, Form No.36, Time limit for filing appeal, Revision by Income-Tax Commissioner.

Penalties & Procedure: Procedure for imposing penalties, waiver of penalty, nature of default and penalties imposable.

Transfer of Immoveable Property: Filling and filing of Form No.37EE, Form No.37G, Form No. 37-I Tax clearance certificate and exemption certificate procedure and filling and filing of Form No. 31

References:-
7. www.incometaxindia.gov.in
SEMESTER–III

ADVERTISING, SALES PROMOTIONS AND SALES MANAGEMENT
ADVERTISING–II (VOCATIONAL)

Time: 3 Hours Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Advertising Media: Types of Media-Print Media (News Paper and Magazines, Pamphlets, posters and brochures), electronic media (Radio, Television, Audio Visuals, Cassettes), other Media (Direct Mail outdoor media), their characteristics, merits and limitations.

SECTION–B

Media Planning: Selection of Media category, their reach, frequency and impact. Cost and other factors influencing the choice of media. Media scheduling.

SECTION–C

Regulation of advertising in India. Misleading and deceptive advertising and false claims.

SECTION–D

Advertising Agencies: Their role and importance in advertising. Their organisation patterns, Functions, Selection of advertising agency. Agency commission and fee. Advertising Department, its functions and organization.

Suggested Reading:
Same as for paper-2 (relevant chapters).
On the Job Training of 4 weeks

A consolidated Report on 'On the Job Training' shall be prepared by every student and must be submitted in the college. The consolidated Report will be evaluated by the external examiner and shall be given the grades as follows:

- O - Outstanding
- A - Very Good
- B - Good
- C - Average
- D - Unsatisfactory

In case, the training report is rated as unsatisfactory, the candidate shall have to submit it again incorporating the changes suggested by the examiner, within one month from the date of intimation to the candidate by the concerned college.

Note: The candidates are allowed to use simple (Non-Scientific) calculators.
Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Note: The candidates are allowed to use simple (Nonscientific) calculators.

SECTION–A
Introduction to Banking: Definition, types and functions of Banks. Brief outlines of the history of Indian Banking, Banker customer relations.
Deposit Mobilization: Types of deposits, Procedure of opening a bank account. Types of account holders, Trends in deposit mobilisation in India.
Online Banking Technology & Procedure: Debit Cards / Credit Cards (Plastic Currency)

SECTION–B

SECTION–C
Negotiable Instruments: Cheques-crossing and endorsements, payments of cheques, stop payment instruction, role of clearing house, Collection of cheques. Dishonour of cheques, Bills of Exchange-Discounting of Bills, Inland Remittances. Demand Draft, mail transfers, Telegraphic transfers etc.

SECTION–D
Insurance: Definition and advantages of insurance, kinds of insurance and forms of insurance organisation. Essentials of insurance contract, basic principles of insurance. Utmost good faith, insurable interest, indemnity subrogation, contribution, proximate cause. Introduction to general insurance-growth of general insurance, functions of insurance and contracts of insurance, basic principles. Fire insurance, Introduction, standard form policy, scope of cover. Cashless Insurance.
Books Recommended:

SEMESTER-III

TOURISM AND TRAVEL MANAGEMENT (VOCATIONAL)
TOURISM & MARKETING

Time: 3 Hrs.                      Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Marketing: Concept, Nature, Classification and Characteristics of services and their marketing implications developing marketing strategies for services firms.

SECTION–B
Linkages in Tourism and other sectors (Travel, Agency, Accommodation, Food, Nutrition, Catering).

SECTION–C
Tour Packaging: Concept, Characteristics, Methodology Consideration

SECTION–D
Pricing of Tour Packing, Designing and Printing of Tour Brochure.

Suggested Readings:
SEMESTER–III

MATHEMATICS

PAPER–I: ANALYSIS

Time: 3 Hours  Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A


SECTION–B


SECTION–C


SECTION–D

Improper integrals and statements of their conditions of existence. Test of the convergence of improper integral, Beta and Gamma functions.

Books Recommended:
SEMESTER–III
MATHEMATICS

PAPER–II: ANALYTICAL GEOMETRY

Time: 3 Hours
Marks: 50

Instructions for the Paper Setters:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Transformation of axes, shifting of origin, Rotation of axes in two dimension and three dimension, The invariants, Joint equation of pair of straight lines, equations of bisectors

SECTION–B

Parabola and its properties. Tangents and normal, Pole and polar, pair of tangents at a point, Chord of contact, equation of the chord in terms of mid point and diameter of conic.

SECTION–C

Ellipse and hyperbola with their properties. Tangents and normal, Pole and polar. pair of tangents at a point, Chord of contact, Identifications of curves represented by second degree equation (including pair of lines).

SECTION–D

Intersection of three planes, condition for three planes to intersect in a point or along a line or to form a prism, Sphere: Section of a sphere by a plane, spheres of a given circle. Intersection of a line and a sphere. Tangent line, tangent plane, power of a point w.r.t. a shpere, radical planes.

Books Recommended

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19) (Faculty of Sciences)

SEMESTER–III
STATISTICS
PAPER–I: ADVANCED PROBABILITY-I

Time: 3 Hours
Marks: 35

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Two dimensional random variables, their joint probability mass function and joint probability density function, marginal and conditional probability distribution functions, Independent random variables.

SECTION–B
Expected value of real valued function of two-dimensional random variables, variance of a linear combination of random variables, Moments of Bivariate Probability distributions, Bivariate moment generating function.

SECTION–C
Conditional expectation and conditional variance, Covariance, correlation coefficient. Cauchy Schwartz Inequality and its applications,

SECTION–D
Bivariate normal distribution, marginal and conditional probability distributions associated with the bivariate normal distribution. Chebyshev's inequality and its applications

Book Recommended:

Books Suggested for Supplementary Reading:
Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Point estimation, estimator and estimates, criteria for good estimators, unbiasedness, consistency, efficiency and sufficiency (only the definitions and examples).

SECTION–B
Minimum variance unbiased estimator, Methods of estimation: moments and maximum likelihood method of estimation.

SECTION–C
Interval estimation. Interval estimate of the mean of a normal distribution, Neyman and Pearson's theory of testing hypothesis, the concepts of statistical hypothesis, two types of errors, critical region, significance level.

SECTION–D
Power and power function, Most powerful test, The Neyman Pearson theorem (only the statement) and its applications for testing a simple hypothesis against a simple alternative.

Book Recommended:

Books Suggested for Supplementary Reading:
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19) 
(Faculty of Sciences)

SEMESTER–III
STATISTICS
PAPER-III: - Practical based on PAPER–II: STATISTICAL INFERENCE–I

Time: 2 Hours  Marks: 30

Teaching time for practical paper would be one hour per week.

List of practical exercises

1. Exercises on unbiased, consistent, efficient and sufficient estimators
2. Exercises on methods of estimation
3. Exercises on interval estimation
4. Exercises on two types of errors, critical region, significance level,
5. Exercises on Most powerful test,

Students are required to prepare a practical note book with at least 15 exercises based upon the above list. At the end of semester, there is a practical examination jointly conducted by two examiners (one is internal and other one is external). External examiner is appointed by the university and the internal examiner is appointed by the principal of the concerned college. This practical examination will cover a written test followed by a viva-voce to test the practical knowledge of students about the contents. The candidates are allowed to use Non–Programmable calculators. The distribution of marks is as under:

1. Practical Note book: 05
2. Viva – voce: 10
3. Exercises: 15
SEMESTER–III
CHEMISTRY (ORGANIC CHEMISTRY–A)
(THEORY)

Time: 3 Hrs. \hspace{1cm} \text{Marks: 35}
45 Hrs (3 Hrs/week)

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

I. Stereochemistry Organic Compounds \hspace{1cm} (12 Hrs.)

SECTION–B

II. Isomerism \hspace{1cm} (11 Hrs.)

III. Alcohols

SECTION–C

IV. Phenols \hspace{1cm} (11 Hrs.)
Nomenclature, structure and bonding. Preparation of phenols, physical properties and acidic character, Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols—electrophilic aromatic substitution, acylation and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Reimer Tiemann reaction.
V. Preparation of Aldehydes and Ketones
Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids.

SECTION–D

VI. Properties of Aldehydes and Ketones (11 Hrs.)

Books Suggested:-

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19) (Faculty of Sciences)

SEMESTER–III
CHEMISTRY (PHYSICAL CHEMISTRY–B) (THEORY)

Time: 3 Hrs. 
Marks: 35 
45 Hrs (3 Hrs/week)

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
I. 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.

SECTION–B
II. Thermochemistry:

III. Thermodynamics-II & III
Concept of Entropy : Entropy as a state function, entropy as a function of V & T, entropy as a function of P & T, entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

SECTION–C
IV. Third Law of Thermodynamics:
Nernst heat theorem, statement and concept of residual entropy, evaluation of absolute entropy from heat capacity data. Gibbs and Helmholtz functions; Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, A & G as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of G and A with P,V and T.
Equilibrium

V. Chemical Equilibrium

Equilibrium constant and free energy. Thermodynamic derivation of law of mass action. Determination of $K_p$, $K_c$, $K_a$ and their relationship, Clausius-Clapeyron equation, applications.

SECTION D

VI. Introduction to Phase Equilibrium 11 Hrs.

Statement and meaning of the terms-phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibria of one component system-water, CO$_2$ and S systems. Phase equilibria of two component systems-solid-liquid equilibria, simple eutectic-Bi-Cd, Pb-Ag systems, desilverisation of lead. Solid solutions-compound formation with congruent melting point (Mg-Zn) and incongruent melting point, (NaCl-H$_2$O), FaCl$_3$-H$_2$O) and CuSO$_4$-H$_2$O) system. Freezing mixtures, acetone-dry ice. Non-ideal system-azeotropes-HCl-H$_2$O and ethanol-water system. Partially miscible liquids Phenol-water, trines-thylamin-water, Nicotine-water System. Lower and upper consolute temperature, Effect of impurity on consolute temperature, immiscible liquids, steam distillation. Nernst distribution law-thermodynamic derivation and applications.

Books Suggested:-

SEMESTER-III
CHEMISTRY
(PRACTICAL)

Duration: 3½ Hrs. Marks: 30
6 Period/Week

Quantitative Analysis

Volumetric Analysis
a. Determination of acetic acid in commercial vinegar using NaOH.
b. Determination of alkali content-antacid tablet using HCl.
c. Estimation of calcium content in chalk as calcium oxalate by permanganometry.
d. Estimation of hardness of water by EDTA.
e. Estimation of ferrous and ferric by dichromate method.
f. Estimation of copper using sodiumthiosulphate.

Gravimetric Analysis
Analysis of Cu as CuSCN and Ni as Ni (dimethylglyoxime)

Organic Chemistry Laboratory Techniques
Thin Layer Chromatography
Determination of Rf values and identification of organic compounds.
a. Separation of green leaf pigments (spinach leaves may be used).
b. Preparation and separation of 2, 4. dinitrophenylhydrazones of acetone, 2-butone, 2-Butanone, hexan-2 and 3-one using toluene and light petroleum (40 : 60).
c. Separation of a mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

Practical Examination
1) Volumetry / Gravimetry 16
2) Thin Layer chromatography 07
3) Viva-Voce 04
4) Note Book 03

Books Suggested:-
Time: 3 Hours  
Total Teaching Hrs: 45(3h/week)  
Pass Marks: 35%

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Basic ideas of Statistical Physics, Scope of Statistical Physics, Basic ideas about probability, Distribution of four distinguishable particles into compartments of equal size. Concept of macrostates, microstates, Thermodynamic Probability, Effects of constraints on the system. Distribution of particles in two compartments. Deviation from the state of maximum probability. Equilibrium state of dynamic system. Distribution of distinguishable n particles in k compartments of unequal sizes.

SECTION–B

SECTION–C
Statistical definition of entropy, Change of entropy of system, additive nature of entropy, Law of increase of entropy, Reversible and irreversible processes, and their examples, work done in reversible process, examples of increase in entropy in natural processes, entropy and disorder, Brief review of Terms, Laws of Thermodynamics, Carnot Cycle, Entropy changes in Carnot cycle, Applications of thermodynamics to thermoelectric effect, change of entropy along reversible path in P-V diagram. Heat death of universe.

SECTION–D
Derivation of Maxwell Thermodynamics relations, Cooling produced by adiabatic stretching, Adiabatic Compression, change of internal energy with volume, Specific heat and constant pressure and constant volume. Expression for $C_P - C_V$, Change of state and Clausius equation.

Books Suggested :
INTERFERENCE OF LIGHT:
Superposition of light waves and interference, young’s double slit experiment, Conditions for
sustained interference pattern, Coherent sources of light, Interference pattern by division of wave
front, Fresnel Biprism, Displacement of fringes, Change of phase on reflection, Interference in
thin films due to reflected and transmitted light, non reflecting films, Newton’s Rings. Michelson
Interferometer.

DIFFRACTION:
Huygen’s Fresnel theory, half-period zones, Zone plate, Distinction between fresnel and
Fraunhoffer diffraction. Fraunhoffer diffraction at rectangular and circular apertures, Effect of
diffraction in optical imaging, Resolving power of telescope in diffraction grating, its use as a
spectroscopic element and its resolving power, Resolving power of microscope.

POLARIZATION:
Plane Polarized light, Elliptically polarized light, wire grid polarizer, Sheet polarizer, Mauls'
Law, Brewester Law, Polarization by reflection, Scattering, Double reflection, Nicol prism,
Retardation plates, Production Analysis of polarized light, Quarter and half wave plates.

LASER FUNDAMENTALS:
Derivation of Einstein relations, Concept of stimulated emission and population inversion,
broadening of spectral lines, three level and four level laser schemes, elementary theory of
optical cavity, Longitudinal and transverse modes. Components of laser devices, condition for
laser action, types of lasers, Ruby and Nd:YAG lasers, He-Ne and CO₂ lasers construction, mode
of creating population inversion and output characteristics, application of lasers – a general
outline.
Books Suggested :-

General Guidelines for Practical Examination: (4.5h/week)

I. The distribution of marks is as follows:

   i) One experiment: 15 Marks
   ii) Brief Theory: 5 Marks
   iii) Viva-Voce: 5 Marks
   iv) Record (Practical file): 5 Marks

Marks: 30

II. There will be one session of 3 hours duration. The paper will have one session.

   Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and
   one of these is to be allotted by the external examiner.

III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment be allotted to more than three examinee in any group.

   1. To determine refractive index of glass and liquid using spectrometer.
   2. To determine the Cauchy’s constants.
   3. To study the refractive index of a doubly refracting prism.
   4. To set up Newton’s rings to determine wavelength of sodium light.
   5. To determine the wavelength by using plane diffraction grating (Use Hg source)
   6. To determine dispersive power of plane diffraction grating.
   7. To determine resolving power of a telescope.
   8. To determine resolving power of a grating.
   9. To measure an accessible (Horizontal and vertical) height using sextant.
   10. To measure inaccessible height by using sextant.
   11. Verify laws of probability distribution by throwing of similar coins.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19) (Faculty of Sciences)

SEMESTER–III

HOME SCIENCE

CLOTHING TEXTILES (PART–I)
(THEORY)

Time: 3 Hours
Periods/week: 6
Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Equipments & supplies in clothing: Construction— their use & care

II. Sewing Machine:
(a) Parts of Sewing Machine and its accessories
(b) Common defects in sewing machine and their remedies
(c) Care of Sewing Machines

SECTION–B
I. Recording of Body measurements. Care to be taken while taking body measurement.
II. Different methods of developing a design—Drafting, Pattern making, Draping (in brief) their advantages and disadvantages.

SECTION–C
1. Classification of textile fibers
2. Manufacture (in Brief) & properties of different fibers.
   a) Cotton
   b) Linen
   c) Silk
   d) Wool
   e) Nylon
   f) Polyester
   g) Rayon Viscose & Acetate

SECTION–D
2. Printing.
   a) Block Printing.
   b) Screen Printing.
   c) Roller Printing
References Books:

<table>
<thead>
<tr>
<th>Book title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New Plan Cutting and Tailoring</td>
<td>Sharma, Shyam Sunder</td>
</tr>
<tr>
<td>2. Fundamental of Textiles and their Care</td>
<td>Dhantyagi, Shusheel Sharma</td>
</tr>
<tr>
<td>3. Pradeep’s Clothing Textiles and their Care</td>
<td>Dr. Rajwinder K. Randhawa</td>
</tr>
<tr>
<td>4. Textbook of Home Science</td>
<td>Neelam Garewal</td>
</tr>
<tr>
<td>5. Textiles Fibre to Fabric</td>
<td>Cogman, Bernard</td>
</tr>
</tbody>
</table>
SEMESTER–III

HOME SCIENCE

CLOTHING TEXTILES (PART–I)
(PRACTICAL)

Time: 4 Hours
Periods/week: 6
Marks: 50

Clothing Practical: Make samples of the following:
  a) Tacking, hemming, buttonhole stitch, fasteners.
  b) Seams-counter seam, run and fell, French seam.
  c) Processes- continuous wrap, two piece placket opening, pleats, gathers into band, tucks.
  d) Embroidry-10 fancy embroidery stitches.

Drafting of the following:
  a) Childs bodice block.
  b) Sleeves- plain and puff sleeve.
  c) Collars-flat and raised peter pan, cape collar, baby collar.

Drafting and Stitching of:
  a) Jangia
  b) Bloomer
  c) Childs frock gathered.

Textile Practical:
  2. Simple household dyeing of cotton fabric 12”x12”.
  3. Preparation of an article of Tie and Dye.
  4. Preparation of article of block printing.

Instructions for the Practical Examiner:
There will be one practical exam consisting of two parts i.e clothing and textiles.
The division of marks and time will be as follows:

Clothing- 2 hrs 30 min.
  a. Drafting and stitching of garment-10 marks
  b. Sample / Embroidery-5 marks
  c. File and scheme work-10 marks

Textiles Practical -1 hr 30 min
  a. Block printing / tie and dye-10 marks
  b. Identification of fibers-5 marks
  c. File and viva-10 marks
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19)  
(Faculty of Sciences)

SEMIESTER–III

COSMETOLOGY (VOCATIONAL)

PAPER–A  
(THEORY)

Time: 3 Hrs.  Total Marks: 100
Periods/Week: 6  Theory Marks: 40
 Practical Marks: 60

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Hair
   Composition and Structure of Hair
   Division & Forms of Hair
   Hair Growth & Regeneration
   Disorders & Disease of the hair and scalp
   PH scale with diagram

SECTION–B

2. Health and Diet
   Basic Introduction of nutrients Carbohydrates, Protein, Fat, Vitamin A, D, C & B Complex, Calcium, Iron, only their main functions related to skin and hair. Food Sources.

SECTION–C

3. Concept of Balanced Diet – 5 food groups principles of meal planning

SECTION–D

4. Overweight and Underweight causes and dietary management
   Role of Water for healthy skin
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19) (Faculty of Sciences)

SEMESTER–III

COSMETOLOGY (VOCATIONAL)

(PRACTICAL)

Time: 4 Hrs  
Marks: 60

Periods/week: 6

Content:

1. **Hair Care**
   a) Types of shampoos and procedure of shampoo
   b) Hair rinses and hair conditions
   c) Hair spa acc. to scalp
   d) Corrective hair and scalp treatment:
      Treatment for dry, oily scalp, dandruff treatment, hair fall treatment with the help of steamer, vibrator, heat, high frequency

2. **Hair Styling**
   a) Basic Techniques and equipments used in styling
   b) Principle of Hair Design
   c) Shapes of Head, headlines, texture and density
   d) Different thermal hairstyles with the help of thermal equipments
SEMESTER-III
CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)
PAPER–A: KITCHEN SANITATION AND FOOD HYGIENE
(THEORY)

Time: 3 Hrs.  Marks: 40
Pds-4 pds/week

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Kitchen Planning: Size and type, Developing kitchen plan, designing kitchen - drainage, water supply, floors, walls, ceilings, ventilation and lighting and safety.
Storage: Location, types, sanitation, safety and security of stores.
Equipments: Classification, Selection, Material Used, Design, Installation Operation, Safety and Care.

SECTION–B
Dishwashing and Cleaning of Kitchen & Service Area: Process and Unit, Use of Water, Detergent and Abrasive, Sterilization & Disinfectant Products Method & Use, Sanitizers.
Safety at Work: Causes of Accident, Safety Procedure & Training.
Safety in Food Procurement, Storage, Handling & Preparation, Control of Spoilage, Safety of Left Over Foods.

SECTION–C
Hygiene of Food Handling During Receiving Storage, Preparation, Cooking, Serving, Holding, Cleaning and Disposal.
Personal Hygiene of Food Handlers - Dress, Grooming, Health & Habits.
Waste product handling: Planning for waste disposal. Solid wastes and liquid wastes

SECTION–D
Control of infestation – rodent, flies & cockroaches control, use of pesticides.
Food adulteration laws and standard in India.

Reference Book:

1) Mohini Sethi, SurjeetMalhan, Catering Management An Integrated Approach, New Age international (P) limited, New Delhi.
List of Book:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Book</th>
<th>Year</th>
<th>Author</th>
<th>Edition</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Food Science and Nutrition</td>
<td>2018</td>
<td>Sunetra Rodey</td>
<td>3rd</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>2</td>
<td>Food production Operations</td>
<td>2011</td>
<td>Parvinder Bali</td>
<td>2nd</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>3</td>
<td>Nutrition and Dietetics</td>
<td>2015</td>
<td>Shubhangini A. Joshi</td>
<td>4th</td>
<td>McGraw- Hill Education</td>
</tr>
<tr>
<td>5</td>
<td>Food Science</td>
<td>2014</td>
<td>B. Srilakshmi</td>
<td>6th</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>7</td>
<td>Dietetics</td>
<td>2014</td>
<td>B. Srilakshmi</td>
<td>7th</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>8</td>
<td>Food Hygiene and Sanitation</td>
<td>2011</td>
<td>Sunetra Rodey</td>
<td>2nd</td>
<td>McGraw Hill Education</td>
</tr>
<tr>
<td>9</td>
<td>Clinical Nutrition and Dietetics</td>
<td>2002</td>
<td>F P Antia</td>
<td>4th</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>10</td>
<td>Food Science</td>
<td>2006</td>
<td>Sumati R. Mudambi</td>
<td>2nd</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>14</td>
<td>Exercise Physiology Fitness and Sports Nutrition</td>
<td>2016</td>
<td>B. Srilakshmi</td>
<td>1st</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
</tbody>
</table>
SEMESTER–III

CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)
PAPER–B: QUANTITY FOOD PRODUCTION AND SERVICE
(THEORY)

Time: 3 Hrs.                                              Marks: 40
Pds-4 pds/week

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Aims and objectives of different food service outlets
(a) Commercial (b) Institutional
Foods recommended for use in canteen, lunchroom and kiosks.

SECTION–B

Menu planning, importance, factors, types A’ La Carte and Table ’d’hôte, construction, writing and display.
Introduction to Indian Cuisine-North, South, East & West

SECTION–C

Food production process - collecting ingredients, weighing and measuring, preparation of food, Some large quantity cooking technique. Effective use of left over food.
Quality in food service - Quantitative, sensory and nutritional quality in brief.

SECTION–D

Food Service - Style of different types of service waiter, banquet, restaurant, room service, self service, buffet service, tray service, plate service.
Planning of service area, Table sizes and decor of service area.
Introduction of different Table Service Ware - Chinaware, Flatware and Cutlery, Glassware, Hollowware.

Reference Book:

2. New Age International (P) Limited Publisher Jalandhar.
3. Food and Beverage Service - Text book by Manoj Kumar Yadav.
### List of Book:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Book</th>
<th>Year</th>
<th>Author</th>
<th>Edition</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Food Science and Nutrition</td>
<td>2018</td>
<td>Sunetra Rodey</td>
<td>3rd</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>2</td>
<td>Food production Operations</td>
<td>2011</td>
<td>Parvinder Bali</td>
<td>2nd</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>3</td>
<td>Nutrition and Dietetics</td>
<td>2015</td>
<td>Shubhangini A. Joshi</td>
<td>4th</td>
<td>McGraw- Hill Education</td>
</tr>
<tr>
<td>5</td>
<td>Food Science</td>
<td>2014</td>
<td>B. Srilakshmi</td>
<td>6th</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>7</td>
<td>Dietetics</td>
<td>2014</td>
<td>B. Srilakshmi</td>
<td>7th</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>8</td>
<td>Food Hygiene and Sanitation</td>
<td>2011</td>
<td>Sunetra Rodey</td>
<td>2nd</td>
<td>McGraw Hill Education</td>
</tr>
<tr>
<td>9</td>
<td>Clinical Nutrition and Dietetics</td>
<td>2002</td>
<td>F P Antia</td>
<td>4th</td>
<td>Oxford University Press</td>
</tr>
<tr>
<td>10</td>
<td>Food Science</td>
<td>2006</td>
<td>Sumati R. Mudambi</td>
<td>2nd</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
<tr>
<td>14</td>
<td>Exercise Physiology Fitness and Sports Nutrition</td>
<td>2016</td>
<td>B. Srilakshmi</td>
<td>1st</td>
<td>New Age International, (P) Limited Publishers</td>
</tr>
</tbody>
</table>
CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)

PAPER–B: QUANTITY FOOD PRODUCTION AND SERVICE
(PRactical)

Time: 3 Hrs.  
Marks: 20

Pds-6 pds/week.

Note:– paper will be set on the spot by the examiner.

Instructions for the Paper Setters.

1. Planning Menu: 5 Marks.
2. Cooking 2 dishes from Menu: 10 Marks.
3. Table Laying: 5Marks.

1) Laying of tablets for different meals & Menus.
   a) A’ La Carte  b) Table Hote  c) Buffet
2) Napkin Folding.
3) Plan menu & cook receipe for lunch, High tea and Dinner party for special occasion.
4) Standardize receipe for bulk preparation. (at least for 20 person)
5) Daily and occasional cleaning of kitchen equitments, utensils counter, floor and cupboards.
6) Visit to Hotel / Canteen / Community / Kitchen / Café (2 Visits)

Note:- If there are more number of student then cafeteria can be started from this session.
SEMESTER–III

FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)

FUNDAMENTALS OF TEXTILES
(THEORY)

Time: 3 Hours
Periods/week: 3
Max. Marks: 100
Theory Marks: 40
Practical Marks: 60

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
a) Introduction to Textiles and Its Importance in Fashion Designing
b) Classification of Textile Fibers and Terminology–Fibre, Filament, Yarn, Fabric Grey Goods, Fiber Length, Elasticity, Evenness, Moisture Absorption, Fiber Strength

SECTION–B

Properties & Manufacturing Process of Natural Fiber
a) Cotton
b) Wool
c) Silk

SECTION–C

Properties and Manufacturing Process of Artificial Fiber
a) Nylon
b) Rayon
c) Spandex

SECTION–D

Brief Study of the Following Yarns:
a) Classification of Yarns – Carded and Combed, Woolen and Worsted, Filament and Spun
b) Simple, Novelty, Bulk/Textured

Reference Books:
<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Book title</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pradeep’s Clothing Textiles and their Care</td>
<td>Dr. Rajwinder K. Randhawa</td>
</tr>
<tr>
<td>2.</td>
<td>Guide to Fashion Sewing</td>
<td>Carwford, Conne Amaden</td>
</tr>
<tr>
<td>3.</td>
<td>Tie-dyed Textiles of India</td>
<td>Murphy, Veronica</td>
</tr>
<tr>
<td>4.</td>
<td>Handbook of Weaving</td>
<td>Murphy, W. S.</td>
</tr>
</tbody>
</table>
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2018-19)  
(Faculty of Sciences)

SEMESTER–III

FASHION DESIGNING AND GARMENT CONSTRUCTION (VOCATIONAL)

PATTERN MAKING AND GARMENT CONSTRUCTION
(PRACTICAL)

Time: 5 Hours                     Marks: 60
Periods/week: 2x6

Instructions for the Paper Setters:

Q. 1 from Part-A carrying 20 marks.
Q. 2 from Part-B carrying 30 marks
Q. 3 from File and scheme 10 marks

PART–A

1. Pattern Making
   I. Dart Manipulation by Flat Pattern (2-3 exercises under each heading)
      a) Shifting of darts
      b) Combining darts
      c) Converting darts into gathers
      d) Converting darts into seam lines
   
   II. Drafting and Adaptation
      a) Skirts-Basic Skirt, Peg Skirt, Pleated Skirt, Flared Skirt, Gathered
          With Yoke
      b) Tops-Cowl Neckline, Turtle Neckline

PART–B

2. Construction
   I) Design and Construct Tops with – Cowl and Turtle Neckline
   II) Design and Construct an Adult Skirt
   III) Traditional Embroidery-Phulkari, Kashmiri
SEMESTER–III

EARLY CHILDHOOD CARE AND EDUCATION (VOCATIONAL)
(THEORY)

Time: 3 Hrs. Maximum Marks: 100
Lectures/week: 6 Theory Marks: 60

Practical Marks: 4

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Objectives:-
1. To gain knowledge and insight regarding principles of early childhood care and education.
2. To develop the skills and techniques to plan activities in ECCE centers of different types.

SECTION–A
Need, Importance and objectives of Early Childhood Education.
Early childhood stimulation at home and school.

SECTION–B
Quality of home environment
Historical Prospective of early childhood education

SECTION–C
Contribution of Agencies to ECCE in India- ICDS-UNICEF, NCERT
Early Childhood Education Programs in India and Abroad
Essentials of Setting up Early Childhood Education Centers– Building and physical facilities, staff, size of class, supervision and curriculum

SECTION–D
Types of Preschool Programs –Kindergarten type, Montessori, Nursery, Open type, Pre basic, Balwadi, Anganwadi, Day care centers
SEASON III

EARLY CHILDHOOD CARE AND EDUCATION (VOCATIONAL)
(PRACTICAL)

Time: 3 Hrs. 
Lectures/week: 4

Marks: 40

Instructions for the Paper Setters:
Paper will be set on the spot by the examiner

Distribution of Marks
Written Practical Test: 10 Marks
Practical File: 5 Marks
Oral Examination: 5 Marks
Class Performance: 10 Marks
Article/Activity Material: 10 Marks

Course Contents:
A visit to a “model” early childhood educational centre to observe curriculum implementation, indoor and outdoor activities and equipments.

Preparation of curriculum calendar (for one academic session) daily time table and detailed activity plan (for each day).

Developing an educational kit for enhancing conceptual aspects among pre-school children.

Activities for enhancing language development in pre school children.
SEMESTER–III

FOOD SCIENCE AND QUALITY CONTROL (VOCATIONAL)

FSQC-5: FOOD PROCESSING AND PACKAGING (THEORY)

Time: 3 Hours  Max. Marks: 75

Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Physical principles underlying food processing operations including thermal processing, ionising radiation, refrigeration, freezing, dehydration, etc.
2. Chemical principles in food processing, chemical changes in food that affect the texture, colour, flavour, odour, stability and nutritive quality during processing and storage.
3. Fats and Oils: Types and sources of fats and oils (animal and vegetable) Processing uses, storage, cost and nutritional aspects.
4. Sugar and Sugar Products: Different forms of sugar, (sugar, jaggery, honey syrup) manufacture, selection, storage and use preserve.
5. Salt types, uses in the diet.

SECTION–B

7. Processing cost and nutritional aspects.
9. Quality control in food industry-methods of evaluation and control of the various aspects of quality of raw materials manufacturing process, the testing of finished products.

SECTION–C

10. Spices and flavour
11. Preservatives and additives.
12. Extruded foods.
13. Food Irradiation.

SECTION–D

15. Packaging function
16. Approaches to packaging development, Specification and Quality Control, Interaction of Food & Packaging.
   • Evaluation of Food Packages
   • Importance of Packages
   • Packaging criteria, appearance protection, function cost, materials & forms of packaging.
   • Packaging methods & performances.
Packaging specification & control of packaging quality.
Food & Food package interaction.
Food packaging & laws
Packaging evaluation-package life theory and testing packaging materials.
Shelf life testing.

Recommended Books:

2. Cereal Tech. – Kent.
4. Dairy Tech. – Sukumar De.
5. Waste Treatment.
List of Practicals:

1. Determination of physical characteristics of cereals.
2. Milling of wheat into flour.
3. Determination of wet & dry gluten contents.
4. Determination of free fatty acids in flour and rice bran.
8. To estimate the shelf life of packaged food.
9. To determine grease resistance of packaging material.
10. Determination of water vapor transmission rate of various packaging materials.
11. To find out the porosity of tin plate.
12. To find out the tin coating weight.
13. To find out the uniformity and amount of wax on wax paper.
14. To see the chemical resistance of packaging materials.
15. Visits to various industries dealing with food packaging material like, paper board and metal.
Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Classical Sculptures:
   • The Guptas:
     (A) Mathura:
     (i) Standing Buddha
     (ii) Vishnu
     (B) Sarnath:
     (i) Seated Buddha
     (ii) Buddha from Sultanganj

SECTION–B
2. Postclassical Sculptures:
   • Ellora:
     (i) Ravana shaking mount Kailasha
     (ii) Abduction of Sita
   • Elephanta:
     (i) Trimurti
     (ii) Marriage of Shiva and Parvati

SECTION–C
• Mahaballipuram:
  (i) Descent of the Ganges
  (ii) Mahisasurmardini

SECTION–D
3. Chola Bronzes:
   (i) Parvati
   (ii) Shiva Natraja
   (iii) Kali

Suggest Readings:
1. The Art Forger by Barbara A. Shapiro
2. The Art Spirit by Robert Henri
3. Vision and Art: The Biology of Seeing by Margaret S. Livingstone
4. History of Art by H.W. Janson
5. Wall and Piece by Banksy
6. American Painting by Donald Letcher Goddard
7. The Paintings Of Samuel Palmer by Raymond Lister
SEMESTER–III

FINE ARTS
(DRAWING & PAINTING)

PAPER–B
(PRACTICAL)

DESIGN 2D & 3D

Time: 5 Hrs. Marks: 25

Work Load:
Theory - 3 periods per week.
Practical - 9 periods per week.
Total - 12 periods per week.

Study of 2-dimensional and 3-dimensional designs based on Folk forms. Any folk motif with proper shading is a 2-D design and cardboard pasted on handmade sheet in form of various folk motifs is a 3-D design- this is only an example; any other materials can also be used to create 3-D.

Medium: Poster colours

Size: ½ Imperial
SENIOR SEMESTER
FINE ARTS
(DRAWING & PAINTING)

PAPER C
(PRACTICAL)
HEAD STUDY (MALE/FEMALE)

Time: 5 Hrs.  
Marks: 25

Work Load:
Theory - 3 periods per week.
Practical - 9 periods per week.
Total - 12 periods per week.

Rendering of Head (Male/Female head) from life or cast. Emphasis should be given on structure, volume, proportion, light, shade and texture in Monochromatic colour scheme.

Medium: Any medium

Size: ½ Imperial

Candidates will submit:

(i) 5 sheets of each paper.
(ii) Sketch book containing 50 sketches.
GEMOLOGY AND JEWELLERY DESIGN (VOCATIONAL)  
(THEORY)

Time: 3 Hrs.  
Max. Marks: 100  
Theory Marks: 50  
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Introduction to Stone setting.

SECTION–B
2. Different styles of stone setting like Prong, Bezel, Chennal etc.

SECTION–C
3. Introduction: Ruby, cat’s eye, Pearl, Zircon

SECTION–D
4. Introduction: coral, Emerald, Topaz, Sapphire
Development of a design of a Pendent, Broche, Armlet, etc using mark-making, Bead-making, Twisting, stone-setting techniques.

Exercise on:

1. Mark making
2. Filling
3. Sowing
4. Puzzle work
5. Tube making
SEMESTER–III
STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)

PHOTO JOURNALISM
(THEORY)

Time: 3 Hours
Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

SECTION–B

SECTION–C
4. Equipment for Photo-Journalism (Choice of right equipment i.e. Lens, Camera, Flash raw, Stock for a particular assignment).

SECTION–D
5. Introduction and Practice of Rapid Development Finishing, Drying.

Suggested Readings:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Book Name</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Photographers Manual</td>
<td>John Frama</td>
</tr>
<tr>
<td>2.</td>
<td>Close-Up Photography</td>
<td>Johathan Hilton</td>
</tr>
</tbody>
</table>
SEMESTER–III
STILL PHOTOGRAPHY & AUDIO PRODUCTION (VOCATIONAL)

STILL PHOTOGRAPHY & CAMERA ACCESSORIES
(PRACTICAL)

Time: 6 Hours

Practical Marks: 50

Instructions for the Paper Setters:

1. The Paper will be set by the External Examiner on the spot considering the syllabus.
2. Creative Work on the part of the students is to be emphasized.
3. Technical Competence is expected. The students should also use Updated and Latest Techniques in his/her work.
4. Photographs clicked during examination are supposed to be submitted by the student in the form of C.D. or D.V.D. and can be evaluated by the Examiner on Computer or Laptop.
5. Extra weightage will be given for creative and professional approach.

Instructions for Students:
1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.
2. Students are not allowed to use previous clicked Photographs.
3. Sizes of photographs will be given by External Examiner as per requirement.

Course Contents:
1. Shutter types – Their limitations.
2. Circle of Confusion, its Effect on Sharpness.
3. Techniques of Photographing Action.
6. Supplementary Lenses.
8. Flash-type, Working, Exposure.
9. Exposure: Method of Estimations, Types of Exposure Meters & their Comparison, Reciprocity Failure.
10. Types of Films & their Characteristics Filters: Types, Use, Optical Limitation, Filter Factor.

Suggested Readings:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Book Name</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Digital Photography Special Effects</td>
<td>Michael Freeman</td>
</tr>
<tr>
<td>2.</td>
<td>The Essential Photography Manual</td>
<td>Tim Daly</td>
</tr>
<tr>
<td>3.</td>
<td>The Everything Digital Photography</td>
<td>School</td>
</tr>
</tbody>
</table>
SEMIESTER–III
APPLIED ART

ART APPRECIATION & ADVERTISING (THEORY)

Time: 3 Hours
Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Introduction to Advertising.
2. Types of Advertising.

SECTION–B
3. Different Medias of Advertising.

SECTION–C
6. Poster and its types.

SECTION–D
7. Scope of Commercial Art.

Suggested Readings:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Book Name</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A Handbook of Advertising Techniques</td>
<td>Tommy Harrison</td>
</tr>
<tr>
<td>2.</td>
<td>Ogilvy on Advertising</td>
<td>David Ogilvy</td>
</tr>
<tr>
<td>3.</td>
<td>Advertising as a Career</td>
<td>Subrate Banerjee</td>
</tr>
</tbody>
</table>
SEMESTER–III
APPLIED ART

LAYOUT (PRACTICAL)

Time: 6 Hours
Marks: 50

Medium: Layout & Illustration
Size:
Newspaper: Columns x Cms
Magazine: ‘8½’ x 11’
Illustration: ¼ imperial

Instructions for the Paper Setters:
1. The paper will be set by the Examiner on the spot considering the syllabus.
2. Imaginative and Creative work on the part of the students is to be emphasized. Imagination and Technical competence is expected. The students should also use updated and latest techniques in his/her work.
3. Students will have to complete Five Projects during the course.
4. Students can use Magazines/Books/Newspapers as reference for their Class Work & Examination.
5. Topic for the Examination will be set by the external examiner on the spot after consultation with the Class Teacher.
6. Extra weightage will be given for creative and professional approach.

Instructions for Students:
1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.

Course Contents:
Prepare Commercial and Educational Layouts
Black & White for Newspaper & Coloured (Multicolour) Layout for Magazine.
Prepare Illustration based on Stories, Drawing of Objects, Birds and Animals, different scenes etc.

Note: Limited Reference while preparing rough visual is allowed
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20) (Faculty of Visual Arts & Performing Arts)

SEMESTER–III
SCULPTURE

(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
(1) Indus Valley Sculptures and seals.

SECTION–B
(2) Mauryan Dynasty (Sculptures and Pillars)

SECTION–C
(3) Introduction of Stupa, Vihara and Chaitya.

SECTION–D
(4) Shunga Dynasty (Bharhut Stupa)
(5) Sanchi Stupa

Books Recommended:

3. B.M. Barua: Bharhut.
SEMESTER–III
SCULPTURE

(PRACTICAL)

Time: 6 Hrs.  
Marks: 50

(1) Low Relief Sculpture in Terracotta (Total No-1 Based on Birds/Animals/ Human Figures (Min Size 8x8 inches)

(2) Head study in clay, Modeling from life Size, these works should be produced in plaster of pairs (Total Number of works -2)

Books Recommended:

1. S.K.Sarswati  
   A survey of Indian Sculptures.
2. Stella Krmisch  
   Indian Sculptures.
3. Roy C. Craven  
   Indian Art A Concise History
4. S.M Asgar Ali Kadvi  
   Moorti Kala ka Itihas
5. Benjamin Rowland  
   The Pelican History of Art
6. Dr. G.K. Aggarwal  
   Shilpa Drashan.
7. Dr Gyacharu Tripathi  
   Prachin Bharat Ki Kala
SEMESTER-III
MUSIC (VOCAL)
(THEORY)

Theory: 3 Hours
Practical: 20 Min. for each student

Teaching Work load:
Theory: 3 Periods per week
Practical: 9 Periods per week

Total Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Instructions given to the examiners are as under:
1. There should not be more than fifteen students in a batch for practical examination.
2. Harmonium will only be allowed as Base Instrument in Vocal Music (Practical).
3. While sending the syllabus to paper setter in theory the syllabus prescribed for the practical paper should also be sent.
4. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
5. Candidate can take Tabla subject along with Music Vocal or Music Inst.

SECTION–A
1. Historical Development of Indian Music during 14th to 17th century with special reference to Akbar Period.
2. Definition and explanation of the following Musical Terms: Alap, Bol Alap, Bol Baant, Upaj.

SECTION–B
3. Detailed Study of Tanpura and Sahayak Naad.
4. Varieties of Tanas.

SECTION–C
5. Description and notation of the following Ragas: Bhimplasi, Des and Vrindavani Sarang.
6. Description and notation of the following Talas: Ektal and Sooltal.

SECTION–D
8. Salient features of Kirtan Chaunkis in special context of Gurmat Sangeet.
SEMMESTER–III
MUSIC (VOCAL)
(PRACTICAL)

Time: 20 Minutes  
Marks: 50

1. Ability to play five alankars on the Harmonium based on the Kafi Thata.
2. One Vilambit Khayal in any of the Ragas prescribed in the course with simple Alaps and Tanas.
3. One Drut Khayal in each of the following Ragas with simple Alaps and Tanas: Bhimplasi, Des and Vrindavani Sarang.
4. One Lakshan Geet in Prescribed Raga.
5. One Dhrupad with Dugan Laykari in any of the prescribed Ragas.
6. Ability to recite Ektal and Sooltal showing Khali Tali with hand motion in Ekgun, Dhugan Layakaries.
7. Brief Knowledge of following Ragas: Dhnashri, Sorath and Madhmaad Sarang.
8. Ability to play theka of Rupak Tala on tabla.
9. Ability to play Dhun of any Folk Song of Punjab on Harmonium/any instrument.

Books Recommended:

5. Sangeet Shastra Darpan, Shanti Govardhan.
8. Sangeet Nibandhavli, Dr. Gurnam Singh, published by PunjabiUniversity, Patiala.
9. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh.
SEMESTER–III

MUSIC (INSTRUMENTAL) (THEORY)

Time: 3 Hours Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Historical development of Indian Music during medieval period i.e. from 12th to 15th century.
2. Detailed study of “Naad”
3. Life Sketch and Contribution of Ustad Inayat Khan & Ustad Abdul Halim Zafar Khan.

SECTION–B
4. Techniques and Methods of tuning of Sitar.
5. Brief knowledge of the following:– Meend, Ghaseet, Kan, Krintan, Khatka.
6. Description and notation of the prescribed Ragas: Bhimplasi, Asawari and Des.

SECTION–C
7. Brief knowledge of the following Ragas: Kafi, Jaunpuri and Sorath
8. Brief knowledge of the following Talas: Ektal & Sooltal.

SECTION–D
9. Classification of Instruments used in Gurmat Sangeet.

Books Recommended:
1. Rag Parichay (Part 1,2,3) by H.C. Shrivastav.
2. Sangeet Shastar Darpan (Part I & II) by Shanti Govardhan.
5. Gurmat Sangeet, Prabandh ate Pasaar, Dr. Gurnam Singh
6. Sangeet Subodh by Dr. Davinder Kaur.
9. Sangeet Roop by Dr., Davinder Kaur, Patiala.
10. Bhartiya Sangeet ka Itihas by Umesh Joshi.
11. Bhartiya Sangeet ke Vadhya, Dr. Lal Mani Mishra.
SEMESTER–III
MUSIC (INSTRUMENTAL)

(PRACTICAL)

Time: 20 Minutes  Marks: 50

1. Ability to play ten Alankars on Sitar in the swaras of Kafi Thaat.
2. One Maseetkhani Gat in any of ragas prescribed in the Course. (Bhimplasi, Asawari and Des)
3. One Razatkhani Gat in each of the prescribed raga with Toras and Jhaala.
4. Ability to recite on hand, the Talas, Ektal & Sooltal in Ekgun & Dugun Layakaris.
5. Ability to play theka of Rupak Tala on Tabla.
6. Ability to sing a Cinematic song with any instrument.
7. Brief Knowledge of the following Non–detailed Ragas: Kafi, Jaunpuri and Sorath.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)  
(Faculty of Visual Arts & Performing Arts)

**SEMESTER–III**

**INDIAN CLASSICAL DANCE**  
(THEORY)

**Time:** 3 Hours **Max. Marks:** 100  
**Periods/week:** 3 **Theory Marks:** 50  
**Practical Marks:** 50

**Instructions for the Paper Setters:**  
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION–A**

1. Study of Tandava and Lasya.  
2. Knowledge of characteristics of Kathak Nritya.  
3. Study of the Kathakali Dance with its historical background, style costumes and music etc.

**SECTION–B**

4. Knowledge of Samyukta Hastas according to Abhinaya Darpan with their uses in Dance.  
5. Knowledge of the Folk Dance of Uttar Pradesh  
6. Biography and contribution of the following Dance Gurus in their respective field of specialization.  
   i) Uday Shankar  
   ii) Shambhu Maharaj

**SECTION–C**

7. Essay on:  
   i) Relation of Dance with other fine arts.  
   ii) Dancing: A Door to Devine  
8. Notation of:  

**(i) Ektaal (Matra-12)**  
   a) Tatkar in Thah, Dugun & Chougun Layakaries.  
   b) Thaat- 2  
   c) Tehai-1  
   d) Amad-1  
   e) Salami-1  
   f) Tora-2  
   g) Paran-1  
   h) Chakardar Paran -1  
   i) Kavit-1
INDIAN CLASSICAL DANCE
(THEORY)

(ii) Sooltaal (Matra-10)
   a) Tatkar in Thah, Dugun & Chougun Layakaries.
   b) Thaat- 2
   c) Tehai-1
   d) Amad-1
   e) Salami-1
   f) Tora-2
   g) Paran-1
   h) Chakardar Paran -1
   i) Kavit-1

SECTION–D
9. Description and Notation of the following Talas in Thah, Dugun, Tigunand Chaugun layakaries:
   (i) Ektaal     (ii) Sooltaal     (iii) Choutaal.
10. Notation of Nagma in:
    (i) Ektaal     (ii) Sooltaal

Books Recommended:

5. Kathak Nritya Shiksha Part-1, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP)
SEMESTER–III

INDIAN CLASSICAL DANCE
(PRACTICAL)

Time: 20 Minutes
Marks: 50
Periods/week: 9

Instructions for Examiner: The Examiner will set practical paper on the spot.

1. Ektaal (Matra-12)
   a) Tatkar in Thah, Dugun & Chougun Layakaries.
   b) Thaat- 2
   c) Tehai-1
   d) Amad-1
   e) Salami-1
   f) Tora-2
   g) Paran-1
   h) Chakardar Paran -1
   i) Kavit-1

2. Sooltaal (Matra-10)
   a) Tatkar in Thah, Dugun & Chougun Layakaries.
   b) Thaat- 2
   c) Tehai-1
   d) Amad-1
   e) Salami-1
   f) Tora-2
   g) Paran-1
   h) Chakardar Paran -1
   i) Kavit-1

3. Practical demonstration of two Gat Nikas
4. Padhant of all the Practical material mentioned above.
5. Ability to demonstrate Theka of Ektaal, Choutaal and Sooltaal by hand in Ekgun, Dugun, and Chaugun layakaries.
6. Practical demonstration of Samyukta Hastas according to Abhinaya Darpan.
7. Ability to play Theka of Ektaal on Tabla.
8. Ability to sing A Bhajan by Harmonium.

Books Recommended:

5. Kathak Nritya Shiksha Part-1, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP)
Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION A

1. Define and Explain the following terms:
   a. Tabla Vadak
   b. Sangat Kar
   c. Theka
   d. Tihai

2. Detailed knowledge of Gharanas of Tabla and Pakahawaj:
   a. Delhi
   b. Punjab
   c. Ajarara

SECTION B

3. Life Sketch:
   a. Pt. Kanthe Maharaj
   b. Pt. Anokhe Lal
   c. Ahmed Jaan Tharikwa


5. Define Paran. Explain Chakardar Paran in detail with notation of one Chakardar Paran in Rupak Tal.
94
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Visual Arts & Performing Arts)

SEMESTER–III

TABLA

SECTION–C
6. Use of Tabla in Music Therapy.
7. Notation and description of the following:-
   a. Rupak: Laggis (three), Mukhra (two), Tihai (two), Chakardar Paran (One).
   b. Jhap Tal: Two Kayadas with five Paltas each, Two Tukara’s, Two tihaais
   c. Ektal: One Peshkar, One Paran, One Chakardar Tihai.

SECTION–D
8. Define the following terms-Jori, Shaan, Sath, Mukaa in context to Gurmat Sangeet.
9. Comparative study of the following Taals:-
   Jhaptal-Sooltal, Ektal-Chaartal

Books Recommended:

1. Tala Prescribed: Rupak, Jhaptal, Ektal.
2. Rupak: Laggis (three), Mukhra (two), Tihai (two), Chakardar Paran (One).
3. Jhap Tal: Two Kayadas with five Paltas each, Two Tukara’s, Two tihaais
4. Ektal: One Peshkar, One Paran, One Chakardar Tihaai.
5. Ability to play Nagma on Harmonium in Jhaptal.
6. Ability to play Theka of Sooltaal.
7. Practice of playing the above Taals with Vocal and Instrumental performance.
8. Tuning of Tabla.

Books Recommended:

SEMESTER–III
COMPUTER SCIENCE

COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS
(THEORY)

Time: 3 Hours  Max. Marks: 100
4 Hours/week  Theory Marks: 75

Practical Marks: 25

Instructions for the Paper Setters:–
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Introduction:
Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors.
Non-linear Equations, Iterative Solutions, Multiple roots and other difficulties, Interpolation methods, Methods of bisection, False position Method, Newton Raphson-method.

SECTION–B

SECTION–C

SECTION–D

Numerical differentiation by Polynomial Fit Statistical Techniques
Measure of Central Tendency, Preparing frequency distribution table, Mean Arithmetic, Mean geometric, Mean harmonic, Mean median Mode.
Measure of dispersion, Skewness and Kurtosis Range, Mean deviation, Standard deviation, co-efficient of variation, Moments Skewness Kurtosis.
Correlation Bivariate Distribution Multivariate distribution.
Regression B.C., Linear Regression, Multiple Regression.
Trend Analysis least square fit linear trend, Non-linear trend
Y=axb
Y=abx
Y=acx
Polynomial fit: Y=a+alX+ea^2x2+a^nXn+n

Books Recommended:
SEMESTER–III
COMPUTER SCIENCE

COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS LAB.
(PRACTICAL)

Marks: 25

2 Hours/week

Practical based on Computer Oriented Numerical and Statistical Methods
SEMESTER–III

INFORMATION TECHNOLOGY (VOCATIONAL)

OOPS Using C++
(THEORY)

Time: 3 Hours
4 Hours/week

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Evolution of OOP, OOP Paradigm, Advantage of OOP, Characteristics of the object oriented language-objects, classes, Inheritance, Reusability, User Defined data types, Polymorphism and operator overloading. Identifiers and Keywords, Constants, c++ operators, type conversion, variable Declaration, Statements and Expressions,

SECTION–B
Input and output, conditional expression, loop statements, breaking control statements. Defining a function, types of functions, storage class specifiers, recursions.

SECTION–C
Arrays, structures, pointers and structures, unions, classes, member, functions, objects, arrays of class objects, pointer and classes, constructors, destructors, inline member functions, static class member, friend function, dynamic memory allocation.

SECTION–D
Inheritance, single inheritance, types of base classes, type of derivations, multiple inheritance, container classes, member access control, Functions overloading , operator overloading, polymorphism, virtual functions, pure virtual functions, opening and closing of files, Stream State member functions.

References:

SEMESTER-III

INFORMATION TECHNOLOGY (VOCATIONAL)

OOPS Using C++
(PRACTICAL)

Marks: 25

4 Hours/week

Practical based on OOPS Using C++
SEMESTER–III
COMPUTER MAINTENANCE (VOCATIONAL)

MICROPROCESSOR & ASSEMBLY LANGUAGE
(THEORY)

Time: 3 Hours
4 Hours/week

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A


SECTION–B

Interfacing I/O Devices: Basic Interfacing Concepts, Interfacing, Output Display Interfacing Output Devices, Memory Mapped I/O.

Instruction Set of Intel 8085: Introduction Instruction & Data Format, Addressing Modus, Status Flags, Intel 8085 Instruction.

SECTION–C

Peripheral Devices & their Interfacing: Memory & I/O Interfacing, Data Transfer Schemes, Interrupt of Intel 8085, Programmable DMA Controller, Programmable Interrupt Controller, Intel 8529.

SECTION–D

16-Bit Microprocessor: Intel 8086/8088 pin Diagram, Architecture, Minimum & Maximum Modes, Bus Cycles, Memory Bus Status Codes, Memory Control Signals, Read/Write Cycle.

I/O Interface of 8086/8088 Microprocessor: Introduction, Types of I/O, Isolated I/O Interfaces, I/O Data Transfers, I/O Instruction, I/O Bus Cycles, I/O Hand Shaking Memory Mapped I/O, 8237A Programmable DMA Controller.

Assembly Language Programs Using 8085 Instructions

References:

SEMESTER–III

COMPUTER MAINTENANCE (VOCATIONAL)

(PRACTICAL)

Marks: 25

2 Hours/week

List of Practicals Based on Microprocessor & Assembly Language

1. To study the architecture of 8088 microprocessor.
2. To study the addressing modes of 8086.
3. To add two binary numbers each of 16-bit long.
4. To add two binary numbers each of 8-bit long.
5. To find maximum number in the given string (16 bytes long) and store it at location 0510.
6. To sort a string of a number of 8-bytes in descending order.
7. To multiply an ASCII string of 8 number by a single ASCII digit.
8. To divide a string of unpacked ASCII digits.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Engineering & Technology)

SEMESTER–III

COMPUTER APPLICATION (VOCATIONAL)

OPERATING SYSTEM
(THEORY)

Time: 3 Hours  Max. Marks: 100
4 Hours/week  Theory Marks: 75

Practical Marks: 25

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four
Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are
required to attempt five questions, selecting at least one question from each Section. The fifth
question may be attempted from any Section.

SECTION–A

1 What is an Operating System - Evolution of OS Machine Language, Assembly, Compiler, Interpreter.

2 Types of Operating Systems with Examples
   a) Single User Systems
   b) Multi User Systems : Unix, Xenix, Vax/VMS.

SECTION–B

3 Functions of Operating System
   a) Memory Management (Fixed Sized partition, Variable Sized Partition, Dynamic Memory
      Management with Reallocation Technique, Paging Demand Paging Techniques).
   b) CPU Management (For come First served, Shortest Job First, Round Robin Policy).
   c) File Management.
   d) I/O Device Management.
   e) Command Interpreter.
   f) Data Management.
   g) Programme Developing Tools.
   h) Time Sharing.
   i) Security.
   j) Communication

4 Booting a System.

SECTION–C

5 Features and Benefits of Unix.
   a) Unix System (Multi-programming, time-sharing, multitasking).
   b) Components of Unix (Kernel, Shell).
   c) UNIX file system (Data Block, list, super block, boot block).
   d) Types of Files (Ordinary, Directory and Special Files).
   e) Types of users in UNIX - levels of users (0-2).
SEMESTER–III
COMPUTER APPLICATION (VOCATIONAL)
OPERATING SYSTEM
(THEORY)

SECTION–D

Login and Logout from Unix Session.
Types of Shells (Bourne, c-shell, r-shell).

Shell as a command inte, clear.
Simple Directory and File Commands Cat, is, in, chmod, mail, who, whoami, cal, pwd, date, ps, mkdir, cd, rmdir, rm, tput, clear.
Piping, filters, batch processing, shell programming (echo, read, case constructs)
Editors (vi): Commands for opening, inserting, modifying, deleting and saving files.

References:
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20) (Faculty of Engineering & Technology)

SEMESTER–III

COMPUTER APPLICATION (VOCATIONAL)

OPERATING SYSTEM (PRACTICAL)

2 Hours/week

Practical based on Operating System

Marks: 25
SEMESTER–III
AUTOMOBILE MAINTENANCE (VOCATIONAL)

(THEORY)

Time: 3 Hours
Periods per week Theory: 6
Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Orientation of the Course:

SECTION–A
Automatic Electrical Systems: Basic Automotive Circuits, Starting motor, Starting Devices, Bendix starting Drive, Over running clutch drive, Solenoid shaft systems, Starting motor trouble shooting.

SECTION–B
Generator: Generator principles, Generation of Alternating currents, Generation of direct current, Generator construction, generator output control, Cut out relay, Regulator, Alternator type generator, Generating systems trouble shooting.

SECTION–C
Ignition Systems: Introduction, Qualities of a good ignition system, Battery ignition system, Components of battery ignition system, Ignition coil, Condenser, Contact breaker, Distributor

SECTION–D
Ignition Advance: Methods of ignition advance, Spark plug, Classification of Spark Plugs, Spark Plug Gap, Magneto Ignition System, Rotating Armature Type, Rotating magnet type, Low and high tension types, Special type of magneto, Ignition System trouble shooting.

References:

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
SEMMESTER–III
AUTOMOBILE MAINTENANCE (VOCATIONAL)

LAB – I (PRACTICAL)

Time: 3 Hours
Periods per week: Practical: 4 Hrs.

Marks: 50

Distribution of Marks

<table>
<thead>
<tr>
<th>Activity</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three visits to Motor Workshop</td>
<td>10</td>
</tr>
<tr>
<td>Oral Examination</td>
<td>10</td>
</tr>
<tr>
<td>Written Test</td>
<td>10</td>
</tr>
<tr>
<td>Test of Workshop Jobs</td>
<td>10</td>
</tr>
<tr>
<td>Identification of Workshop Tool</td>
<td>5</td>
</tr>
<tr>
<td>Scale Instrument Readings</td>
<td>5</td>
</tr>
</tbody>
</table>

1. Self Stater opening from the Voh and Refitting
2. Dynamo/Alternator Dismentling and Assembling.
3. Ignition Timing with the Engine.
4. Engine fault Diagonising.
SEMMESTER-III
REFRIGERATION & AIR CONDITIONING (VOCATIONAL)

Time: 3 Hours \hspace{1cm} Marks: 50
Teaching Hours: 6

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Compressor Lubrication: Methods of Lubrication & the properties of a Lubricating oil Identifications of sources of problem in operation Value failure, Shaft Seals 3– way Values cylinder to head gascuts.

SECTION–B

SECTION–C

SECTION–D
Refrigeration & Air Conditioning System Practice: Piping layout Selection of pip material & size for various Refrigerant, Methods of joining, flaring & brazing System, evacuation, depyartation, charging balancing, leak testing, Use of Solenoid values pressure equalizers.

List of Books Recommended:

<table>
<thead>
<tr>
<th>Name of Book</th>
<th>Author</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigeration &amp; Air Conditioning</td>
<td>S.C. Arora</td>
<td>Dhanpat Rai</td>
</tr>
<tr>
<td>Refrigeration &amp; Air Conditioning</td>
<td>Dowkundwar Khurmi</td>
<td>Katson</td>
</tr>
<tr>
<td>Refrigeration &amp; Air Conditioning</td>
<td>Sarao, Gaabi Singh</td>
<td>Satya Prakashan</td>
</tr>
</tbody>
</table>
SEMESTER–III
REFRIGERATION & AIR CONDITIONING (VOCATIONAL)

PRACTICAL: LAB–II

Time: 2 Hours
Marks: 50
Period Per week Practical: 4

List of Experiments:

1. To Study the various control devices e.g. Thermostat, Relays & dryers etc.
2. To Study the vapour compression System.
3. To assemble & Operate a small vapour compression system.
4. To Study an electrolux Refrigerator.
5. To Study the Window Type Air Conditioner, Split Type air Conditioner.
6. To Study Ammonia-Water Plant.
SEASON III

INFORMATION TECHNOLOGY SPECILIZATION SOFTWARE DEVELOPMENT
(VOCATIONAL)

SOFTWARE ENGINEERING

Time: 3 Hours    Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

The students can use only Non–Programmable & Non–Storage Type Calculators.

SECTION – A
1. Introduction to Software: Definition, Software characteristics, Software components, Software Applications.

SECTION – B
3. Software Metrics: Role of Metrics and measurement, Metrics for software productivity and Quality.

SECTION – C
5. Planning a Software Project: Cost estimation, uncertainties in cost estimation, Project scheduling and milestones, Software & Personal Planning

SECTION – D

References:-
2. Integrated Approach to Software Engineering, Pankaj Jalote.
Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. मातृभ कल्याण (The Law), रावण (The Prophets), वेद (The Writings) जाने
2. जाने रावण से मिठी चाहना
3. मातृभ कल्याण-अभिमर्य (The Law), रावण (The Prophets), वेद (The Writings) याने मैथेब नामत्वाती।

SECTION–B

1. नवीनाचेन उत्तर: नवीनाचेन उत्तर विवेक (तडंगे रेंबर ग्रंथों से योगदान धारण करें)
2. विवेक अभिमर्य: नवीनाचेन उत्तर
3. नव उत्तर (New Testament): मुख्य भाग
   (i) मंडली श्री आनंदी (Gospel of Mathew): मुख्य झाँकी नामत्वाती
   (ii) 21 श्रद्ध (Epistles) जाने जाने चाहने कुत्ते माने जाने
   (iii) भविष्य श्री बाणी (Apocalypse)

SECTION–C

1. नवीनाचेन उत्तर: नवीनाचेन उत्तर, नवीनाचेन उत्तर विवेक, नवीनाचेन उत्तर विवेक, नवीनाचेन उत्तर विवेक ही योगदान धारण करें मानत्व संचारी
2. विवेक अभिमर्य: नवीनाचेन उत्तर, नवीनाचेन उत्तर, नवीनाचेन उत्तर विवेक श्री आनंदी, मलाव, डावा, डावा, डावा
3. विवेक अभिमर्य: मैथेब अभिमर्य
ENGLISH:
5. Clark, Denmise E., Jesus Christ- His Life and Teachings, , Madarsa Road, Kashmiri Gate, Delhi, 1654.

Punjabi:
1. गुरचरण सिंह, इस्लाम अत्तर मुस्लिम, खंड रे, पुंजाबी वृत्तिक्रियाओं, पटिभाषा, 1994.
2. नी. अति. मिस्ज़ अटे नी. रजरिंडर तेगरिंडर, खंड रे पनज वृत्तिक्रियाओं घर, खंड रे वृत्तिक्रियाओं घर, खंड रे.
3. गुरचरण सिंह, महान संग्रह, पुंजाबी वृत्तिक्रियाओं, पटिभाषा, 1971.
4. खंड रे सिंह उद्धव, (संपर्क) संग्रह इस्लाम अत्तर मुस्लिम, पुंजाबी वृत्तिक्रियाओं, पटिभाषा, 1985.
5. टिकेटीस दी खंड रे, खंड रे अटे टिकेटीस दी खंड रे : दी अटर-पहाड़, बौद्ध धर्म धर्म जंगस्त, पटिभाषा, 2009.
6. बौद्ध (पुंजाबी अध्यात्म), बौद्ध धर्म पुंजाबी महान संग्रह, पंजाबी, 1976.
8. खंड रे उद्धव, मिस्ज़, टिकेटीस दी अटर-पहाड़, बौद्ध धर्म धर्म जंगस्त, पटिभाषा, 2009.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Humanities and Religious Studies)

SEMESTER–III

PHILOSOPHY

DEDUCTIVE LOGIC AND APPLIED ETHICS (OPT. I)
(Only for Regular Students)

Lectures to be delivered: 6+4=10 per week
Time: 3 Hours
Pass Marks: 35%
Marks: 100
Theory Marks: 80
Practical Marks: 20

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

3. Terms: Classification, Connotation and Denotation. Inverse Relation between Connotation and Denotation.

SECTION–B

4. Proposition: Classification of Propositions, Four-fold division of Propositions.
5. Immediate Inference: Square of Opposition of Proposition, Contradiction, Contrary, Sub-Contrary, Subalteration.

SECTION–C


SECTION–D

SEMESTER—III

Recommended Readings:

English Books

Punjabi Books
1. ਸ੍ਰੀਮਤੀ ਸੀ ਹਾਰਡ ਸੀ ਸੀ, ਉਤਲ ਲਿਖਤ ਦੇ ਹੱਕਕੇ ਤੇਮਨ, (ਬਾਰਾਂ-1) (ਹਿੰਦੀ), ਪੰਜਾਬੀ ਲੁਧਿਆਣੀ ਪੁਭਾਲਾ।
2. ਸ੍ਰੀਮਤੀ ਬੀ.ਦੇਵੀ ਸੀ ਸੀ ਸੀ, ਉਤਲ ਲਿਖਤ ਦੀ ਸਤ-ਅਨਾਸ, ਪੰਜਾਬੀ ਲੁਧਿਆਣੀ ਪੁਭਾਲਾ।
SEMESTER–III

PHILOSOPHY

DEDUCTIVE LOGIC AND SOCIAL PHILOSOPHY (OPT. II)
(Only for Private Students)

Time: 3 Hours
Lecture to be delivered: 6 per week
Pass Marks: 35%

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

3. Terms: Definition, Classification, Connotation & Denotation, Inverse Relation between Connotation and Denotation.

SECTION–B

4. Proposition: Classification of Propositions, Four-fold division of Propositions.
5. Immediate Inference: Square of Opposition of proposition, Contradiction, Contrary, Sub-Contrary, Subalteration.

SECTION–C

8. Social Philosophy and Ethics.

SECTION–D

10. Plato's Theory of State
12. Social Progress: Meaning and Factors
Recommended Readings:

English Books


Punjabi Books:

1. ਕਾਨੀਡਮ ਮਿੰਡ ਅਤੇ ਸੱਚ ਮਿੰਡ, ਬਲੇਡ ਲੋਕਾਂ ਦੀ ਸਟ-ਪਹਾਣਾ : (ਪੰਜਾਂ-1) (ਵਿਵਾਦ), ਪੰਜਾਬੀ ਪੁਸਤਕਵਾਦੀ, ਪਹੁੰਚ।

Hindi Books:

1. गौड़, मडिगापल, समान दरसन, उदाहरण मात्रियाँ अवैचित्य, पंचवृत्त।
2. मेरेंजी, नेन्द्र, समान दरसन वी तृण लेख, दरसनमल, धर्म।
## SEMESTER–III

### ZOOLOGY

<table>
<thead>
<tr>
<th>Paper</th>
<th>Maximum Marks</th>
<th>Hours of Teaching</th>
<th>Credit hrs. (60 min. each) per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOO-IIIA</td>
<td>35</td>
<td>_</td>
<td>3 Hrs</td>
</tr>
<tr>
<td>(Evolution)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZOO-IIIB</td>
<td>35</td>
<td>_</td>
<td>3 Hrs</td>
</tr>
<tr>
<td>(Biodiversity-III)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRACTICAL–III</td>
<td>_</td>
<td>30</td>
<td>4½ Hrs</td>
</tr>
<tr>
<td>(RELATED TO ZOO-IIIA and ZOO-IIIB)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SEMMESTER–III

ZOOLOGY
ZOO-III A: Evolution
(THEORY)

Max. Time: 3 Hrs. Max Marks: 35

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Introduction to evolution
Evidences of organic evolution
Theories of organic evolution

SECTION–B
Origin of life
Concept of micro, macro and mega-evolution
Concept of Species
Speciation

SECTION–C
Fossils, its types and significance
Evolutionary rate
Origin & Extinction of reptiles
Evolution of man (in Brief)

SECTION–D
Migration & Parental Care in Pisces
Flight adaptation & Bird migration
Adaptive radiations like scales & fins in fish, poison apparatus in snakes and dentition in Mammals.
Suggested Readings:

Max. Time: 3 Hrs.  Max Marks: 35

**Instructions for the Paper Setters:**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION–A**
Urochordata: External features and affinities of *Herdmania*
Cephalochordata: Type study- *Amphioxus*

**SECTION–B**
Cyclostomata: External Characters of *Petromyzon*
Affinities of Cyclostomata
Pisces: Type study- *Labeo*

**SECTION–C**
Amphibia: Type study- *Frog*
Reptilia: Type study- *Uromastix*

**SECTION–D**
Aves: Type study- *Pigeon*
Mammals: Type study- *Rat*

**Suggested Reading Material:**
SEMESTER–III

ZOLOGY

Practical-III (Related to ZOO-IIIA and ZOO-IIIB)

Time: 3hrs.  Marks: 30

Important Note for Practical:-

1. Candidates will be required to submit their original note books containing record of their laboratory work.
2. Wherever possible, students must be taken out for excursion to the field (Zoological gardens, sea shores, ponds and hill stations etc.) to study habitat and ecology of the animals.
3. As per the latest UGC guidelines (D.O.No. F. 14-6/2014(CPP-II) dated 01-08-2014) the dissections should not be conducted. The guidelines on this issue are available on the UGC website: www.ugc.ac.in

I. Classification up to order level, except in case of Pisces and Aves where classification up to subclass level, habits, habitat, external characters and economic importance (if any) of the following animals is required:

- **Urochordata**: Herdmania, Molgula, Pyrosoma, Doliolum, Salpa & Oikopleura.
- **Cephalochordata**: Amphioxus. Study of the following prepared slides:
  - T.S. Amphioxus through various regions, Pharynx of Amphioxus
- **Cyclostomata**: Myxine, Petromyzon & Ammocoetes Larva.
- **Chondrichthyes**: Zygaena (hammer head shark), Pristis (saw fish), Narcine (electric ray), Trygon, Rhinobatus and Chimaera (rabbit fish).
- **Actinopterygii**: Polypterus, Acipenser, Lepidosteus, Muraena, Mystus, Catla, Hippocampus, Syngnathus, Exocoetus, Anabas, Diodon, Tetradon, Echeneis and Solea.
- **Dipneusti (Dipnoi)**: Propterus (african lung fish)
- **Amphibia**: Uraeotyphlus, Necturus, Amphiuma, Amblystoma and its Axolotl Larva, Triton, Salamandra, Hyla, Rhycophorus
- **Reptilia**: Hemidactylus, Calotes, Draco, Varanus, Phrynosoma, Chamaeleon, Typhlops, Python, Eryx, Ptyas, Bungarus, Naja, Hydrus, Vipera, Crocodilus, Gavialis, Chelone (turtle) and Testudo (tortoise). Differences in nonpoisonous and poisonous snakes.
- **Aves**: Casuarius, Ardea, Anas, Milvus, Pavo, Eudynamics, Tyto and Alcedo.
- **Mammalia**: Ornithorynchus, Echidna, Didelphis, Macropus, Loris, Macaca, Manis, Hystrix, Funambulus, Panthera, Canis, Herpestes, Capra, Pteropus.
II. Study of the following systems with the help of charts/models/videos:

**Herdmania**: General anatomy

**Labeo**: Digestive and reproductive systems, heart, afferent and branchial arteries, cranial nerves and internal ear.

**Chick**: Digestive, arterial, venous and urino-genital systems.

**White Rat**: Digestive, arterial, venous and urino-genital systems.

Study of permanent slides of whole mount of Pharynx of Herdmania and Amphioxus. Cycloid scales of Labeo, blood smear of mammal, Histology of rat/rabbit (compound tissues)

Demonstration of evolutionary phenomena like homology, analogy, mimicry, crypsis. Study of evolution of horse/elephant/man.

Study of fossils.

**Assignment**

**Note**: Some changes can be made in the practicals depending on the availability of material.

**Guidelines for conduct of Practical Examination:**
1. Draw a labelled sketch of the system of the given animal & explain it to the Examiner. 4
2. Identify and classify the specimens upto order level. Write a short note on habitat, special features, feeding, habits and economic importance of the specimens. 8
3. Identify and write a note on the evolutionary phenomenon in the given specimen. 4
4. Identify the slides/specimens, give two reasons for identification. 5
5. Assignment 4
6. Viva-voce & Practical file. 5
SEMMESTER-III
BOTANY
PAPER A– STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS–I (THEORY)

Time: 3 Hrs.
Theory Lectures: 3 Hours/Week

Max. Marks: 35

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
The basic body plan of a flowering plant-modular type of growth. diversity in plant form in annuals, biennials and perennials; trees-largest and longest-lived. branching pattern; monopodial and sympodial growth; canopy architecture.

SECTION–B
The Shoot System: The shoot apical meristem and its histological organization; meristematic and permanent tissue, formation of internodes. Cambium and its functions; formation of secondary xylem.

SECTION–C
A general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem-structure function relationships; periderm.

SECTION–D
Leaf: Origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission.

Suggested Readings:
SEMESTER–III
BOTANY
Paper–III B: STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS–II (THEORY)

Time: 3 Hrs.
Theory Lectures: 3 Hours/Week

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
The Root System: The root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

SECTION–B
Vegetative Reproduction: various methods of vegetative propagation. Detailed study and types of grafting and budding, economic aspects. Flower: A modified shoot; structure, development and varieties of flower; functions;

SECTION–C
Structure of anther and pistil; the male and female gametophytes; types of pollination; attractions and reward for pollinators; (sucking and foraging types); pollen-pistil interaction self incompatibility.

SECTION–D
Double fertilization: formation of seed endosperm and embryo: fruit development and maturation Significance of Seed: Suspended animation; ecological adaptation; unit of genetic recombination with reference to reshuffling of genes and replenishment; dispersal strategies.

Suggested readings:

SEMESTER–III

BOTANY Botany Practicals–III (Based on Papers–III A and III B)

Practical Marks: 30
Practical Hours: 4½ Hours/week

Suggested Laboratory Exercises

1. Study of any commonly occurring dicotyledonous plant (for example Solanum nigrum or Kalanchoe) to the body plan, organography and modular type of growth.
2. Life forms exhibited by flowering plants (by a visit to a forest or a garden, Study of treelike habit in cycads, bamboo, banana, traveller's tree (Revenala madagascariensis) and Yucca and comparison with true trees as exemplified by conifers and dicotyledons.
3. L.S. Shoot tip to study the cytohistological zonation and origin of leaf primordia.
4. Monopodial and sympodial types of branching in stems (especially rhizomes).
8. Examination of a wide range of flowers available in the locality and methods of their pollination.
10. Structure of ovule and embryo sac development using serial sections from permanent slides.
11. Nuclear and cellular endosperm. Embryo development in monocots and dicots (using permanent slides/dissections).
12. Simple experiments to show vegetative propagation (leaf cuttings in Bryophyllum. Sansevieria, Begonia; stem cuttings in rose, Salix, money plant, Sugarcane and Bougainvillea).

Suggested Readings (for laboratory exercises):

SEMESTER–III
ESL 221 Environmental Studies (Compulsory)

Time: 3 Hrs. \hspace{2cm} Max. Marks: 100
Teaching Methodologies

The Core Module Syllabus for Environmental Studies includes class room teaching and field work. The syllabus is divided into 8 Units [Unit-1 to Unit-VII] covering 45 lectures + 5 hours for field work [Unit-VIII]. The first 7 Units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit-VIII comprises of 5 hours field work to be submitted by each candidate to the Teacher in-charge for evaluation latest by 15 December, 2019.

Exam Pattern:

End Semester Examination- 75 marks
Project Report/Field Study- 25 marks [based on submitted report]
Total Marks- 100

NOTE: Private Candidates may be exempted from Project Report (25 Marks) and Theory Paper (75 Marks) can be increased on pro rata basis for declaring their results.

The structure of the question paper being:

Part-A, Short answer pattern with inbuilt choice – 25 marks
Attempt any five questions out of seven distributed equally from Unit-1 to Unit-VII. Each question carries 5 marks. Answer to each question should not exceed 2 pages.

Part-B, Essay type with inbuilt choice – 50 marks
Attempt any five questions out of eight distributed equally from Unit-1 to Unit-VII. Each question carries 10 marks. Answer to each question should not exceed 5 pages.

Project Report / Internal Assessment:

Part-C, Field work – 25 marks [Field work equal to 5 lecture hours]
The candidate will submit a hand written field work report showing photographs, sketches, observations, perspective of any topic related to Environment or Ecosystem. The exhaustive list for project report/area of study are given just for reference:

1. Visit to a local area to document environmental assets: River / Forest/ Grassland / Hill / Mountain / Water body / Pond / Lake / Solid Waste Disposal / Water Treatment Plant / Wastewater Treatment Facility etc.
2. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
3. Study of common plants, insects, birds
4. Study of tree in your areas with their botanical names and soil types
5. Study of birds and their nesting habits
6. Study of local pond in terms of wastewater inflow and water quality
7. Study of industrial units in your area. Name of industry, type of industry, Size (Large, Medium or small scale)
8. Study of common disease in the village and basic data from community health centre
9. Adopt any five young plants and photograph its growth
10. Analyze the Total dissolved solids of ground water samples in your area.
11. Study of Particulate Matter (PM$_{2.5}$ or PM$_{10}$) data from Sameer website. Download from Play store.
12. Perspective on any field on Environmental Studies with secondary data taken from Central Pollution Control Board, State Pollution Control Board, State Science & Technology Council etc.

UNIT–I

The multidisciplinary nature of environmental studies
Definition, scope and importance, Need for public awareness

(2 lectures)
UNIT–II
Natural Resources: Renewable and non-renewable resources:
Natural resources and associated problems.
a. Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
f. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

UNIT–III
Ecosystems
- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:
  - Forest ecosystem
  - Grassland ecosystem
  - Desert ecosystem
  - Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

UNIT–IV
Biodiversity and its conservation
- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

UNIT–V
Environmental Pollution
Definition
- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides
UNIT–VI
Social Issues and the Environment
- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and
  holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

(7 Lectures)

UNIT–VII
Human Population and the Environment
- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

(6 Lectures)

UNIT–VIII
Field Work
- Visit to a local area to document environmental assets river/forest/grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

(Field work equal to 5 lecture hours)

References:
2. Down to Earth, Centre for Science and Environment, New Delhi.
   (Singapore) Pte. Ltd., Delhi.
   International (P) Ltd, New Delhi.
   New Delhi.
   Laxmi Publications, New Delhi.
9. State of India’s Environment 2018 by Centre for Sciences and Environment, New Delhi
**SEMESTER–III**
**MICROBIOLOGY**

**MICROBIAL NUTRITION AND METABOLISM**
*(THEORY)*

**Time: 3 Hours**

**Max. Marks: 100**

**Theory Marks: 75**

**Practical Marks: 25**

**Instructions for the Paper Setters:**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION–A**
1. Nutrition, requirements for growth of Microorganisms, Nutrients and accessory constituents, medium designing.

**SECTION–B**
2. Transport of nutrients across the cell membrane, active transport, passive transport, diffusion and group translocation for the transport of nutrients across the membrane.

**SECTION–C**
3. Growth and metabolism, catabolism and energy, Pathways, for breakdown of glucose (glycolysis, Kreb's cycle fermentation, pentose phosphate pathways), gluconeogenesis, assimilation of nitrogen energy metabolism in aerobic and anaerobic microorganisms, metabolism of starch & cellulose by bacteria.

**SECTION–D**

**Books Recommended:**
1. Isolation and enumeration of total bacteria from soil by pour plating and spread plating.
2. Distinction between fermenting and non-fermenting microorganisms.
3. Effects of various concentrations of carbon source on microbial growth.
4. Effects of various concentrations of nitrogen source on microbial growth.
5. Effect of temperature on microbial growth.
6. Effect of pH on microbial growth.
INDUSTRIAL MICROBIOLOGY (VOCATIONAL)
MICROBIAL PHYSIOLOGY
(THEORY)

Time: 3 Hours
Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Brief account of forms (viz.cell wall, cell membrane, nucleus ribosome) and their function in microbes, salient properties of water as biological solvent, pH homeostasis, buffers.

SECTION–B
Structural properties of membranes. Transport across cell membrane diffusion, gaseous, exchange, osmosis, plasmolysis, passive and active transport, biochemical factors regulating the transport, role of ionophores, group translocation across membrane. Laws of thermodynamics, entropy, enthalpy and free energy of reaction standard Redox potential, hydrolysis of energy rich intermediates and ATP. Respiratory electron transport and protonpump chemiosmotic theory. Oxidative phosphorylation (ATP synthesis).

SECTION–C
Photosynthetic microbes, oxygenic/non oxygenic reaction centres, electron transport, photophosphorylation, Calvin Cycle, (dark reaction), phosphoenol carboxylase photorespiration and it's significance. Effect of light, temperature, pH, CO2 concentration, on photosynthesis, Measurement of net phosphosynthetic yield. Respiratory pathway, breakdown of carbohydrates though glycolysis, Kreb's cycle fermentation, pentose phosphate pathways, oxidative and substrate level phosphorylation, significance of Kreb's cycle, gluconeogenesis, regulation of glycogenesis and glycogenolysis.
SECTION-D

Nitrogen fixation in symbiotic and free living system, photosynthetic and non photosynthetic system, oxygen and hydrogen regulation of nitrogen fixation, nitrification, denitrification and ammonifying bacteria, pathway of nitrate assimilation in photosynthetic and non photosynthetic system, transamination and deamination reactions.

Books Recommended

1. Growth curve of Bacteria and fungi in shake flask using, Optical density, Biomass and Cell numbers
2. Effect of pH on the growth of Bacteria and fungi.
4. Isolation of micro organisms from air.
5. Isolation of micro organisms from soil.
6. Isolation of micro organisms from water.
SEMESTER-III
MICROBIAL & FOOD TECHNOLOGY

BASIC FOOD MICROBIOLOGY
(THEORY)

Time: 3 Hours
Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Food as a substrate for microorganisms, intrinsic and extrinsic factors affecting the growth of various microorganisms in foods. Microorganisms important in food microbiology-bacteria, yeasts and molds, sources of contamination in Foods.

SECTION–B
Fermented foods, origin of fermentation as a method of preparing indigenous foods, bread, dahi, dosa, idli, dhokla, etc.

SECTION–C
Principles of food preservation and spoilage, asepsis, anaerobic conditions, aseptic packaging, preservation methods, high temperature, low temperature, drying, chemical preservatives.

SECTION–D
Spoilage of various milk and milk products, cereal and cereal products, vegetable and fruits, meat and meat products, canned foods. Food poisoning and food infection, staphylococcal, Clostridium and Salmonella intoxications.

Books Recommended:

SEMESTER–III
MICROBIAL & FOOD TECHNOLOGY
(PRACTICAL)

Time: 4 hours
Marks: 25

1) To study microbiological quality of raw milk, pasteurized milk & dry milk by methylene blue reduction test & standard plate count.

2) To examine the micro flora of various foods like bread, raw milk, cheese, fruits & cereals.

3) To prepare the fermented food sauerkraut & study its microbiology & spoilage characteristics.

4) To isolate & recognize the microorganisms responsible for the fermentation of yoghurt.

5) To determine & compare the effect of deep freezing & refrigeration on the viability of microorganisms.
INTRODUCTION TO BIOINFORMATICS AND BIOLOGICAL DATABASES
(THEORY)

Time: 3 Hrs.  
Credit Hours: 6  
Max. Marks: 100  
Theory Marks: 75  
Practical Marks: 25

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Introduction to Bioinformatics: History of Bioinformatics, milestones, objectives and applications of Bioinformatics. Genome sequencing projects, Human genome sequencing project and its applications.
Genomics and Proteomics: Basic concept and analysis, Functional and comparative genomics: definition and applications.
Introduction and Applications: Transcriptomics, Metabolomics, Pharmacogenomics and population genomics.

SECTION–B

Introduction to Biological Databases, Type and kind of biological databases, Introduction to ASN1 and NCBI data Model: Why specialized data model is required for biological sequences. Open access bibliographic resources and literature databases: PubMed, BioMed Central.
Database Retrieval and Deposition Systems- SRS, Entrez, Bankit, Webin, Seqin, Sakura, AutoDep etc.
Sequence Formats: FASTA, Genbank, PIR, EMBL.

SECTION–C

Nucleic Acid Sequence Databases: GenBank, EMBL, DDBJ; Protein Sequence Databases: Uniprot-KB: SWISS-PROT, TrEMBL, UniParc
Gemone Databases: Viral Genomes; Archeal and Bacterial Genomes; Ensembl Genome Project and TIGR, Eukaryotic genomes with special reference to model organisms (Yeast, Drosophila, C. elegans, Rat, Mouse, Human, plants such as Arabidopsis thaliana, Rice, etc.).

SECTION–D

Structural Databases: PDB, PDBsum, NDB etc.; Motifs and Pattern Databases: PROSITE, Pfam etc.; RNA Databases: RNABase, SCOR. Carbohydrates and Lipid Databases: GlycoSuiteDB, LIPIDAT.
Database for Searching Homologous Sequences: FASTA, BLAST.

Recommended Books:


6. *Benjamin Cummings.*

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Life Sciences)

SEMESTER–III
BIOINFORMATICS (VOCATIONAL)

LAB IN INTRODUCTION TO BIOINFORMATICS AND BIOLOGICAL DATABASES
(PRACTICAL)

Time: 3 Hrs.  Marks: 25
Credit Hours: 4½

1 Study of NCBI, EBI and ExPasy data Repositories.
2 Study of Nucleic acid and protein databases: GenBank, EMBL, DDBJ, SWISS PROT,
3 INTERPRO, UNIPROT.
4 Study of Various human, plants and animal databases: Ensembl Genome project, TIGR database, Flybase, Maize GDB etc.
5 Study of Structural databases: PDB, PDBsum, NDB etc.
6 Study of Motifs and Pattern Databases: PROSITE, Pfam, etc.
7 Study of RNA databases: RNABase, SCOR
8 Carbohydrates and lipid databases: GlycoSuiteDB, LIPIDAT
9 Database Retrieval and deposition systems: SRS, Entrez, Bankit, Seqin, Webin, AutoDep.
10 Database for Searching Homologous Sequences: FASTA, BLAST.
SEMESTER–III

BIOTECHNOLOGY (VOCATIONAL)

IMMUNOLOGY AND ANIMAL TISSUE CULTURE

(THEORY)

Time: 3 Hours
Credit Hours/week: 6
Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Types of Immunity-Innate and Adaptive; Lymphoid Cells, Heterogeneity of Lymphoid Cells; T-Cells; B-Cells, Null Cells; Monocytes, Polymorphs, Primary and Secondary Lymphoid Organs-Thymus, Bursa of Fabricius, Spleen, Lymph Nodes, Lymphatic System, MUCOSA Associated Lymphoid Tissue (MALT), Lymphocyte Traffic.

SECTION–B

SECTION–C

SECTION–D

Books Recommended:
BIOTECHNOLOGY (VOCAATIONAL)  

IMMUNOLOGY AND ANIMAL TISSUE CULTURE  
(PRACTICAL)  

Time: 3 Hrs.  
Credit Hours/week: 4½  
Marks: 25

Immunology

1. Blood Group testing.
2. Separation of serum from blood.
3. Separation of plasma from blood.
4. Enumeration of T-cells by E-rosetting method.
5. Separation of macrophages from Blood and testing by dye exclusion method.
6. Double immune Diffusion.

Animal Tissue Culture

1. Glass Ware sterilization.
2. Media sterilization.
3. Laboratory sterilization.
4. Sources of contamination and decontamination measures.
5. Preparation of Hanks Balanced salt solution.
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)  
(Faculty of Education)

SEMESTER–III  
EDUCATION

SOCIOLOGICAL FOUNDATIONS OF EDUCATION

Time: 3 hours  
Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Meaning, nature & scope of Sociology.
2. Meaning & nature & scope of Educational Sociology

SECTION–B
1. Relationship between sociology & Education.
2. Impact of sociology on different aspects of Education.

SECTION–C
1. Home & school as agencies of Education.
2. Community & Mass-medsias as agencies of Education

SECTION–D
1. Education for National Integration
2. Education for Democratic Citizenship

Books Recommended:
1. Dash., D.N.  
Philosophical and Sociological Foundation of Education, Dominant Publisher, New Delhi, 2005.
2. Prasad and Chandra  
3. Sodhi, T.S.  
4. Taneja, V.R.  
5. Saxena Swaroop, N.R.  
Education In Emerging India Chaturvedi Sikha Society, R.Lall Book Depot, Meerut, 2005.
SEMESTER–III
HUMAN RIGHTS

SOCIETAL ISSUES OF HUMAN RIGHTS IN INDIA

Time: 3 Hours Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
Concepts and Approaches: Concept of Societal Problems and Human Rights.

Theoretical approaches to Social problems and Social Changes.

SECTION–B

SECTION–C
Offence involving Human Rights; and Rights of Accrued, Rights of Inmates of Persons and Custodial Homes.

SECTION–D
Rights to Legal Aid, Punishments and Human Rights; and Reforms in Police and Jails.
Recommended Books:

SEMMESTER–III
DAIRY FARMING (VOCATIONAL)
(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

SECTION–B
Housing: The main objectives of housing, advantages of proper housing, factors affecting construction of dairy farm building, methods of housing dairy animals; advantages and disadvantages of various methods of housing; housing requirements of dairy animals.

SECTION–C
Feeding: Food nutrients, functions of various nutrients in animal body. Energy value of feeds, Factors affecting nutritive value of feeds. Requirements of nutrients in different stages of age, production, season and pregnancy. Formulation of rations, feed, pellets,

SECTION–D
Transportation and storage of cattle feed, hay and wheat bhusa enrichment. Availability of forages in different seasons. Schedule of feeding dairy animals.
SEMESTER–III
DAIRY FARMING (VOCATIONAL)
(PRACTICAL)

Time: 3 Hours
Marks: 50

Note: Preparation of Practical Notebook on the basis of work done in the laboratory practical, Weekly write-up of daily job assignments is compulsory.

1. Visits to Dairy farms having machine milking, fodder harvesting, feed mixing etc., Veterinary hospitals, Milk collection centre and milk plant.
2. Identification of various feedstuffs, medicines, chemicals, equipment, instruments, photographs related to dairy farming.
Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Grammar (all topics covered in the chapters 21–30 of the prescribed text book)

SECTION–B
2. Comprehension (Unseen text with questions)

SECTION–C
3. Questions based on the texts covered in the textbook to be answered in Russian (8 out of 10)

SECTION–D
4. Informal Letter on the given situation.
SEMESTER–III

RUSSIAN

PAPER–II (TRANSLATION & COMPOSITION)

Time: 3Hrs

Max. Marks: 40

Instructions for the Paper Setters:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

1. Translation from English into Russian (Simple text not exceeding about 150 words)

SECTION–B

2. Translation from Russian into English/Hindi/Punjabi (Simple text not exceeding about 200 words)

SECTION–C

3. Paragraph of not less than 150 words. (One out of three topics)
   Topics: My country, A Dream, Summer Vacations, My Birthday, The Indian Festivals.

SECTION–D

4. Dialogue writing on a simple situation.
SEMMESTER–III

RUSSIAN

PAPER–III (ORAL) Max. Marks: 20

- Reading & Comprehension of a text Marks: 05
- Dictation Marks: 05
- Conversation Marks: 05
- Oral Comprehension Marks: 05

Note: Dictionaries are allowed in paper III.

Prescribed Text-Book:
“RUSSIAN” – by Wagner V.N. & Ovsienko Y.G. (Lessons 21 to 30)

Recommended Books:

5. B.I. Balin and R.M. Bakaya: An Introductory Russian course for students of Science and technology, Asia Publishing House, Delhi.
SEMESTER–III

FRL–201: FRENCH

PAPER–I (COMPOSITION & GRAMMAR)

Time: 3 Hours

Max. Marks: 40

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Grammar exercises based on textbook

SECTION–B

Grammar exercises based on textbook

SECTION–C

Short answer questions based on vocabulary of textbook

SECTION–D

Dialogue on a given situation/message (2)

Prescribed Book: “CONNEXIONS-2” by Regine Merieux & Yves Loiseau, Published by Didier (UNITS 1-6)
SEMESTER–III

FRENCH

PAPER–II (TRANSLATION & LITERATURE)

Time: 3 Hrs. Max. Marks: 40

Instructions for the Paper Setters:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A

Translation from French to English.

SECTION–B

Translation from English to French.

SECTION–C

Summary of one of the poems studied:

- *Dejeuner du matin* - Jacques Prevert
- *Le Renard et le corbeau* – Jean de la Fontaine
- *La blanche neige* – Appollinaire

SECTION–D

Conte de Fe’e – “*La belle au bois dormant*” – Charles Perrault (short answers /summary
SEMESTER–III

FRENCH

PAPER–III (ORAL) Max. Marks: 20

Reading of a text  –  05
Dictation         –  05
Conversation     –  05
Oral Comprehension  –  05

Prescribed Book: “CONNEXIONS-2” by Regine Merieux & Yves Loiseau, Published by Didier (Units 1-6)
SEMESTER–III

URDU

URL201: PROSE AND POETRY

Time: 3 Hours Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Courses of Study

Introduction to Literary contribution of the following poets and prose writers:

Poets: Mir Taqi Mir, Asad-ullah-Khan Ghalib, Nazir Akbarabadi, Brij Narain Chakbast & Jigar Muradabadi

Prose Writers: (Sir Syed Ahmad Khan, Mohamad Hussain Azad, Altaf Husain Hali, Munshi Prem Chand and Rashid Ahmad Siddiqui)

SECTION–A

Passages for Translation

SECTION–B

Stanzas for explanation (four out five)

SECTION–C

Theme/ Summary/ central Idea of a Poem or Lesson

SECTION–D

Questions on poets studied

Books Prescribed:


Books Recommended:

2. Urdu Zaban-o-Adab ka Khaka by Khushhal Zaidi, Edara Bazme Khizre Rah, 80- Ghaffar Manzil Jamianagar, New Delhi, 110025
SEMESTER-III
PERSIAN

PR201: PROSE AND POETRY

Time: 3 Hours
Max. Marks: 100

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Courses of Reading
Prose:
- Azan-e-Maghrib by Saeed Nafisi (Page-171)
- Khana-e-Pidari by Saeed Nafisi (Page-178)
- Khud-Kushi by Mohammad Hijazi (Page-199)
- Eidi by Mohammad Hijazi (Page-205)

Poetry:
a) Ghazaliyat -e- Hafiz
   - Agar Ân Turk Shirazi Badast Arad Dile Mara
   - Dil Miravad Z Dastam Sahib Dilan Khudara
   - Saqi Banoor-e-Bade Bar Afroz Jam-e-Ma. (Pages 4-8)
b) Ghazaliyat-e-Khusrau
   - Jaan Z tan Burdi-o-Dar Jani Hanuz
   - Madeh Pindam Keh Man Dar Sene Sauda-e-Digar Daram
   - Janan Shabi Bakoo-e-Ghariban Maqam Kun (Pages 24-25)

Qasida Mlik-ush-Sho’ara Bahar (Jughad-e-jang)
Fughan z Jughad-e-Jang-o- Marghwai-o. (Pages-54-59)

Masnavi-Maulana Room
- Bishno Az Nai Choon Hikayat Mee Kunad
- Hikayat Ashiq Shudan-e-Badshah Bar Kaneezak
- Zahir Shudan-e-Ijz-e-Hakiman Az Mo’alijya-e-Kaneezak
- Badshah b Dargah-e-Khuda-o-Khwab Didan Shah Wali Ra (Pages 117-133)

SECTION-A
Passages for Translation

SECTION-B
Stanzas for explanation

SECTION-C
Theme/ Summary/ central Idea of a Poem or Lesson

SECTION-D
Questions on life and works of poets studied

Book Prescribed:
Nisab-e-Jadeed-e-Farsi, Published by Jyed Press Ballimaran Delhi-6 and available from Maktaba Jamia, Urdu Bazaar, Jama Masjid, Delhi-6

Books Recommended:
1. Jadid Farsi Shai’ri by Dr. Mohd. Taqi Ali Abidi
2. Jadid Farsi Shai’ri by Dr. Munib-ur-Rehman
3. Asari Farsi Shai’ri by Dr. Syed Ahsan- uz-Zafar
SEMESTER-III
SANSKRIT (ELECTIVE)

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Syllabus

Section-A
मध्यमव्यायोगः पद्यों की सप्रसंग व्याख्या।

Section-B
मध्यमव्यायोगः के श्लोक/सूक्तियों की सप्रसंग व्याख्या।

Section-C
धातु रूप- भावधिगण - रख, पा, नम्।

Section-D
मूनिट तीन में निर्धारित धातुओं के लड़, विधिलड़, लूटल लकारों में रूप।

Section-A

Question-I
मध्यमव्यायोगः के 4 पद्यों की सप्रसंग व्याख्या। = 20 अंक

Question-II
मध्यमव्यायोगः के 4 पद्यों की सप्रसंग व्याख्या। = 20 अंक

Section-B

Question-III
मध्यमव्यायोगः से 4 श्लोक/सूक्तियों की सप्रसंग व्याख्या। = 20 अंक

Question-IV
निर्धारित प्रश्नों में से 2 का उत्तर पूछा जाए। = 20 अंक
Section- C

| Question-V | निर्धारित में से 4 धातुओं के लड़ एवं लोट्ट लकारों में रूप पूछे जायेगे | = 20 अंक |
| Question-VI | क. निर्धारित सन्धि में से 5 का सन्धि/सन्धिचित्र | = 10 अंक |
|             | ख. निर्धारित छान्दों में से 2 का लक्षण एवं उदाहरण | = 10 अंक |

Section- D

| Question-VII | निर्धारित में से 4 धातुओं के लड़, चितिलिङ्ग एवं लूट्ट लकारों में रूप पूछे जायेगे | = 20 अंक |
| Question-VIII | 10 शब्दों के साथ निर्धारित तद्भिन्त प्रत्ययों में से प्रत्यय देकर उनके तद्भिन्त रूप पूछे जायेगे | = 20 अंक |

1. मध्यमव्यायोग (भाषा)
2. बृहद अनुवाद चन्द्रिका (चक्रधर हंस नौटियाल), मोती लाल बनारसी दास, दिल्ली।
SEMESTER–III
FUNCTIONAL SANSKRIT (VOCATIONAL)

Time: 3 Hours                                                                 Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Syllabus

Section- A इन विद्वानों से संबंधित विस्तृत अध्ययन :
संस्कार विषयों
सीमतोपनयन
जातकर्म

Section- B इन विद्वानों से संबंधित विस्तृत अध्ययन :
नामकरण
कर्णविध
अन्नप्राशनम्

Section- C इन विद्वानों से संबंधित विस्तृत अध्ययन :
चूड़ाकर्म
विद्यारम्भ
उपनयन

Section- D इन विद्वानों से संबंधित विस्तृत अध्ययन :
समावर्तन
अन्त्येष्टि
संबंधित संस्कारों का महत्त्व
SEMMESTER–III

ENGLISH (COMPULSORY)

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Important Note: The textbook Making Connections (3rd edition) is significantly different from its 2nd edition. The third edition (by Kenneth J Pakenham, Jo EcEntire, Jessica Williams) is to be followed for this course.

Texts Prescribed:
1. Making Connections by Kenneth J. Pakenham, Jo McEntire, Jessica Williams, 3rd Edition. CUP.
3. English Grammar in Use (Fourth Edition) by Raymond Murphy, CUP

Syllabus is divided into four sections as mentioned below:

Section A- English Grammar in Use (Fourth Edition) by Raymond Murphy, CUP: Units 98-130

Section B – Essay writing and English Grammar in Use: Units 131-145

Section C- Moments in Time: Poems at Sr. No. 1-6

Section D-Making Connections by Kenneth J. Pakenham, 3rd Edn. CUP: Unit-I (Global Health) and Unit-II (Multicultural Societies)
Time: 3 Hours  Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Books Prescribed:
1. Animal Farm by George Orwell
2. Fresh Showers, G.N.D.U. Amritsar
3. New Directions (Part 1-3)
4. Better Pronunciation of English by J.D. O’Connor

Course Contents:
1. Animal Farm—Complete Text
2. Fresh Showers
   The following poems are DELETED:
   (i) Alexander's Feast, (ii) Evelyn Hope, (iii) Adam's Curse, (iv) Lay Your Sleeping Head,
   (v) A Hub for the Universe, (vi) Birches, (vii) Tithonus
3. New Directions-Part 1,2,3
4. Transcription of Words: agony, antonym, capable, committee, decorum, aeroplane, calendar, privacy, absolute, academy, academic, advertisement, adversity, allopathic, mathematics, automobile, biography, biology, competition, competitive, certificate, certify, democracy, capacity, magnificent, photography, photograph, photographic, vindictive, celebrity

The syllabus is divided in four sections as mentioned below:

Section–A Animal Farm—Complete Text
Section–B Fresh Showers
   The following poems are DELETED:
   (i) Alexander's Feast, (ii) Evelyn Hope, (iii) Adam's Curse, (iv) Lay Your Sleeping Head,
   (v) A Hub for the Universe, (vi) Birches, (vii) Tithonus
Section–C New Directions-Part 1,2,3
Section–D Transcription of Words: agony, antonym, capable, committee, decorum, aeroplane, calendar, privacy, absolute, academy, academic, advertisement, adversity, allopathic, mathematics, automobile, biography, biology, competition, competitive, certificate, certify, democracy, capacity, magnificent, photography, photograph, photographic, vindictive, celebrity
Section–A

- Two questions will be set from Section–A of the syllabus. One essay type question based on the theme, plot, characterization etc would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

Section–B

- Two questions will be set from Section–B of the syllabus. One essay type question based on the theme, plot, characterization would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. One of the questions may be a reference to the context of a stanza. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

Section–C

- Two questions will be set from Section–C of the syllabus. One essay type question based on the theme, plot etc. of the prescribed text would be set carrying eight marks. The second part of the question would carry three short answer questions. Each question would carry four marks. The students would be required to attempt any one of the two sets of questions. (8+3x4=20)

Section–D

- Two questions would be set from Section–D of the syllabus. Ten words for transcription (five out of the prescribed list and any other five polysyllabic words) would be set in each question. Each word would carry two marks. The students would be required to attempt any one of the two sets of questions. (10x2=20)
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Languages)

SEMESTER–III

FUNCTIONAL ENGLISH (VOCATIONAL) WRITING SKILLS

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Objective:
The objective is to teach the students the technique of writing and developing their power of expression through composition. Descriptive writing; report writing; script writing for announcement, comparing should be administered.

Books Prescribed:
a) Essentials of Grammar and Composition by Legget et. al., Prentice Hall.
b) Collins Cobuild Grammar of English
c) Study Writing: A Course in Writing Skills for Academic Purposes by Liz Hamp-Lyons & Ben Heasley, CUP

Course Contents:

SECTION–A
Basic Sentence Faults: Faulty pronoun reference; shift in point of view; misplaced parts; dangling constructions, Manuscript mechanics and punctuation

SECTION–B
Textual Cohesion: reference, ellipsis, substitution & repetition; Lexical and Conjunctive cohesion, Sentence Variation and effective sentences

SECTION–C
Effective Paragraphs. Paraphrase, summary and Precis of prose passages

SECTION–D
Academic and personal writing styles, Grammar of academic discourse, Writing about events in time and connecting events in text
SEMESTER-III

PUNJABI (COMPULSORY)

punjabi (कुशानी)

ग्रंथ नंं टेंट पृष्ठ

चौं-चौं अंडे पलीविखरव रडी उपेक्षिन

1. भूमित पृंजल दे घट दवाद संजो। तज जाण दिखें दे भूमित पृंजळ संजो।
2. इंदिरभांनी दे बुंडें भूमित बलते रहें। तज जाण दिखें दिंब भूमित राखानी
   दे। पैंतां पूणम दिस्में ही जाण दिखें चीड़ ना मजां दे।
3. उंच भूमित दे बलपब अब रहें।
4. फेंक मेिंट बलत झार मनवत करें उं भूमित ही देंं भोंे देंं उं देंं बल एि-भूमित हिंद बल मजां दे।

भूम-चौं अंडे भूम-पुष्यवां

मेंसेल - हे

अग्रहित पौशानी खितक (मणि. द्र. वृक्षारोग मिठा उपिनघ),
पौशानी मात्रित पुष्यम, अभियुमात।
(थिमा-समूह/मात/स्पा पंड)

मेंसेल - जी

झेड़े पौशानी दिवमी (तिरवन्द्र भाषावि)
मणि. द्र. जमीनन केल, अमृनी जैंड मैंल, अभियुमात।

1. मुळनं आतीं मैंल
2. मुळनुं सहतुं उकवतुं मिठा
3. मद्दा तिलामुली
4. अवथान संदेश घण्ड
5. लष्काणां आवमाती मिठा
6. दिन्ती का घावा परमी जयदिंश
7. मंगलां वेदल गायलल

ब्लाड बड़ु-पुष्यव दिउलत/वेण मंग दे खँडळ दें

मेंसेल - हे

(ई) मणि उकवा (भूमी)
(अ) पत्ते पैंते पत्ते अमृप मसं देजळ दूं मौं बलता

मेंसेल - जी

भूल दिशभाववत दिवमिनीं : पतिकम जडे देईविनीं
(अंडम, मसं, दशवम, एि-एि अउं जड)

B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Languages)
SEMESTER–III

PUNJABI (ELECTIVE)

भौतिकी (इंजीनियरिंग)

मान्च उठाएं

बिना पूंजी अध्ययन के पहले उपर्युक्त

1. पुस्तक पढ़ने दे न्युज़ न्युज़ न्युज़। जब न्युज़ होती है तो पुस्तक पढ़ने दे न्युज़।
2. शिक्षालेखी दे ठंडा पैदा बनाने दा। जब ठंडा होता तितिश धूला रखना दे।
3. जिसे पुस्तक दे एक खरी भाव दा।
4. फ़ेट क्यों बनाना रहा। मैंने चैने उंग पुस्तक पीढ़ी बनाने दे। जब पीढ़–पुस्तक प्रेषित दे न्युज़ दादा दे।

पच्च–भूष अध्ययन के पहले उपर्युक्त

मान्च-शी

भौतिकी वाढ़ी दी पवित्रता (भेंग. डॉ. दुर्गाप्रीय देव)
(वही पदार्थ पूर्वकात, भव्यामुक्त)
(“ठाठा भाषा” भें “पीढ़ी–पवित्रता” वाढ़ी महिमाम धिका साधित रही दा)
(विज्ञा-विज्ञा-विज्ञा-विज्ञा-विज्ञा)

मान्च-मी

मान्च अध्ययन में कारी दी पवित्रता बहुल मेवाल : विश, पूंजी, डूथी डे गर्दन, बहु मे बहुल, पूंजी डूथी, लू हे हामार, भव्यामुक्त, भव्यामुक्त

मान्च-शी

मान्च लूह : डूथ, सॉलुअर, विंग, बॉर्डी : पवित्रमाह, पूंजीवाली अधे उंड
(वित्त वित्त दे)
B.A./B.Sc. (Semester System) (12+3 System of Education) (Semester–III) (Session 2019-20)
(Faculty of Languages)

SEMESTER–III

FUNCTIONAL PUNJABI (VOCATIONAL)
(ਪੰਜਾਬੀ ਭਾਸ਼ਾ)
(ਕੁਲ ਹੋਰ ਅਲੋਹਰ)

ਪੰਜਾਬੀ ਪ੍ਰਣਾਲੀਆਂ

ਪੰਜਾਬੀ ਲਿਖਤਾ ਅਲੋਹਰ

ਸੰਖਤ: 3 ਪੈਟੇ

ਵੱਲ ਭਾਂਤ: 50

ਪੰਜਾਬੀ ਦਾ ਵਾਕ ਅਤੇ ਕਾਰਕ

ਸੈਕਸ਼ਨ–ਦੌੱਡਾ ਹੋਰ ਦੇ ਸਾਲਹਾਬਾਦ ਕਹੀ ਉਤਪਾਦਨ

1. ਪੁਸਤਕ ਪੇਠ ਨੇ ਚਲ ਬਣਾ ਦੇਣ ਉਦਾਹਰਣ। ਉਹ ਬਣਾ ਦੇਣ ਉਦਾਹਰਣ ਦੇ ਪੁਸਤਕ ਪੇਠ ਸੜਕਾ ਸਟਾਂ ਦੇ।
2. ਲਿਖਾਈ ਦੀ ਟ੍ਰੇਕ ਬਣਾ ਪੁਸਤਕ ਜਾਂ ਉਦਾਹਰਣ। ਉਹ ਬਣਾ ਦੇਣ ਉਦਾਹਰਣ ਦੇ ਪੁਸਤਕ ਲਿਖਾਈ ਦੀ ਟ੍ਰੇਕ ਬਣਾ ਦੇਣ ਤਾਦੇ ਸੜਕਾ ਸਟਾਂ ਦੇ।
3. ਉੱਤਰ ਪੁਸਤਕ ਦੇ ਸਲਵਹਾ ਅਲੋਹਰ ਉਦਾਹਰਣ।
4. ਖੋਜ ਮੈਂਟ ਵਾਲਾ ਵਾਲਾ ਸੰਖਤ ਗੱਡੇ ਉਨ੍ਹਾਂ ਪੁਸਤਕਾਂ ਦੀ ਦੌੱਡਾ ਖੋਜ ਦੇ ਦੋਪ ਬਣਾ ਬਹੁਪੁਸਤਕ ਦੀ ਦੌੱਡਾ ਬਣਾ ਦੇ।

ਸਤਸ੍ਰੀ ਵਰਣ ਦੀ ਦੌੱਡਾ ਬਰਤਾਣ ਤੱਕਨਾਂ ਤੱਕ ਦੱਖਣ

ਮੈਵਲਮਤ–ਦੇਹਿ

ਪੰਜਾਬੀ ਵਰਣ ਦੀ ਦੌੱਡਾ ਬਰਤਾਣ ਤੱਕਨਾਂ ਤੱਕ–ਦੱਖਣ

ਮੈਵਲਮਤ–ਦੀ

ਪੰਜਾਬੀ ਵਰਣ ਦੀ ਦੌੱਡਾ ਬਰਤਾਣ ਤੱਕਨਾਂ ਤੱਕ

ਮੈਵਲਮਤ–ਮੀ

ਪੰਜਾਬੀ ਵਰਣ ਦੀ ਦੌੱਡਾ ਬਰਤਾਣ ਤੱਕਨਾਂ ਤੱਕ–ਦੱਖਣ

ਮੈਵਲਮਤ–ਬੀ

ਪੁਸਤਕ ਦੀਖਾਇ ਸਾਈਕਾਂ ਤੱਕਨਾਂ ਤੱਕ ਬਰਤਾਣ ਬਰਤਾਣ ਦੇ ਸਾਮਾਨ ਪੇਠ ਦੇ ਦੀਖਾਇ ਦੇ

ਅਭਿਆਸ ਬਰਤਾਣ।
SEMESTER–III
FUNCTIONAL PUNJABI (VOCATIONAL)
(ਪੰਜਾਬੀ ਵੋਕੇਸ਼ਨਲ)
(ਪੰਜਾਬੀ ਵੋਕੇਸ਼ਨਲ)

ਸਮਾਂ : 2 ਪੇਟਿ
ਬਲੁਲ ਭੰਡ : 50

ੇਟ : ਪੰਜਾਬੀ ਦੇ ਇੱਕ ਵਿਦਿਕ ਵਿੱਚ ਅਕਸਰ ਦੀ ਵਤਤ ਮਸਾਲਾਦਾਨ ਕਰਨਾ ਹੁੰਦਾ ਹੈ।

ਮੈਵਸ਼ਚਾਲਾ-
ਪੰਜਾਬੀ ਦੀ ਓਦਾਸ਼ ਵਿਸਤਾਰ ਦੂਰ ਦੀ ਵਹਾਨ ਵੇ ਸੰਪਰਕਦਾ ਵਿਵਾਦ ਹੋਣਾ।

ਮੈਵਸ਼ਚਾਲਾ-ਗਿਔਲੀ
ਸੂਚੀ ਗਾਇਦ ਨਾਲ ਦੀ ਅਫ਼ਾਲ ਦੇ ਸੰਪਰਕਦਾ ਦੇ ਸੰਯੁਕਤ ਹੋ ਬਣਾਉਣਾ।

ਮੈਵਸ਼ਚਾਲਾ-ਸੀ
ਵਿਜ਼ਾ ਦੂਰ ਦੀ ਵਹਾਨ ਵੇ ਸੰਯੁਕਤ ਹੋ ਵਿਵਾਦ ਹੋਣਾ।

ਮੈਵਸ਼ਚਾਲਾ-ਡੀ
ਵਿਜ਼ਾ ਦੂਰ ਦੀ ਅਫ਼ਾਲ ਬਣ ਕੇ ਸੰਪਰਕਦਾ ਵਿਵਾਦ ਹੋਣਾ।
SEMESTER-III

भूखंडी पंजाबी
(In lieu of Compulsory Punjabi)

समां: डिंट पाटे
लुत अंक: 50

अंब-चौंट अट परीक्षण सीटी उपाधियां

1. पुस्तक पेंड़र दे चाल बना टेक्टी। उत बना लिखने हें पुस्तक भुंषे साठली।
2. अविनाशित ही बुठंग पुस्तक बतले रुपा। उत बना लिखने हें पुस्तक साठली हो। पंजाबी पुस्तक तिसे ही बना लिखने लेडा नाम संस्था दें।
3. उत चाल पुस्तक दे घर्ण अंक रुपा।
4. पेंडर मेंट चाल टक्कर सेलच चाहे ऑं पुस्तकं दी बॉक्स अंको लेंड एंड लेंड चाल धुप-धुमलं लिख लत संस्था दें।

पठ-ब्रह्म

मेवसल-दे

विश्वसनीय दिलवालीं ही पढ़ाए बने टक्कर; निजेम, धुमधूम अते धार

मेवसल-दी

पेर्स दलर, फिंडी पेंडर,

मेवसल-भी

अदाए अट भूखंडी

मेवसल-दी

पेर्स दिव्यविविध पुस्तक
मेघेड उखल
Instructions for the Paper Setters:-

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

काव्य—उत्कर्ष, संपादक—डॉ. सुधा जिलेन्द्र, लोकमार्गी प्रकाशन, नई दिल्ली, 2016

हिन्दी साहित्य का इतिहास, प्रकाशक, गुरु नानक देव दुर्गीला, अमृतसर,
हिन्दी साहित्य के आदिकाल का अध्ययन आमंत्रित है। तत्साहित्य प्रमुख परिस्थिति आदिकाल का नामकरण,
आदिकाल: परिशिष्टियाँ, विशेषताएं, सिद्ध और रासों साहित्य: परिचय और विशेषताएं।

अनुप्रसं, यमक, उपमा, रूपक, प्रतीक, विरोधाभास (छ: अलंकार) परिभाषा, लक्षण सादृश्य परिचय।

व्याकरण के लिए कोई भी सामान्य पुस्तक देखें।
SEMESTER–III

Hindi Patrakarita (Vocational)

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.
विद्यार्थियों को प्रति समस्त 40 अंक की प्रयोग पुस्तिका तैयार करनी होगी। जिसमें 20 अंक मौखिक परीक्षा के और 20 अंक प्रयोग–पुस्तिका के होंगे।

प्रयोग–पुस्तिका का आकलन और मौखिक–परीक्षा गुरु नानक देव विश्वविद्यालय द्वारा निर्धारित परीक्षा–नियमों के अनुसार की जाएगी।

किसी भी समाचार–पत्र में से किसी अनुच्छेद की प्रूफ रीडिंग का अभ्यास।
• हिन्दी के समाचार–पत्रों में से किसी अधिकारी/वरिष्ठ नेता के भाषण का सारांश तैयार करने का अभ्यास।
• सम्पादकीय पृष्ठ–साज्जा का अभ्यास।
• समाचार – पत्रों के विविध स्तरभ लेखन का अभ्यास।
(रिपोर्टेज, फीचर, व्यंग्य (कार्डून), वार्ता/साक्षात्कार आदि)
Functional Hindi (Vocational)

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

1. इतिहास से सम्बन्धित कोई भी सामान्य पुस्तक।
2. प्रयोजनमुक्त हिंदी सिद्धांत और प्रयोग, दंगल झाल्टे, विद्या विद्वान, नई दिल्ली।
SEMMESTER-III
Functional Hindi (Vocational)

- विद्यार्थियों को प्रति समस्त 40 अंक की प्रयोग पुस्तिका तैयार करनी होगी। जिसमें 20 अंक मौखिक परीक्षा के और 20 अंक प्रयोग-पुस्तिका के होंगे।

- प्रयोग-पुस्तिका का आंकलन और मौखिक-परीक्षा गुरु नानक देव विश्वविद्यालय द्वारा निर्धारित परीक्षा-नियमों के अनुसार की जाएगी।

- टिप्पण-लेखन का अभ्यास।
- प्रारूप के अंतर्गत कोई एक कंस तैयार करना।
- प्रतिवेदन का नमूना तैयार करना।
- टिप्पण, प्रारूप व प्रतिवेदन के किसी एक नमूने की पावर-पाइंट प्रस्तुति।
<table>
<thead>
<tr>
<th>नं.</th>
<th>पद नाम</th>
<th>भाषा</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>अतिरिक्त न्यायाधीश</td>
<td>Additional Judge</td>
</tr>
<tr>
<td>2.</td>
<td>अतिरिक्त परीक्षा नियन्त्रक</td>
<td>Additional Examination Controller</td>
</tr>
<tr>
<td>3.</td>
<td>अधिवक्ता</td>
<td>Advocate</td>
</tr>
<tr>
<td>4.</td>
<td>अधिष्ठाता</td>
<td>Presiding Officer</td>
</tr>
<tr>
<td>5.</td>
<td>अध्यक्ष</td>
<td>Speaker, Chairman</td>
</tr>
<tr>
<td>6.</td>
<td>अधिग्रहण अधिकारी</td>
<td>Requisition Officer</td>
</tr>
<tr>
<td>7.</td>
<td>अधीक्षक</td>
<td>Superintendent</td>
</tr>
<tr>
<td>8.</td>
<td>अधीक्षक अभियंता</td>
<td>Superintendent Engineer</td>
</tr>
<tr>
<td>9.</td>
<td>अधीनस्थ अभियंता</td>
<td>Subordinate Engineer</td>
</tr>
<tr>
<td>10.</td>
<td>अनुसंधान अधिकारी</td>
<td>Investigation Officer</td>
</tr>
<tr>
<td>11.</td>
<td>अनुवादक</td>
<td>Translator</td>
</tr>
<tr>
<td>12.</td>
<td>अपर न्यायाधीश</td>
<td>Additional Judge</td>
</tr>
<tr>
<td>13.</td>
<td>अपर समाहता</td>
<td>Additional Collector</td>
</tr>
<tr>
<td>14.</td>
<td>अनुमंडलाधिकारी</td>
<td>Sub Divisional Officer</td>
</tr>
<tr>
<td>15.</td>
<td>अभिक्ता</td>
<td>Agent</td>
</tr>
<tr>
<td>16.</td>
<td>अभियंता</td>
<td>Engineer</td>
</tr>
<tr>
<td>17.</td>
<td>अप्रवासी पदाधिकारी</td>
<td>Immigration Authority</td>
</tr>
<tr>
<td>18.</td>
<td>अवर सचिव</td>
<td>Under Secretary</td>
</tr>
<tr>
<td>19.</td>
<td>आर्थी अधीक्षक</td>
<td>Police Superintendent</td>
</tr>
<tr>
<td>20.</td>
<td>आर्थी निरीक्षक</td>
<td>Police Inspector</td>
</tr>
<tr>
<td>21.</td>
<td>आर्थी उप महानिरीक्षक</td>
<td>Deputy Inspector General of Police</td>
</tr>
<tr>
<td>22.</td>
<td>आर्थी महानिरीक्षक</td>
<td>Inspector General of Police</td>
</tr>
<tr>
<td>23.</td>
<td>आशुलिपिक</td>
<td>Shorthand writer</td>
</tr>
<tr>
<td>24.</td>
<td>आचार्य</td>
<td>Professor</td>
</tr>
<tr>
<td>25.</td>
<td>उच्चायुक्त</td>
<td>High Commissioner</td>
</tr>
<tr>
<td>26.</td>
<td>उपायुक्त</td>
<td>Deputy Commissioner</td>
</tr>
<tr>
<td>No.</td>
<td>Hindi Term</td>
<td>English Term</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>27.</td>
<td>उत्पाद शुल्क समाहार</td>
<td>Collector of Exise</td>
</tr>
<tr>
<td>28.</td>
<td>उद्घोषक</td>
<td>Announcer</td>
</tr>
<tr>
<td>29.</td>
<td>उप कुलसचिव</td>
<td>Deputy Registrar</td>
</tr>
<tr>
<td>30.</td>
<td>उपाध्यक्ष</td>
<td>Reader</td>
</tr>
<tr>
<td>31.</td>
<td>उपमंत्री</td>
<td>Deputy Minister</td>
</tr>
<tr>
<td>32.</td>
<td>उप समापति</td>
<td>Vice President</td>
</tr>
<tr>
<td>33.</td>
<td>उप राष्ट्रपति</td>
<td>Deputy Chairman</td>
</tr>
<tr>
<td>34.</td>
<td>उपसचिव</td>
<td>Deputy Secretary</td>
</tr>
<tr>
<td>35.</td>
<td>उपाध्यक्ष</td>
<td>Deputy Secretary</td>
</tr>
<tr>
<td>36.</td>
<td>अंचलाधिकारी</td>
<td>Circle Officer</td>
</tr>
<tr>
<td>37.</td>
<td>अंकेक्षक/लेखा परीक्षक</td>
<td>Auditor</td>
</tr>
<tr>
<td>38.</td>
<td>कर्मचारीगण</td>
<td>Staff</td>
</tr>
<tr>
<td>39.</td>
<td>कर्मशाला प्रबंधक</td>
<td>Work Manager</td>
</tr>
<tr>
<td>40.</td>
<td>कराराधन अधिकारी</td>
<td>Taxation Officer</td>
</tr>
<tr>
<td>41.</td>
<td>कार्य नियोजन अधिकारी</td>
<td>Assignment Officer</td>
</tr>
<tr>
<td>42.</td>
<td>कार्य पालक अभियंता</td>
<td>Executive Engineer</td>
</tr>
<tr>
<td>43.</td>
<td>कारां-अधीक्षक</td>
<td>Jail-Superintendent</td>
</tr>
<tr>
<td>44.</td>
<td>किरानानी</td>
<td>Clerk</td>
</tr>
<tr>
<td>45.</td>
<td>कुर्सी अधिकारी</td>
<td>Attachment officer</td>
</tr>
<tr>
<td>46.</td>
<td>कुलपति</td>
<td>Vice Chancellor</td>
</tr>
<tr>
<td>47.</td>
<td>कुलाधिपति</td>
<td>Chancellor</td>
</tr>
<tr>
<td>48.</td>
<td>कुलानुशासक</td>
<td>Proctor</td>
</tr>
<tr>
<td>49.</td>
<td>कुलसचिव</td>
<td>Registrar</td>
</tr>
<tr>
<td>50.</td>
<td>कृषि पदाधिकारी</td>
<td>Agriculture Officer</td>
</tr>
<tr>
<td>51.</td>
<td>कृषि ऋण सलाहकार</td>
<td>Agricultural Credit Officer</td>
</tr>
<tr>
<td>52.</td>
<td>कृषि विकास पदाधिकारी</td>
<td>Agricultural Development Officer</td>
</tr>
<tr>
<td>53.</td>
<td>कृषि वैज्ञानिक</td>
<td>Agronomist</td>
</tr>
<tr>
<td>54.</td>
<td>खजांची</td>
<td>Treasurer</td>
</tr>
<tr>
<td></td>
<td>Hindi</td>
<td>English</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>55</td>
<td>खाद्य मंत्री</td>
<td>Minister of Food</td>
</tr>
<tr>
<td>56</td>
<td>क्षेत्रीय प्रबंधक</td>
<td>Regional Manager</td>
</tr>
<tr>
<td>57</td>
<td>चक्रबंधी अधिकारी</td>
<td>Consolidation Officer</td>
</tr>
<tr>
<td>58</td>
<td>चिकित्सा अधिकारी</td>
<td>Medical Officer</td>
</tr>
<tr>
<td>59</td>
<td>जनगणना अधिकारी</td>
<td>Census Officer</td>
</tr>
<tr>
<td>60</td>
<td>जनसांपक अधिकारी</td>
<td>Public Relation Officer</td>
</tr>
<tr>
<td>61</td>
<td>जिलाधीप</td>
<td>District Magistrate</td>
</tr>
<tr>
<td>62</td>
<td>टंकक</td>
<td>Typist</td>
</tr>
<tr>
<td>63</td>
<td>आनेदार</td>
<td>Police Station Officer</td>
</tr>
<tr>
<td>64</td>
<td>थाना प्रमाणी</td>
<td>Incharge Police Station</td>
</tr>
<tr>
<td>65</td>
<td>दंडाधिकारी</td>
<td>Magistrate</td>
</tr>
<tr>
<td>66</td>
<td>दरबान</td>
<td>Gate keeper</td>
</tr>
<tr>
<td>67</td>
<td>दरोगा</td>
<td>Police sub Inspector</td>
</tr>
<tr>
<td>68</td>
<td>दुभाषिया</td>
<td>Interpreter</td>
</tr>
<tr>
<td>69</td>
<td>दुष्टना अन्वेषण अधिकारी</td>
<td>Accidents Investigation Officer</td>
</tr>
<tr>
<td>70</td>
<td>नक्षानवीस</td>
<td>Cartographer</td>
</tr>
<tr>
<td>71</td>
<td>निदेशक</td>
<td>Director</td>
</tr>
<tr>
<td>72</td>
<td>निबंधक</td>
<td>Registrar</td>
</tr>
<tr>
<td>73</td>
<td>नियंत्रक</td>
<td>Controller</td>
</tr>
<tr>
<td>74</td>
<td>नियंत्रक महालेखा परीक्षक</td>
<td>Controller &amp; Auditor General</td>
</tr>
<tr>
<td>75</td>
<td>नियंत्रक अधिकारी</td>
<td>Controlling Officer</td>
</tr>
<tr>
<td>76</td>
<td>नियोजन पदाधिकारी</td>
<td>Employment Officer</td>
</tr>
<tr>
<td>77</td>
<td>निर्वाचन आयुक्त</td>
<td>Election Commissioner</td>
</tr>
<tr>
<td>78</td>
<td>न्यायमूर्ति</td>
<td>Justice</td>
</tr>
<tr>
<td>79</td>
<td>न्यायधीश</td>
<td>Judge</td>
</tr>
<tr>
<td>80</td>
<td>प्रखंड विकार पदाधिकारी</td>
<td>Block Development Officer</td>
</tr>
<tr>
<td>81</td>
<td>प्रति कुलपति</td>
<td>Pro-Vice Chancellor</td>
</tr>
<tr>
<td>82</td>
<td>प्रति लिपिक</td>
<td>Copyist</td>
</tr>
<tr>
<td>No.</td>
<td>Position in Hindi</td>
<td>Position in English</td>
</tr>
<tr>
<td>-----</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>83.</td>
<td>प्रधानमंत्री</td>
<td>Prime-Minister</td>
</tr>
<tr>
<td>84.</td>
<td>प्रधानाचार्य</td>
<td>Principal</td>
</tr>
<tr>
<td>85.</td>
<td>प्रधानाध्यापक</td>
<td>Headmaster</td>
</tr>
<tr>
<td>86.</td>
<td>प्रबंधक</td>
<td>Manager</td>
</tr>
<tr>
<td>87.</td>
<td>प्रमुख प्रधानाचार्य</td>
<td>Professor-In-Charge</td>
</tr>
<tr>
<td>88.</td>
<td>प्रशासक</td>
<td>Administrator</td>
</tr>
<tr>
<td>89.</td>
<td>प्रशासन पदाधिकारी</td>
<td>Sectional Officer</td>
</tr>
<tr>
<td>90.</td>
<td>पर्यवेक्षक</td>
<td>Supervisor</td>
</tr>
<tr>
<td>91.</td>
<td>परामर्शी अधिकारी</td>
<td>Advisory Officer</td>
</tr>
<tr>
<td>92.</td>
<td>गणन अधिकारी</td>
<td>Marketing Officer</td>
</tr>
<tr>
<td>93.</td>
<td>परिचारिका</td>
<td>Nurse</td>
</tr>
<tr>
<td>94.</td>
<td>पशु चिकित्सा पदाधिकारी</td>
<td>Veterinary Officer</td>
</tr>
<tr>
<td>95.</td>
<td>पशु चिकित्सक</td>
<td>Veterinary Doctor</td>
</tr>
<tr>
<td>96.</td>
<td>प्रधार्य</td>
<td>Principal</td>
</tr>
<tr>
<td>97.</td>
<td>प्रदेशिक आयुक्त</td>
<td>Regional Commissioner</td>
</tr>
<tr>
<td>98.</td>
<td>प्रधायापक</td>
<td>Lecturer</td>
</tr>
<tr>
<td>99.</td>
<td>प्रधिकृत अभिकर्ता</td>
<td>Authorised Agent</td>
</tr>
<tr>
<td>100.</td>
<td>प्रधिकारी</td>
<td>Authority</td>
</tr>
<tr>
<td>101.</td>
<td>पीड़ासीन अधिकारी</td>
<td>Presiding Officer</td>
</tr>
<tr>
<td>102.</td>
<td>बदोबस्त पदाधिकारी</td>
<td>Settlement Officer</td>
</tr>
<tr>
<td>103.</td>
<td>बेतार तार चालक</td>
<td>Wireless Operator</td>
</tr>
<tr>
<td>104.</td>
<td>भर्ती अधिकारी</td>
<td>Recruitment Officer</td>
</tr>
<tr>
<td>105.</td>
<td>भंडारपाल</td>
<td>Store Keeper</td>
</tr>
<tr>
<td>106.</td>
<td>भारतीय सेना</td>
<td>Indian Army</td>
</tr>
<tr>
<td>107.</td>
<td>भुगतान प्रधिकारी</td>
<td>Disbursing Authority</td>
</tr>
<tr>
<td>108.</td>
<td>भूमाप शिक्षक</td>
<td>Survey Instructor</td>
</tr>
<tr>
<td>109.</td>
<td>भू-राजस्व पदाधिकारी</td>
<td>Land Revenue Officer</td>
</tr>
<tr>
<td>110.</td>
<td>महाकारा निरीक्षक</td>
<td>Inspector General of Prisons</td>
</tr>
<tr>
<td>No.</td>
<td>Position</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>Advocate General</td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>Attorney General</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>Inspector General</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>Administrator General</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>Mayor</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>Accountant General</td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>Chief Conservator of Forests</td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>Anthropologist</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>Weight &amp; Measurement Inspector</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>Revenue Administrator</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>Chief Engineer</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>Chief Commissioner</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Chief Justice</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>Chief Election Commissioner</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>Chief Minister</td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>Evaluation Officer</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Maintenance Officer</td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>Maintenance Inspector</td>
<td></td>
</tr>
<tr>
<td>129</td>
<td>Defence Minister</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>Ambassador</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>Gazetted Officer</td>
<td></td>
</tr>
<tr>
<td>132</td>
<td>Governor</td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>Revenue Officer</td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>President</td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>Railways Minister</td>
<td></td>
</tr>
<tr>
<td>136</td>
<td>Clerk-Cum-Typist</td>
<td></td>
</tr>
<tr>
<td>137</td>
<td>Accountant General</td>
<td></td>
</tr>
<tr>
<td>138</td>
<td>Auditor</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Position in Hindi</td>
<td>English Translation</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>139</td>
<td>लेखा—परीक्षा—अधिकारी</td>
<td>Audit Officer</td>
</tr>
<tr>
<td>140</td>
<td>लेखा—महापरीक्षक</td>
<td>Auditor General</td>
</tr>
<tr>
<td>141</td>
<td>वन—पदाधिकारी</td>
<td>Forest Officer</td>
</tr>
<tr>
<td>142</td>
<td>वन—रोपण—पदाधिकारी</td>
<td>Afforestation Officer</td>
</tr>
<tr>
<td>143</td>
<td>वरिष्ठ व्याख्याता</td>
<td>Senior Lecturer</td>
</tr>
<tr>
<td>144</td>
<td>व्याख्याता</td>
<td>Lecturer</td>
</tr>
<tr>
<td>145</td>
<td>वाणिज्य मंत्री</td>
<td>Commerce Minister</td>
</tr>
<tr>
<td>146</td>
<td>विक्रय कर पदाधिकारी</td>
<td>Sales Tax Officer</td>
</tr>
<tr>
<td>147</td>
<td>विकास पदाधिकारी</td>
<td>Development Officer</td>
</tr>
<tr>
<td>148</td>
<td>वित्त पदाधिकारी</td>
<td>Finance Officer</td>
</tr>
<tr>
<td>149</td>
<td>वित्तीय परम्परा</td>
<td>Financial Advisor</td>
</tr>
<tr>
<td>150</td>
<td>वित्त मंत्री</td>
<td>Finance Minister</td>
</tr>
<tr>
<td>151</td>
<td>विदेश मंत्री</td>
<td>Minister Of External Affairs</td>
</tr>
<tr>
<td>152</td>
<td>विधान पारिषद</td>
<td>Member of Legislative Council</td>
</tr>
<tr>
<td>153</td>
<td>विधायक</td>
<td>Member of Legislative Assembly</td>
</tr>
<tr>
<td>154</td>
<td>विधिमंत्री</td>
<td>Minister of Law</td>
</tr>
<tr>
<td>155</td>
<td>विधि सलाहकार</td>
<td>Legal Advisor</td>
</tr>
<tr>
<td>156</td>
<td>विनिमय नियंत्रक</td>
<td>Exchange Controller</td>
</tr>
<tr>
<td>157</td>
<td>विमानन सलाहकार</td>
<td>Aviation Advisor</td>
</tr>
<tr>
<td>158</td>
<td>विश्लेषक सहायक</td>
<td>Analytical Assistant</td>
</tr>
<tr>
<td>159</td>
<td>विशेष कार्याधिकारी</td>
<td>Officer on Special duty</td>
</tr>
<tr>
<td>160</td>
<td>वैद्युतिक</td>
<td>Electrician</td>
</tr>
<tr>
<td>161</td>
<td>शल्य चिकित्सक</td>
<td>Surgeon</td>
</tr>
<tr>
<td>162</td>
<td>शपथ आयुक्त</td>
<td>Oath Commissioner</td>
</tr>
<tr>
<td>163</td>
<td>श्रम पदाधिकारी</td>
<td>Labour Officer</td>
</tr>
<tr>
<td>164</td>
<td>श्रम मंत्री</td>
<td>Labour Minister</td>
</tr>
<tr>
<td>165</td>
<td>शाखा प्रबंधक</td>
<td>Branch Manager</td>
</tr>
<tr>
<td>166</td>
<td>शिक्षा पदाधिकारी</td>
<td>Education Officer</td>
</tr>
<tr>
<td>No.</td>
<td>Bengali Position</td>
<td>English Position</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>167</td>
<td>শোধ পদাধিকারী</td>
<td>Research Officer</td>
</tr>
<tr>
<td>168</td>
<td>সংচার মন্ত্রী</td>
<td>Minister of Communication</td>
</tr>
<tr>
<td>169</td>
<td>সচিব</td>
<td>Secretary</td>
</tr>
<tr>
<td>170</td>
<td>সংপদা পদাধিকারী</td>
<td>Estate Officer</td>
</tr>
<tr>
<td>171</td>
<td>সত্যাপন অধিকারী</td>
<td>Attesting Officer</td>
</tr>
<tr>
<td>172</td>
<td>সত্র ন্যাযাধীশ</td>
<td>Session Judge</td>
</tr>
<tr>
<td>173</td>
<td>সমাদেশক</td>
<td>Commandent</td>
</tr>
<tr>
<td>174</td>
<td>সমাহার্তা</td>
<td>Collector</td>
</tr>
<tr>
<td>175</td>
<td>সমুদ্র অধিকারী</td>
<td>Marine Officer</td>
</tr>
<tr>
<td>176</td>
<td>সর্বক্ষক</td>
<td>Surveyor</td>
</tr>
<tr>
<td>177</td>
<td>সহায়ক</td>
<td>Assistant</td>
</tr>
<tr>
<td>178</td>
<td>স্থানীয় প্রাধিকারী</td>
<td>Local Authority</td>
</tr>
<tr>
<td>179</td>
<td>সংকেত লিপিক</td>
<td>Stenographer</td>
</tr>
<tr>
<td>180</td>
<td>সংগ্রহালয়াধ্যক্ষ</td>
<td>Curator</td>
</tr>
<tr>
<td>181</td>
<td>সংগ্রহালয় সর্বক্ষক</td>
<td>Custodian of Museum</td>
</tr>
<tr>
<td>182</td>
<td>সংযুক্ত সচিব</td>
<td>Joint Secretary</td>
</tr>
<tr>
<td>183</td>
<td>সংযুক্ত নিদেশক</td>
<td>Joint Director</td>
</tr>
<tr>
<td>184</td>
<td>সংযোজক নিদেশক</td>
<td>Convenor</td>
</tr>
<tr>
<td>185</td>
<td>সর্বক্ষক</td>
<td>Patron, Custodian</td>
</tr>
<tr>
<td>186</td>
<td>সর্বোচ্চ অধিকারী</td>
<td>Revising Officer</td>
</tr>
<tr>
<td>187</td>
<td>সার্বীয়ক</td>
<td>Tabulator</td>
</tr>
<tr>
<td>188</td>
<td>সংস্কৃতি সংরক্ষণ অধিকারী</td>
<td>Cultural Relation Officer</td>
</tr>
<tr>
<td>189</td>
<td>সংস্কৃতি মন্ত্রী</td>
<td>Minister of Culture</td>
</tr>
<tr>
<td>190</td>
<td>সাংবাদ</td>
<td>Member of Parliament</td>
</tr>
<tr>
<td>191</td>
<td>সীমার পুলিস নিরিক্ষক</td>
<td>Boarder Police Inspector</td>
</tr>
<tr>
<td>192</td>
<td>সীমার-শুল্ক-সমাহার্তা</td>
<td>Collector of Customs</td>
</tr>
<tr>
<td>193</td>
<td>সানিক অধিকারী</td>
<td>Military Officer</td>
</tr>
</tbody>
</table>
SEMMSTER III
PHYSICAL EDUCATION
(THEORY)

Time 3 hours
Maximum mark: 100
Theory mark: 60
Practical Marks: 40

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

SECTION–A
1. Meaning of Learning, Nature of skill Learning and laws of learning.
2. Learning Curve.

SECTION–B
4. Play meaning and Theory.
5. Psychological factors effecting sports performance i.e stress tension, anxiety, aggression.
6. Psychological characteristics of the adolescent in sports situation.

SECTION–C
7. Transfer of training, its application sports situation.
8. Growth and development during childhood;
   I. Physical
   II. Mental
   III. Emotional
   IV. Inter- Personal social development.

SECTION–D
10. Sports and Economy.
11. Sports and Socialization—integration through sports(National & International)
Division Marks: athletics (12) + games (12) + ground marking (3+3), Practical Note Book (5), Viva Voce (5)

- **Athletics Performance**------ 200M, Discuss Throw for Boys
  200M, Discuss Throw for Girls

- **Games (Boys & Girls)**---------- **Fundamental Rules, Performance**
  Football
  Yoga

**Books Recommended:**