FACULTY OF AGRICULTURE & FORESTRY

SYLLABUS

For

B.Sc. Agriculture (Hons.) (SEMESTER: I-II)
(Credit Based Evaluation and Grading System)

Session: 2019-20

GURU NANAK DEV UNIVERSITY
AMRITSAR

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    Defaulters will be prosecuted.

(ii) Subject to change in the syllabi at any time.
    Please visit the University website time to time.
**SEMESTER-I**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Course Code</th>
<th>Subject</th>
<th>Credit hours per week</th>
<th>Marks</th>
<th>*** Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>1.</td>
<td>MBL-111</td>
<td>Agricultural Microbiology</td>
<td>1</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2.</td>
<td>PBG-112</td>
<td>Fundamentals of Genetics</td>
<td>2</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>3.</td>
<td>SSC-113</td>
<td>Fundamentals of Soil Science</td>
<td>2</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>4.</td>
<td>FOR-114</td>
<td>Introduction to Forestry</td>
<td>1</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>5.</td>
<td>AGR-115</td>
<td>Fundamentals of Agronomy</td>
<td>3</td>
<td>1</td>
<td>75</td>
</tr>
<tr>
<td>6.</td>
<td>EXT-116</td>
<td>Rural Sociology and Educational Psychology</td>
<td>2</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>7.</td>
<td>BOT-117/MAT-117</td>
<td>Introductory Biology/Elementary Mathematics</td>
<td>1</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>8.</td>
<td>AGR-118</td>
<td>Agricultural Heritage</td>
<td>1</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>9.</td>
<td>ENG-101</td>
<td>Communication Skills in English-I</td>
<td>2</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>10.</td>
<td>PBL-1110/BPB-1110/HSL:101</td>
<td>Punjabi (Compulsory)/Basic Punjabi (Mudhli Punjabi)/Punjab History &amp; Culture (1450-1716) (Special paper in lieu of Punjabi Compulsory) (For those students who are not domicile of Punjab)</td>
<td>2</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>11.</td>
<td>SOA-101*</td>
<td>*Drug Abuse: Problem, Management and Prevention (Compulsory)</td>
<td>2</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>

**Total** 19/20 5/6 425/450 150 575

**Note:**
1. Mathematics for those students who have passed 10+2 (Medical)
2. Biology for those students who have passed 10 +2 (Non Medical)
3. Basic Punjabi (Mudhli Punjabi) for those students who have not passed 10 with Punjabi subject.
** Allotment of marks of each course is on the basis of credit hours specified by ICAR (5th Deans’ Committee Report, 2016)
<table>
<thead>
<tr>
<th>Sr. No</th>
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<th>*** Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>BCT-121</td>
<td>Fundamentals of Plant Biochemistry and Biotechnology</td>
<td>2</td>
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<td>2.</td>
<td>FSC-122</td>
<td>Fundamentals of Horticulture</td>
<td>1</td>
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<td>3.</td>
<td>SWE-123</td>
<td>Soil and Water Conservation Engineering</td>
<td>1</td>
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<td>25</td>
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<td>4.</td>
<td>BOT-124</td>
<td>Fundamentals of Crop Physiology</td>
<td>1</td>
<td>1</td>
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<tr>
<td>5.</td>
<td>AGE-125</td>
<td>Fundamentals of Agricultural Economics</td>
<td>2</td>
<td>0</td>
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<td>6.</td>
<td>PPL-126</td>
<td>Fundamentals of Plant Pathology</td>
<td>3</td>
<td>1</td>
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<td>7.</td>
<td>ENT-127</td>
<td>Fundamentals of Entomology</td>
<td>3</td>
<td>1</td>
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<tr>
<td>8.</td>
<td>EXT-128</td>
<td>Fundamentals of Agricultural Extension Education</td>
<td>2</td>
<td>1</td>
<td>50</td>
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<tr>
<td>9.</td>
<td>ENG-129</td>
<td>Communication Skills in English-II</td>
<td>2</td>
<td>0</td>
<td>50</td>
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<tr>
<td>10.</td>
<td>GPB-1210/ BPB-1210/ HSL:102</td>
<td>Punjabi (Compulsory) / Basic Punjabi (Mudhli Punjabi)/ Punjab History &amp; Culture (1717-1947) (Special paper in lieu of Punjabi Compulsory) (For those students who are not domicile of Punjab)</td>
<td>2</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>11.</td>
<td>SOA-102**</td>
<td>Drug Abuse: Problem, Management and Prevention (Compulsory)</td>
<td>2</td>
<td>0</td>
<td>50</td>
</tr>
</tbody>
</table>

**Note:** Basic Punjabi(Mudhli Punjabi) for those students who have not passed 10 with Punjabi subject.

**Allotment of marks of each subject is on the basis of credit hours specified by ICAR (5th Deans’ Committee Report, 2016)**

Note.
1. * Special Paper in lieu of Punjabi Compulsory, for those students who are not domicile of Punjab
2. ** Credits will not be included in SGPA, Student can opt this paper whether in 1st or 2nd Semester.
3. PSL-003 ID Course Human Rights &Constitutional Duties (Compulsory Paper) Students can opt this paper in any Semester. This ID Paper is one of the total ID
MBL-111: Agricultural Microbiology

Time: 3 Hours

Credit / Per week: 1+1
M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20

Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:

Section-B:
Role of microbes in soil fertility and crop production: Carbon, Nitrogen, Phosphorus and sulphur cycles.

Section-C:
Biological nitrogen fixation- symbiotic, associative and aysmbiotic. Azolla, blue green algae and mycorrhiza. Rhizosphere and phyllosphere.

Section-D:
Microbes in human welfare: silage production, biofertilizers, biopesticides, biofuel production and biodegradation.

Practical
B.Sc. Agriculture (Hons.) Semester – I
(Credit Based Evaluation and Grading System)

PBG-112 Fundamentals of Genetics

Time: 3 Hours

Credit / Per week: 2+1
M.Marks: 75
Theory: 50
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A:

Section-B:
Multiple alleles, pleiotropism and pseudoalleles. Sex determination and sex linkage, sex limited and sex influenced traits, Blood group genetics, Linkage and its estimation, crossing over mechanisms, chromosome mapping.

Section-C:
Structural and numerical variations in chromosomes and their implications, Mutation, classification, methods of inducing mutations & CIB technique, mutagenic agents and induction of mutation. Qualitative & Quantitative traits, Polygenes and continuous variations, multiple factor hypothesis, Cytoplasmic inheritance. Genetic disorders.

Section-D:

Practical
Study of microscope. Study of cell structure. Mitosis and Meiosis cell division. Experiments on monohybrid, dihybrid, trihybrid, test cross and back cross, Experiments on epistatic interactions including test cross and back cross, Experiments on probability and Chi-square test. Determination of linkage and cross-over analysis (through two point test cross and three point test cross data). Study on sex linked inheritance in Drosophila. Study of models on DNA and RNA structures.
SSC-113: Fundamentals of Soil Science

Time: 3 Hours

Credit / Per week: 2+1
M.Marks: 75
Theory: 50
Practical: 25
Mid Semester Marks: 10
End Semester Marks: 40
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:
Soil as a natural body, Pedological and edaphological concepts of soil; Soil genesis: soil forming rocks and minerals; weathering, processes and factors of soil formation; Soil Profile, components of soil;

Section-B:
Soil physical properties: soil-texture, structure, density and porosity, soil colour, consistence and plasticity; soils of India; Soil water retention, movement and availability;

Section-C:
Soil air, composition, gaseous exchange, problem and plant growth; source, amount and flow of heat in soil; soil temperature and plant growth; Soil reaction-pH, soil acidity and alkalinity, buffering, effect of pH on nutrient availability;

Section-D:
Soil colloids - inorganic and organic; silicate clays: constitution and properties; soil organic matter: composition, properties and its influence on soil properties; soil organisms: macro and micro organisms, their beneficial and harmful effects;

Practical:
FOR-114: Introduction to Forestry

Time: 3 Hours

Credit / Per week: 1+1
M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:
Introduction – definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies. Forest regeneration, Natural regeneration - natural regeneration from seed and vegetative parts, coppicing, pollarding, root suckers;

Section-B:

Section-C:
Instrumental methods of height measurement - geometric and trigonometric principles, instruments used in height measurement; tree stem form, form factor, form quotient, measurement of volume of felled and standing trees, age determination of trees.

Section-D:
Agroforestry – definitions, importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens. Cultivation practices of two important fast growing tree species of the region.

Practical
AGR-115: Fundamentals of Agronomy

Time: 3 Hours

Credit / Per week: 3+1
M.Marks: 100
Theory: 75
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:
Agronomy and its scope, seeds and sowing, tillage and tilth, crop density and geometry, Crop nutrition, manures and fertilizers, nutrient use efficiency,

Section-B:
Water resources, soil plant water relationship, crop water requirement, water use efficiency, irrigation- scheduling criteria and methods, quality of irrigation water, water logging.

Section-C:

Section-D:
Growth and development of crops, factors affecting growth and development, plant ideotypes, crop rotation and its principles, adaptation and distribution of crops, crop management technologies in problematic areas, harvesting and threshing of crops.

Practical:
Identification of crops, seeds, fertilizers, pesticides and tillage implements, Effect of sowing depth on germination and seedling vigour, Identification of weeds in crops, Methods of herbicide and fertilizer application, Study of yield contributing characters and yield estimation, Seed germination and viability test, Numerical exercises on fertilizer requirement, plant population, herbicides and water requirement, Use of tillage implements-reversible plough, one way plough, harrow, leveler, seed drill, Study of soil moisture measuring devices, Measurement of field capacity, bulk density and infiltration rate, Measurement of irrigation water.
EXT-116: Rural Sociology & Educational Psychology

Time: 3 Hours

Credit / Per week: 2
M.Marks: 50
Theory: 50
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:
Sociology and Rural sociology: Definition and scope, its significance in agriculture extension.

Section-B:
Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development.

Section-C:
Educational psychology: Meaning & its importance in agriculture extension. Behavior: Cognitive, affective, psychomotor domain.

Section-D:
Personality, Learning, Motivation, Theories of Motivation, Intelligence
B.O.T-117: Introductory Biology

Time: 3 Hours
Credit / Per week: 1+1
M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A
Introduction to the living world, diversity and characteristics of life, origin of life, Evolution and Eugenics.

Section-B
Binomial nomenclature and classification Cell and cell division.

Section-C
Morphology of flowering plants. Seed and seed germination.

Section-D
Plant systematics- viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

Practical
MAT-117 Elementary Mathematics

Time: 3 Hours

Credit / Per week: 2
M.Marks: 50
Theory: 50
Mid Semester Marks: 10
End Semester Marks: 40
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A

Straight lines: Distance formula, section formula (internal and external division), Equation of co-ordinate axes, Equation of lines parallel to axes, Slope-intercept form of equation of line, Slope-point form of equation of line, Two point form of equation of line,

Section--B

Intercept form of equation of line, Normal form of equation of line, General form of equation of line, Point of intersection of two straight lines, Angles between two straight lines, Parallel lines, Perpendicular lines.

Section--C

Circle: Equation of circle whose centre and radius is known, General equation of a circle, Equation of circle passing through three given points, Equation of circle whose diameters is line joining two points \((x_1, y_1)\) & \((x_2,y_2)\).

Section--D

Definition of function, limit and continuity(of algebraic functions)
Differential Calculus: Differentiation of algebraic functions, exponential functions and logarithmic differentiation (excluding trigonometric functions). Derivative of sum, difference, product and quotient of two functions.
Integral Calculus: Integration of Product of two functions, Integration by substitution method, Definite Integrals (of algebraic functions).
Matrix: Definition of Matrices, Addition, Subtraction, Multiplication, Transpose of matrix up to 3rd order.
Determinants: Properties of determinants and their evaluation, Inverse of matrix up to 3rd order. Matrix method.
AGH-118

Agricultural Heritage

Time: 3 Hours

Credit / Per week: 1

M.Marks: 25
Theory: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A:
Introduction of Indian agricultural heritage; Ancient agricultural practices, Relevance of heritage to present day agriculture;

Section-B:
Past and present status of agriculture and farmers in society; Journey of Indian agriculture and its development from past to modern era; Plant production and protection through indigenous traditional knowledge;

Section-C:
Crop voyage in India and world; Agriculture scope; Importance of agriculture and agricultural resources available in India; Crop significance and classifications;

Section-D:
National agriculture setup in India; Current scenario of Indian agriculture; Indian agricultural concerns and future prospects.
ENL-101 COMMUNICATIVE ENGLISH–I

Credits: 02 (L= 2, T=0, U=0)
Total Marks-100
Mid Semester Marks: 20
End Semester Marks:80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

Objective: To introduce students to the skills and strategies of reading and writing by identifying organizational patterns, spotting classification systems and understanding associations between ideas. This course will prepare students to read a variety of texts and also to communicate more effectively through writing. The course will also pay special attention to vocabulary building.

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.

Prescribed Text books:

SECTION–A

SECTION–B

SECTION–C

SECTION–D
PBL 121 : 

B.Sc. Agriculture (Hons.) Semester – I
(Credit Based Evaluation and Grading System)

Credit: 2-0-0
Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

1. घृणा घटत बे चल छान राखो। उन घरा हिज्ज़ दे पूरा पूः दे गटो।
2. विनेवाली हे बील बाल्य पूरा रही। उन घरा हिज्ज़ दे पूरा यादगारी है। पूरा पूरा दिने दी घरा हिज्ज़ देव बोक सा मजेदार है।
3. जागें पूरा दे वातावरण अजर उठ।
4. घृणा में माँ नगद दाल आने उस पूरा दी चेष भाँतः देग उसे देग चल इथ-पूरा हिज्ज वर मजेदार है।

मेवाल-ची

I. दे घरा (सिक्का, उत्तमरित पर्यंत हिज्ज़, धीमा पर्यंत सत्यापिंश)
बांस तरल दे देव नूतनिकार, भूभूतित हिज्ज़ दे ठह ठहे वरीः :
(ङ) घरी लोंग मिठा
(अ) पति तभ बानिक
(ह) पृ. पुल्लू मिठा
(बरी ला सीलट, बिहिंग-मास, भिमा-रमण, बांदी-बलव)

II. घृणी अनंतीकार ची चुनाव (अंडी, भुजानी, खिची, ठिंडी दे अवजः), दिमलभ ठिंडु,मास तेंड (पूर-भास)

मेवाल-भी

I. दे घरा (सिक्का, उत्तमरित पर्यंत हिज्ज़, धीमा पर्यंत सत्यापिंश)
बांस तरल दे देव नूतनिकार, भूभूतित हिज्ज़ दे ठह ठहे वरीः :
(ङ) दिग्यशीर्ष घट
(अ) पृ. पुल्लू मिठा
(बरी ला सीलट, बिहिंग-मास, भिमा-रमण, बांदी-बलव)

II. घृणा तक्ष (सीताधि-युज, माहान सात भाज देविंग हिज्ज़ बुझे) : 10 घृणा हिज्ज बरे बल सही अवलोकित

मेवाल-मी

I. दे घरा (सिक्का, उत्तमरित पर्यंत हिज्ज़, धीमा पर्यंत सत्यापिंश)
बांस तरल दे देव नूतनिकार, भूभूतित हिज्ज़ दे ठह ठहे वरीः :
(ङ) ठेट ऊग भुजाती
(अ) भूभूतित धीमा
(ह) ज्ञ. जाक्सरिक मिठा
(बरी ला सीलट, बिहिंग-मास, भिमा-रमण, बांदी-बलव)
II. मूल्य, अभाष : हिंदी पेंडू हिंदी अभाष भाषाओं तथा मूल्य वर्गन
(15 पेंडूओं दे मूल्य अभाष अभिशप्त वर्गन)

मैकेमॉड-डी
I. डे टूटा (मंग. उच्चमंजरी मिश्र टूटा, धूम्धूम मिश्र मंजरोपीपो)
वास्तव में इस पृष्ठ लिपिविद्याएँ भविष्यवाद हिंदी अभिशप्त होते ही उपलब्ध हैं,
(ह) मिश्र वर्ग घटाकली
(अ) मोक्षनाथ धातु
(ब) सीहूर, बादियाँ-भाव, फिस्ट-भाव, बाही-उंजर
II. अवधारणा टिप्पणियाँ : हिंदी, रश्मुली दे मंगल वायदेहियाँ राज अवधारण
B.Sc. Agriculture (Hons.) Semester – I
(Credit Based Evaluation and Grading System)

PBL-122: मुख्यी पंजाबी
(In lieu of Punjabi Compulsory)

Credits: 2-0-0
Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

अव-ैंड अथवा वर्तमान छठी उपाधियाँ

1. पृथु पंजाब से चत्र जना देखो। उत्त जना हिचं दे पृथु पूंढ़े दिखो।
2. धीरजआज़ी ते सूंड पृथु पृथु दिखे दिख। उत्त जना हिचं दिखं पृथु सफ़ामी है।
3. जोत पृथु पृथु दे जंदर अंक उठ।
4. जंदर मैंट जंदर दाला मेव चत्र उं अं पृथु जंदर अं हेम उं हेम चत्र स्रिव-पृथु हिख वत मज़ार गई।

प्रां-व्राह्म

मैवमल-दे

पृथु भूषन, भूषन लम, भजनपान (मिथुन सात-पड़ाट)
लतापथ (सिंही, सिंही, आपल) : पड़ाट दे देवउँ

मैवमल-सी

पृथुवी मध्य घटदाट : मृठली सात-पड़ाट
मध्य मध्य, मध्य भिम, मध्य मध्य
भूल मध्य, भूल मध्य आई विद्वेषट

मैवमल-भी

मध्य भागों : दिखे भेड़े दिखे मध्य मध्य दूर मध्य जंदर।
मध्य मध्य मध्य देखेपारो सम्बद

मैवमल-ढी

उठे दे मंट उड़ते दे हरे, धरण अवशेषित दे हरे, धरण दे लभ, दिख दें में उंच गिम्बैडी मध्य दिख।
HSL:101  
Punjab History & Culture (1450-1716)  
(Special paper in lieu of Punjabi Compulsory)  
(For those students who are not domicile of Punjab)  

Credits: 2-0-0  
Total Marks: 100  
Mid Semester Marks: 20  
End Semester Marks: 80  
Mid Semester Examination: 20% weightage  
End Semester Examination: 80% weightage

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. Land and the People.
2. Bhakti Movement

SECTION-B

3. Life and Teaching of Guru Nanak Dev.

SECTION-C

5. Guru Hargobind.
6. Martyrdom of Guru Teg Bahadur

SECTION-D


Suggested Reading

SOA : 101 - PROBLEM OF DRUG ABUSE

Time: 3 Hours
Credit 3-0-0
Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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
Meaning of Drug Abuse:
2) Consequences of Drug Abuse for:
   Individual : Education, Employment, Income.
   Family : Violence.
   Society : Crime.
   Nation : Law and Order problem.

SECTION – B
Management of Drug Abuse:
(i) Medical Management: Medication for treatment and to reduce withdrawal effects.
(ii) Psychiatric Management: Counselling, Behavioural and Cognitive therapy.
(iii) Social Management: Family, Group therapy and Environmental Intervention.

SECTION – C
Prevention of Drug abuse:
(i) Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.
(ii) School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

SECTION – D
Controlling Drug Abuse:
(i) Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program
References:

BCT-121: Fundamentals of Plant Biochemistry and Biotechnology

Time: 3 Hours

Credit / Per week: 2+1
M.Marks: 75
Theory: 50
Practical: 25
Mid Semester Marks: 10
End Semester Marks: 40

Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A:

Section-B:

Section-C:
Concepts and applications of plant biotechnology: embryo culture, anther culture, pollen culture and ovule culture and their applications; Micro-propagation methods; organogenesis and embryogenesis, Synthetic seeds and their significance; somatic hybridization and cybrids;

Section-D:
Introduction to recombinant DNA methods: physical (Gene gun method), chemical (PEG mediated) and Agrobacterium mediated gene transfer methods; PCR techniques and its applications;

Practical
FSC-122: Fundamentals of Horticulture
Time: 3 Hours
Credit / Per week: 1+1
M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 25
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A:
Horticulture - Its definition and branches, importance and scope; horticultural and botanical classification; principles of orchard establishment; climate and soil for horticultural crops;

Section-B:
Plant propagation-methods and propagating structures; Seed dormancy, Seed germination,

Section-C:
Principles and methods of training and pruning, juvenility and flower bud differentiation; unfruitfulness; pollination, pollinizers and pollinators; fertilization and parthenocarpy; medicinal and aromatic plants;

Section-D:
Importance of plant bio-regulators in horticulture. Irrigation – methods, Fertilizer application in horticultural crops.

Practical
SWE-123  Soil and Water Conservation Engineering

Time: 3 Hours  Credit / Per week: 1+1

M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:
1) Soil Erosion Principles.
2) Erosivity and Erodibility
3) Factors affecting water erosion
4) Types of water erosion (Raindrop, sheet, rill and gully erosion)

Section-B:
5) Gully classification
6) Gully control measures

Section-C:
7) Factors affecting wind erosion
8) Wind erosion control measures (wind breaks and shelter belts)

Section-D:
9) Universal Soil loss Equation for water erosion
10) Conservation measure for hill slopes
11) Conservation measures for agricultural lands

Practical:
1) General Status of Soil Conservation in India
2) Calculation of erosion index
3) Estimation of soil loss
4) Design of contour bunds
5) Design of graded bunds
6) Design of bench terracing system
7) Problems on wind erosion
B.Sc. Agriculture (Hons.) Semester – II  
(Credit Based Evaluation and Grading System)

BOT-124  Fundamentals of Crop Physiology

Time: 3 Hours

Credit / Per week: 1+1
M.Marks: 50
Theory: 25
Practical: 25
Mid Semester Marks: 5
End Semester Marks: 20
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A:
Introduction to crop physiology and its importance in Agriculture; Plant cell: an Overview; Diffusion and osmosis; Absorption of water, transpiration and Stomatal Physiology;

Section-B:
Mineral nutrition of Plants: Functions and deficiency symptoms of nutrients, nutrient uptake mechanisms;

Section-A:
Photosynthesis: Light and Dark reactions, C3, C4 and CAM plants; Respiration: Glycolysis, TCA cycle and electron transport chain;

Section-D:
Plant growth regulators: Physiological roles and agricultural uses, Physiological aspects of growth and development of major crops: Growth analysis, Role of Physiological growth parameters in crop productivity.

Practical
Study of plant cells, structure and distribution of stomata, imbibitions, osmosis, plasmolysis, measurement of root pressure, rate of transpiration, Separation of photosynthetic pigments through paper chromatography, photosynthesis, respiration, tissue test for mineral nutrients, estimation of relative water content.
AGE-125: Fundamentals of Agricultural Economics

Time: 3 Hours

Credit / Per week: 2
M.Marks: 50
Theory: 50
Mid Semester Marks: 10
End Semester Marks: 40
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A:

Section-B:
Demand: meaning, law of demand, schedule and demand curve, determinants, utility theory; law of diminishing marginal utility, equi-marginal utility principle. Consumer’s equilibrium and derivation of demand curve, concept of consumer surplus. Elasticity of demand: concept and measurement of price elasticity, income elasticity and cross elasticity.

Section-C:

Section-D:
National income: Meaning concepts of national income approaches to measurement, difficulties in measurement. Money: Barter system of exchange and its problems, meaning and functions of money, classification of money. Agricultural and public finance: micro v/s macro finance, need for agricultural finance, public revenue and public expenditure. Tax: meaning, direct and indirect taxes, agricultural taxation, socialistic and mixed economies,
PPL-126: Fundamentals of Plant Pathology

Time: 3 Hours

Credit / Per week: 3+1

M.Marks: 100

Theory: 75

Practical: 25

Mid Semester Marks: 15

End Semester Marks: 60

Mid Semester Examination: 20% weightage

End Semester Examination: 80% weightage

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.

Theory

**Section-A**


**Section-B**


**Section-C**


**Section-D**


Practical:

ENT-127  Fundamentals of Entomology

Time: 3 Hours  Credit / Per week: 3+1
M.Marks: 100
Theory: 75
Practical: 25
Mid Semester Marks: 15
End Semester Marks: 60
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory

Section-A
History of Entomology in India. Classification of phylum Arthropoda upto classes. Systematics: Taxonomy –importance, history and development and binomial nomenclature. Definitions of Biotype, Sub-species, Species, Genus, Family and Order. Classification of class Insecta upto Orders, Special emphasis to orders and families of Agricultural importance like Orthoptera: Acrididae, Tettigonidae, Gryllidae; Dictyoptera: Mantidae, Blattidae; Odonata; Isoptera: Termitidae; Thysanoptera: Thripidae; Hemiptera: Pentatomidae, Pyrrhocoridae, Lygaeidae, Cicadellidae, Delphacidae, Aphididae, Coccidae; Neuroptera: Chrysopidae; Lepidoptera: Pieridae, Noctuidae, Pyralidae, Gelechiidae, Arctiidae, Bombycidae; Coleoptera: Coccinellidae, Chrysomelidae, Curculionidae, Bruchidae; Hymenoptera: Tenthridinidae, Apidae. Trichogrammatidae, Ichneumonidae, Braconidae; Diptera: Cecidomyiidae, Culicidae, Muscidae, Tephritidae.

Section-B

Section-C
Section-D


Practical:
Methods of collection and preservation of insects including immature stages;
External features of Grasshopper
Types of insect antennae, mouthparts and legs; Wing venation, types of wings and wing coupling apparatus.
Types of insect larvae and pupae;
Dissection of digestive system in insects (Grasshopper); Dissection of male and female reproductive systems in insects (Grasshopper);
Sampling techniques for estimation of insect population and damage
EXT-128  Fundamentals of Agricultural Extension Education

Time: 3 Hours

Credit / Per week: 2+1
M.Marks: 75
Theory: 50
Practical: 25
Mid Semester Marks: 10
End Semester Marks: 40
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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.

Theory:

Section-A
Education: Meaning, definition & Types; Extension Education- meaning, definition, scope and process; objectives and principles of Extension Education; Extension Programme planning- Meaning, Process, Principles and Steps in Programme Development. Extension systems in India:

Section-B
Extension efforts in pre-independence era (Sriniketan, Marthandam, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various extension/agriculture development programmes launched by ICAR/Govt. of India (IADP, IAAP, HYVP, KVK, IVLP, ORP, ND, NATP, NAIP etc.). New trends in agriculture extension, cyber extension/e-extension, expert system etc. Rural Development: concept, meaning, definition; Community Dev.-meaning, definition, concept & principles.

Section-C
Philosophy of C.D. Rural Leadership: concept and definition, types of leaders in rural context; extension administration: meaning and concept, principles and functions. Monitoring and evaluation: concept and definition, monitoring and evaluation of extension programmes; transfer of technology: extension teaching methods: meaning, classification, individual, group and mass contact methods.

Section-D
Principles and Functions of Communication, models and barriers to communication. Agriculture journalism; diffusion and adoption of innovation: concept and meaning, process and stages of adoption, adopter categories.

Practical:
To get acquainted with university extension system. Group discussion- exercise; handling and use of audio visual equipments and digital camera and LCD projector; preparation and use of AV aids, preparation of extension literature – leaflet, booklet, folder, pamphlet news stories and success stories; Presentation skills exercise; micro teaching exercise; Role of community radio and television studio for understanding the process of programme production; script writing, writing for print and electronic media, developing script for radio and television.
Objective: To introduce students to the skills and strategies of reading and writing by identifying organizational patterns, spotting classification systems and understanding associations between ideas. This course will prepare students to read a variety of texts and also to communicate more effectively through writing. The course will also pay special attention to vocabulary building.

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.

Prescribed Textbooks:


SECTION – A
Practical question on Note Making, Summarizing and Abstracting as given in *The Written Word* by Vandana R. Singh

SECTION – B
Practical question on Paragraph writing as prescribed in *The Written Word* by Vandana R. Singh

SECTION – C
Theoretical questions based on ABC of Good Notes as prescribed in *The Written Word* by Vandana R. Singh.


SECTION – D
Practical question on Essay writing from *The Written Word* by Vandana R. Singh

PBL 131: भौतिकी सम्मान - II (Credit Based)

Credit: 2-0-0
Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

अंक-वैध अनुसार व्याख्यात चौथी प्रश्नमार्ग

1. भूमि प्लेट टेक छठ श्रावण लम्बी। उत्तर दिनें वे पृथ्वी पुरे लाभों।
2. हिष्चाकही टेक भूमि भूमि रख वठले उठा। उत्तर दिनें लिख भूमि सम्मान दें। पृथ्वी पृथ्वी निमे ही जगा दिनें बीज ना लम्बा दें।
3. उदेश्य पृथ्वी टेक वाहक मंगल उठा।
4. पेड़ मैं तब अड़वा सेवक चाहे उं भूमि ही टेक ओवी दें दें दें चार शुद्ध-भूमि लिख वत मल्ला खे।

मानकम-दे

I. दे भंडा (संग्रह उत्सर्जन मिश्र दिलेन, धूम्रम मिश्र मनोजीशा)
     वात तन्त्र टेक गुरुजीवनमिरी, अभिभवत्त किसे दें दिले बयान वस्तृत: कौन?
     (१) मानक मिश्र : दुर्गा
     (२) बहुभद मिश्र भागीरथित : गलवी सी गी
     (३) मेंद सिद्ध में में : खेड़ी से खोंजिये
        (वार्षिकतर छ गीट, वार्षिक मान, दिमा-हम्मु, वार्षिक वाह)

II. भौतिकी सम्मान घटक्क : पहुँचाई, चेपूढ़ (भोजन, पिंडित्य, हिलिटाइट भूतु चुपल्यी),भाग।

मानकम-दी

I. दे भंडा (संग्रह उत्सर्जन मिश्र दिलेन, धूम्रम मिश्र मनोजीशा)
     वात तन्त्र टेक गुरुजीवनमिरी, अभिभवत्त किसे दें दिले बयान वस्तृत: कौन?
     (१) मानक मिश्र : झाँझा छ दुर्गा
     (२) बहुभद मिश्र रूठज़हर : खेड़ी धर  अधिष्ठ
        (वार्षिकतर छ गीट, वार्षिक मान, दिमा-हम्मु, वार्षिक वाह)

II. पेड़ मैं तब : चार दिनें 10 दिनियाँ (विभागीय, वास्तविक अधिक उनसेल्फ) दे पेड़ मैं तब दे अधिष्ठ हम वस्तृतः

मानकम-मी

I. दे भंडा (संग्रह उत्सर्जन मिश्र दिलेन, धूम्रम मिश्र मनोजीशा)
     वात तन्त्र टेक गुरुजीवनमिरी, अभिभवत्त किसे दें दिले बयान वस्तृत: कौन?
     (१) बहुभद मिश्र दिलेन : यदवी रेडियल फेल्ड
(अ) रक्षक सिंह : चूमी राज सेव बॉंटी रायी
(इ) पुनः पूर्वांक : रामनी
(बादशाहवाद एवं सीमासु, वर्णवी मान, दिमाग-दमड़, वर्णवी बल)

II. भविष्य के अभ्यास (अभ्यास के भविष्य वेंज़ हिच्च) 200 भविष्यवाद में 100 अभ्यास हैं एवं हिच्च बहुत भविष्य के भविष्यवाद (बस्ताम हिच्च के भव रायी)।

मैचार-बी

I. देव जी (मैथ, उड़ानित लिम्ब, झुड़िया लिम्ब सतापीरा)
ज्वल राजवंश ज्वल पुरीविहारी, अभिनवत हिच्च ग्रें दिमह बादशाहवाद :
(ई) अमीज बेंज : घूंड मिलबर
(अ) स्टीफ बेंज हिच्च : चीं बॉंटीवटन
(बादशाहवाद एवं सीमासु, वर्णवी मान, दिमाग-दमड़, वर्णवी बल)

II. मध्य मूलीवर्वर : राज, बवर्णवट, निममत, लिबिब, बिबिब दिमिमत, नेवेनक
B.Sc. Agriculture (Hons.) Semester – II
(Credit Based Evaluation and Grading System)

PBL-132: ਪੂਰੀਤ ਪਲਾਣਾਂ
(In lieu of Punjabi Compulsory)

Credits: 2-0-0 Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

1. ਪ੍ਰਸਤੁਤ ਪ੍ਰਤੀ ਦੇ ਲਾਗੇ ਬ੍ਰਾਂਚ ਵਾਂਗ ਜਾਂਦੀ। ਉਹ ਬ੍ਰਾਂਚ ਦੀਆਂ ਦੇ ਪ੍ਰਸਤੁਤ ਪ੍ਰਤੀ ਮਨੋਰਮ
2. ਹਿਰਾਸਾਨ ਹੈ ਵੱਲ੍ਹ ਪ੍ਰਸਤੁਤ ਬਣਾ ਕੇ ਤਧ। ਉਹ ਬ੍ਰਾਂਚ ਦੀਆਂ ਦੇ ਪ੍ਰਸਤੁਤ ਕਾਫ਼ੀ ਦੀਆਂ ਹਿਰਾਸ਼ ਬ੍ਰਾਂਚ ਵਾਸ ਨਾ ਮਨੋਰਮ ਹੈ।
3. ਹਿਰਾਸ ਪ੍ਰਸਤੁਤ ਦੇ ਵਿਸ਼ਾਲ ਖੇਤਰ ਤਧ।
4. ਪ੍ਰਸਤੁਤ ਮੈਂਤ ਵਿਚਲ ਲਾਖ ਸੈਲਾਨੀ ਚਲੇ ਉੱਤਰ ਪ੍ਰਸਤੁਤ ਦੀ ਦ੍ਰਿੱਖ ਆਉੱਂ ਦੌੜ ਘੱਟ ਜੋ ਦੌੜ ਵਿਚ ਤਧਿਆਨ-ਪ੍ਰਸਤੁਤਾ ਦਨਾਰ ਤਧ ਮਨੋਰਮ ਹੈ।

ਪ੍ਰਤੱਕਭਾਗ

ਮੈਤੱਕ-ਮੰਨ

ਮਹੱਤਵਪੂਰਵੀਆਂ : ਭਾਰਤ ਅਤੇ ਇਕਵ
(ਕਾਲ, ਪ੍ਰਤੱਕਭਾਗ, ਦਸੀਮਾ, ਬਿਗ਼ਬਟ, ਬਿਅਕਾਰ ਦੇਸਕਾਰ)

ਮੈਤੱਕ-ਸਮੀਕ

ਰਾਹ ਦੱਖਣ ਦੇ ਪ੍ਰਤੱਕਾਰ ਸੰਗਠਨ ਦਾਂ : ਧਰਤੀ, ਲੁਕਾ, ਪਹਾੜਾਂ, ਪ੍ਰਦੇਸ਼ਾਂ, ਭੋ ਅਤੇ ਦੱਖਣਪੱਛੂੰਕ ਸੰਗਠਨ ਦਾਂ।

ਮੈਤੱਕ-ਸਮੀਕ

ਪ੍ਰਤੱਕਾਰ ਹਿਮ-ਖ਼ਾਸ

ਸੰਗਠਨ-ਦਾਂ (ਭਾਰਤ ਅਤੇ ਇਕਵ)
ਸੰਗਠਨ-ਦਾਂ (ਭਾਰਤ ਅਤੇ ਇਕਵ)
ਸੰਗਠਨ-ਦਾਂ (ਭਾਰਤ ਅਤੇ ਇਕਵ)

ਮੈਤੱਕ-ਸਮੀਕ

ਪ੍ਰਸਤੁਤ ਵਾਣੀ

ਸੰਗਠਨ ਦਾਂ,
HSL:102  

Punjab History & Culture (1717-1947)  
(Special paper in lieu of Punjabi Compulsory)  
(For those students who are not domicile of Punjab)

Credits: 2-0-0  
Total Marks: 100  
Mid Semester Marks: 20  
End Semester Marks: 80  
Mid Semester Examination: 20% weightage  
End Semester Examination: 80% weightage

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. Sikh Struggle for Sovereignty.
2. Ranjit Singh: Conquests, Administration and the Anglo-Sikh Relations.

Section-B
3. Anglo-Sikh Wars and the Annexation.

Section-C
5. Economic Changes: Agricultural

Section-D
8. Fairs and Festivals.

Suggested Reading
DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION
(Student can opt this Paper in 1st or 2nd Semester)

SOA : 101 - PROBLEM OF DRUG ABUSE

Time: 3 Hours
Credit 3-0-0
Total Marks: 100
Mid Semester Marks: 20
End Semester Marks: 80
Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

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
Meaning of Drug Abuse:
2) Consequences of Drug Abuse for:
   Individual : Education, Employment, Income.
   Family : Violence.
   Society : Crime.
   Nation : Law and Order problem.

SECTION – B
Management of Drug Abuse:
(i) Medical Management: Medication for treatment and to reduce withdrawal effects.
(ii) Psychiatric Management: Counselling, Behavioural and Cognitive therapy.
(iii) Social Management: Family, Group therapy and Environmental Intervention.

SECTION – C
Prevention of Drug abuse:
(i) Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.
(ii) School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

SECTION – D
Controlling Drug Abuse:
(i) Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program
References: