PUNJABI UNIVERSITY, PATIALA
Schemes of Studies and Examination for the B.Sc (Agriculture)
Part – II 2015-2016, 2016-17, 2017-18 Examinations

Part - II (Semester - III)

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Subject</th>
<th>Paper</th>
<th>Period per week</th>
<th>Marks</th>
<th>Internal Assessment</th>
<th>Total Marks</th>
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<td>II</td>
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<td>III</td>
<td>Elements of Vegetable Growing</td>
<td>Theory</td>
<td>6</td>
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<td>IV</td>
<td>Agri. Engg. &amp; Land Surveying</td>
<td>Theory</td>
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<td>VI</td>
<td>Punjabi compulsory/ Mudla Gian</td>
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Part - II (Semester - IV)

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SYLLABUS
OUTLINES OF TEST
SYLLABI AND COURSES OF READING FOR
B.Sc (AGRICULTURE) PART-II
SEMESTER-III
PAPER – I : ENGLISH
B.Sc. (Agriculture) Part II (Semester-III)
English
(For the Sessions 2015-2016, 2016-2017 and 2017-2018)

Max Marks: 100
Time Allowed: 3 Hours

INSTRUCTIONS FOR PAPER SETTER
The question paper will consist of three sections A, B and C. Section A and B will be of 30 marks each. Section C will consist of 15 very short-answer type questions which will cover the entire syllabus and carries 15 marks.

Text Prescribed: Eight short plays ed. by Jagdish Chander
(Waterloo and A Distant Relative not to be studied)

UNIT-I
1) One essay type question with an internal alternative based on character, summary, significance of title. 15
2) Short answer questions. Five questions to be attempted out of the given eight in about 50-60 words each. 10
3) Explain with reference to context one dialogue out of the given two. 5

UNIT-II
Text Prescribed: The Written Word: Vandana R. Singh
The Student's Companion: Wilfred D. Best.

1) Make a precis of the given passage and give it a suitable title. 10
2) Translation of a given passage of 15 sentences into English 15
3) One word substitute: The student is expected to attempt any five sentences out of the given eight. 5

UNIT-III
Section C will cover the entire syllabus. All 15 questions to be answered in one sentence each.
PAPER–III : ELEMENTS OF VEGETABLE GROWING

Max Marks: 60
Duration of the Paper: 3 hrs.

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Section-A
Scope, importance and types of vegetables, Cultivation practices including soil and climatic requirements, Varieties, seed rate, time of sowing, spacing, Fertilizers and manures, Irrigation, Hoeing and weed control, Plant population, Pests and diseases, Harvesting and yield of potato, Cole crops (Cabbages and cauliflower), Root crops, Bulb crops, Peas and beans, Solanaceous fruit vegetables, cucurbits and okra.

Section-B
Classification of vegetable crops, Storage and seed production of potato, cole crops (Cabbages and cauliflower), Root crops, Bulb crops, Peas and beans, Solanaceous fruit vegetables, cucurbits and okra.

PRACTICALS
Max Marks : 40
Duration of the Paper: 3 hrs.

Identification of various crops, varieties and seeds. Preparation of field for sowing, transplanting of different crops. Application of manures and fertilizers. Sowing, nursery raising, transplanting and other cultural operations for various crops. Planting plants for different kinds of vegetables and calendar of operations.

Note: The practical works done by the students during the semester is to be recorded in a note book which is to be signed by the teacher concerned. Candidates will be examined practically on work recorded in the note book.

Books Recommended

M.S. Dhaliwal : Hand Book of Vegetable crops.
G.S. Sani : Text Book of vegetable production.
PAU Lud : Package of practices for cultivation of vegetables.
Yawlkar : Vegetable crops.
Vishnu Swarup : Vegetable science and technology in India.
Prem Nath, S. Velayudhan & D.P. Singh : Vegetables for Tropical Regions.
Paper-IV : Agricultural Engineering and Land Surveying

Max Marks: 60  Theory: 44
Duration of the Paper: 3 hrs.  Internal Assessment: 16

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section-A
Internal combustion (IC) Engines and terminology. Working principles of two stroke and four stroke engines, Valve timing, Cooling, lubrication and governing systems. Simplest calculations of Horse Power. Tractors, types and manufacturer Companies. Working and constructional details of centrifugal pumps.
Principles of operation, elementary idea about constructional details and adjustments of Harrows, Mould board plough, Disc plough, Cultivators, Seed–cum–fertilizer drills, Calibrations of Seed-cum-fertilizer drills, Paddy transplanter, Potato planter, Maize planter and sugar cane planter, Harvesting combines.

Section-B
Introduction to Principles of planning and construction of farm building including dairy Farm, Farm Roads, their layout and formation. Main use of electricity on farms and in farm houses, selection of electric motors for farms use, repair and maintenance of motors on the farm.
Introduction to Fundaments of Surveying – Chain Surveying : units, measurements and equipments for chain survey. Simple, process of taking off sets, field books and plotting with conventional signs, Instrument Surveying : adjustments, use and care of prismatic Compass Level. Leveling Measurement of angles and simpler traverses recording levels.

PRACTICALS
Max Marks : 40  Duration of the Paper: 3 hrs.
Study of fuel lubrication and cooling system of engines and transmission system in tractors. Battery charging.
Use of surveying instruments, Measurement of distance by taking off – sets.
Finding angles between the lines with a prismatic : Determination of difference in heights of two points.
Study of Four stoke cycle engine. To study various parts of disc harrows, Seed Drills and power Threshers. Calibration of seed drills.

Books Recommended
Michale, A.M  :  Farm Power and Machinery, Kitab Mahal, Allahabad.
PAPER-V : ANIMAL HUSBANDARY

Max Marks: 60
Duration of the Paper: 3 hrs.

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory

Section-A
Importance of livestock to the Agriculture and its relation to National Economy. Livestock census, Milk Production in India, Per capita consumption of milk in various states of India as compared with some Western Countries.
Study of Breed of:
(i) Cow i.e. Sahiwal, Hariana Red Sindhi and their crosses with exotic breeds.
(ii) Buffaloes, Murrah, Nilli, Surti, Mehsana.
(iii) Other livestock: breeds of sheep, pig, poultry commonly found in the state of Punjab, Haryana and Himachal only.
(iv) Exotic Cows, Holsterin Fresion, Jersey, Red Dane and Brown Swiss.
General hints about selection of livestock, store – card performance, pedigree and history sheet.

Section-B
Anatomy and physiology of digestion and reproduction of cattle and poultry, Endocrine organs. Hormones and their role in animal body.
Feeding stuff and their classification, study of roughages, silage making and hay making and concentrates. General principle of feeding cattle, buffaloes and poultry, preparation of ration, DCP & TIN. Feeding standards, their merits, demerits and applicability under Indian conditions. Food requirement for work, milk, meat and egg production.

PRACTICALS

Max Marks : 40
Duration of the Paper: 3 hrs.

Finding out weight of animals for body measurements by formula. Determination of age (a) Dention (b) Horns. Numbering of animals:
(a) Tattooing (b) Notching
(c) Branding (d) Eartags
Dehorning : Canstic Touch Hot iron method, Electric Dehorner, Computation and preparation of rations for cows, buffaloes, heifers, bulls, bullocks, sheep, pig and poultry.
**Books Recommended**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Publisher/Location</th>
</tr>
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<tbody>
<tr>
<td>Singh, H.</td>
<td>Hand Book of Animal Husbandary</td>
<td>ICAR, New Delhi</td>
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<tr>
<td>Eigan, W.M. Reeges Paul</td>
<td>Dairy Cattle Feed</td>
<td>John Wiley &amp; Sons, New York.</td>
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<tr>
<td>Jagdishwar Sahai</td>
<td>Elements of Agriculture Engineering</td>
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<tr>
<td>Irshad Ali</td>
<td>Agriculture Machinery &amp; Land Surveying</td>
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PAPER-VI : Punjabi compulsory/Mudla Gian

ਖੈਰਮੀ. ਮੈਤਰੀਲਗਰ/ਇੱਥ ਮਾਧਿਮ ਬਾਧਾ-ਪੂਰਨ, ਪੰਜਾਬੀ ਲਾਗਭਗ (ਸਮੇਤਤ ਚੀਜ਼ ਅਤੇ ਚੇਵਾ) 2015-16, 2016-17 ਅਤੇ 2017-18 ਦੀਆਂ ਕੈਸੇਲ ਕਥਾਂ (ਸਮੇਚਤ ਚੀਜ਼)

ਲੁਠ ਅੰਗਰ : 100 ਪਹਸੂਸੀ ਕੋਣਾਂ ਅੰਗਰ : 35
ਅਨੇਕ ਇੱਥ ਅੰਗਰ : 25 ਅੰਗਰ ਅਨੇਕ ਇੱਥ ਅੰਗਰ ਅੰਗਰ ਅੰਗਰ : 09
ਘਾਤਕੀ ਪਹਿਲਾਈਅਤ: 75 ਅੰਗਰ ਘਾਤਕੀ ਪਹਿਲਾਈਅਤ ਅੰਗਰ ਅੰਗਰ : 26
ਸਰਫ : 3 ਪੇਪਿੰਟਸ (ਅਧਿਕਾਰ: 50 ਪੰਜਾਬੀ, 6 ਪੰਜਾਬੀ ਪੁਸਤਕ ਉਪਕਾਰ)

ਪਹਾਡੀਮੁੱਖ ਅਤੇ ਪੁਰਸਤ-ਪੁਰਾਵ ਦੀ ਸਲਾਦ ਵੇਚਾਂ

ਝਾਂ-ਓ

ਵਜ਼ੀਰਾਂ ਦੀ ਸਲਾਦ ਮੋਗਾਲਾਂ ਬੀਜੀ ਸ਼ੌਚਕਾਂ

ਝਾਂ-ਅ

ਆ-1 ਅਧਿਆਦਾਨ
ਆ-2 ਹਿਸਾਬਾਤਰ:
(ਵੈਕੁੱਹੀ ਹੋਂ ਦਿਲਾਸਾ)
(ਕੁਕੁਕੁੱਹੀ ਹੋਂ ਦਿਲਾਸਾ ਹਿਸਾਬਾਤਰ)
(ਕੁਕੁਕੁਕੁੱਹੀ ਹੋਂ ਦਿਲਾਸਾ ਹਿਸਾਬਾਤਰ)
(ਕੁਕੁਕੁੱਕੁੱਹੀ ਹੋਂ ਦਿਲਾਸਾ ਹਿਸਾਬਾਤਰ)

ਝਾਂ-ਜਾ

ਝਾਂ ਅਤੇ ਪੀ ਦੇ ਹਿਸਾਬਾਤਰ ਦੇਣੇ ਝਾਂ ਹਿਸਾਬ ਸੰਖੇਪ ਬੁੱਢ ਦੇ ਪੁਰਸਤ।

ਆਂਘਾਂ-ਮੰਡ ਦੇ ਪੇਟਰੇ ਮੈਟ ਕੁਥਾ ਇਲਾਵਾ

1. ਝਾਂ ਅਤੇ ਹਿਸਾਬ ਦੇ ਹਿਸਾਬ ਸਾਉਡ ਮਾਤਾ / ਮਾਤਬਾਨ ਦਿੱਲੀ ਦਿੱਲੀ ਦੀਆਂ (ਦੱਖਣ ਹਿਸਾਬ ਦੀਆਂ) 12 ਅੰਗਰ
2. ਝਾਂ ਅਤੇ ਹਿਸਾਬ ਸਾਉਡ ਦਿਲਾਸਾ ਮਾਤਾ ਹਿਸਾਬਾਤਰ ਦੀਆਂ (ਦੱਖਣ ਹਿਸਾਬ ਦੀਆਂ) 2x6=12 ਅੰਗਰ
3. ਮਾਤਾਪੁਰਾਤ ਅਧਿਕਾਰੀ ਵੇਖੀ (ਅਧਿਕਾਰੀ ਵੇਖੀ ਦੀਆਂ) (ਦੱਖਣ ਹਿਸਾਬ ਦੀਆਂ) 09 ਅੰਗਰ
4. ਝਾਂ ਅਤੇ ਹਿਸਾਬ ਦੇ ਹਿਸਾਬਾਤਰ ਦੇਣੇ ਝਾਂ ਹਿਸਾਬ ਦੇ ਹਿਸਾਬ ਬੁੱਢ ਦੇ ਪੁਰਸਤ (ਦੱਖਣ ਹਿਸਾਬ ਦੀਆਂ) 12 ਅੰਗਰ
5. ਝਾਂ ਅਤੇ ਹਿਸਾਬ ਦੇ ਹਿਸਾਬਾਤਰ ਦੇਣੇ ਝਾਂ ਹਿਸਾਬ ਸੰਖੇਪ ਬੁੱਢ ਦੇ ਪੁਰਸਤ 15 ਅੰਗਰ ਪੁਰੱਖ ਦੀਆਂ।

ਦੱਖਣ ਦੇ ਪੁਰਸਤ ਦੇ ਅੰਗਰ ਦੇਣੇ। 15x2=30 ਅੰਗਰ
नगरित पथ-मार्गावरी

1. डा. शेखिकद सिप्ह अभाष के उद, मुस्लिम बांध घर हिमालय द्वीप-1, मुस्लिम बांध अवस्थमा सिङ्गो, 1991, भन्नु 67-73
2. डा. शेखिकद सिप्ह अभाष के उद, मुस्लिम बांध घर हिमालय द्वीप-1, मुस्लिम बांध अवस्थमा सिङ्गो, 1992
3. ख. राजा सिप्ह के उदबोधन सिप्ह, वाणिज्य मुस्लिम हिमालय, बाँध मस्तेड तूली, तेमकट तरंग शेवड़, भेडीगाढ़
4. सी. सिप्ह नेवस, साधुदाराण, लाघें झंक मधु, तुधिवन
5. वासिक राजा सिप्ह, माधुरिक मुस्लिम विवेश पतल चिन, लक्ष्मी मुम्बई, भेडीगाढ़।
6. वासिक राजा सिप्ह, माधुरिक मुस्लिम विवेश पतल चिन, तेमकट मुम्बई, भेडीगाढ़।
7. समाहित सिप्ह, सेवा मुस्लिम विवेश पतल चिन, चेदा मुम्बई, तुधिवन
भाषाओं की लघुत्तम (माध्यमिक विभाग) भाषा-प्रयोग (माध्यमिक वीं अंतर्गत चौथा)  
2015-16 मैथुन लेख 

माध्यमिक वीं अंतर्गत 

भाषा की लघुत्तम प्रयोग-प्रारूप की तुलना-वेधा

विवरण: कुल संख्या: भाषा की लघुत्तम प्रयोग, विशेषज्ञ विभाग,  
विभागीय स्तर, भाषा विभाग, प्रशिक्षण  
(प्रमाण पत्र प्रमाण ना प्रयोग; भाषा विभाग विभाग) के मध्य संख्या तथा वर्ग अनुसार।

अंक-ही

अंक-अ नाम
1. विशिष्टादेशीय
2. प्रस्तुतियाँ के भाषा भाषा के मुख्य संस्कृति साथ साथ 
3. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
4. वर्ग अनुसार भाषा प्रयोग के साथ साथ 
5. भाषा भाषा के विशिष्टादेशीय 
6. प्रस्तुतियाँ के मुख्य संस्कृति साथ साथ 
7. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
8. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
9. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
10. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
11. प्रशिक्षण विभाग, प्रशिक्षण संस्कृति साथ साथ 
12. प्रस्तुतियाँ के मुख्य संस्कृति साथ साथ 

अंक-1 30 अंक
अंक-2 10 अंक
अंक-3 10 अंक
अंक-4 10 अंक
अंक-5 10 अंक
अंक-6 10 अंक
अंक-7 10 अंक
अंक-8 10 अंक
अंक-9 10 अंक
अंक-10 10 अंक
अंक-11 10 अंक
अंक-12 10 अंक
SYLLABUS
OUTLINES OF TEST
SYLLABI AND COURSES OF READING FOR
B.Sc (AGRICULTURE) PART-II
SEMESTER-IV

PAPER–VII : PRINCIPLES OF ECONOMICS

Max Marks: 100
Duration of the Paper: 3 hrs.

Theory : 75
Internet Assessment : 25

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 12 marks each. The section C will consist of 9 short answer type questions which will cover the entire syllabus uniformly and will carry 27 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section-A
Nature, Economic problems, basic problems of an economy, economic analysis and economic policy and tools of economics.
Gross National Product: Concepts and components, method of computation problems and difficulties in computation especially in under developed countries.
Theories of Demand: the classical utility approach, the indifference curve approach, derivation of demand curves, elasticities of demand.
Theory of production: Production function, elasticity of substitution Theory of cost Revenue and Revenue curves.

Section-B
Price Determination: Price Determination under different market situations, perfect competition, monopoly, monopolistic competition, Monopoly versus competition.
Pricing of factors of Production
Money and Banking: Definition and components of money, functions of money, functions of commercial and central banks.
Public Finance: Objectives of fiscal policy, principles of taxation, incidence of taxation, public debt, its burden and role, deficit financing.

BOOKS RECOMMENDED

Jather & Berry : Elementary Principles of Economics.
Sen, D.N. : Elementary Economics (Text Book), Calcutta.
T.R. Jain : Macro Economics.
Paper-VIII : Animal Management and Breeding

Max Marks: 60
Duration of the Paper: 3 hrs.
Theory : 44
Internal Assessment : 16

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section-A
General care of cattle, grooming, exercise, bathing, milking, observation of oestrus, dairying care during pregnancy and at parturition production of clean milk.
Care of calves: Care and Feeding of newly born and weaned calves, numbering, tattooing, notching, branding and ear tagging, dehorning, castration and daily weight gains.

Section-B
Principles of up-grading of buffaloes and cows. Various systems of breeding, Crossbreeding, Sire and Dam Importance, Pedigree and Selection, linkage, heredity, important terms in breeding.
Artificial Insemination, Merits and demerits. Reproduction, Gestation, Fertility, Sterility, Castration and Abortion.
Location of Dairy farms, grouping of different farm buildings, types of dairy farms, Sanitation drainage of cattle sheds. Supply of clean and fresh water.
Signs of health and diseases, infections and contagious diseases, their causes, symptoms and treatment, Milk fever and sterility. Vaccination Schedules.
Intensive Cattle Development Project, Key Village Scheme, National Dairy Development Board.

PRACTICALS
Max Marks : 40
Duration of the Paper: 3 hrs.

Administration of drugs and medicines: Drenching. Electuary, passerines, Anema, Douching and medicines, etc. Preparation of common remedies such as ointments, lotions, mixture, polluties and dressing of wounds.
Cleaning, sterilization and disinfection of utensils, appliances and premises. Incubator operations.
Breeding of chicks, Restraint, castration and canonization.
### Books Recommended

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Publisher/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harbans and Moore</td>
<td>Livestock and Poultry Production</td>
<td>Prentice Hall of India Pvt.Ltd. New Delhi.</td>
</tr>
<tr>
<td>Jagdishwar Sahai</td>
<td>Elements of Agriculture Engineering</td>
<td></td>
</tr>
<tr>
<td>Irshad Ali</td>
<td>Agriculture Machinery &amp; Land Surveying</td>
<td></td>
</tr>
</tbody>
</table>
PAPER-IX : BASIC BOTANY

Max Marks: 60
Duration of the Paper: 3 hrs.

Theory: 44
Internal Assessment: 16

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section-A

Section-B
Ecology: Ecological factors and their effects on the vegetation. Morphological and anatomical characters of hydrophytes and xerophytes. Brief concept of Ecosystem, its components, food chain, food web, ecological pyramids concept of biosphere. Source, effects and control measures of air, water and soil pollution, Plant succession, lithosere and Hydrosere.

PRACTICALS
Max Marks: 40
Duration of the Paper: 3 hrs.

1. Morphology and studies of Spirogyra, Rhizopus, Funaria, Dryopteris, Pinus and Mustard.

Demonstration of following experiments
3. Light, Chlorophyll and CO₂ necessary for photosynthesis.
4. To compare the rate of transpiration by four leaf experiment.
5. CO₂ evolved during respiration.
6. Demonstration of anaerobic respiration.
7. Effect of rooting hormones on root differentiation.
# Books Recommended

<table>
<thead>
<tr>
<th>Author/Editor</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.N Srivastava</td>
<td>Diversity of Microbes &amp; Cryptogams Vol-I.</td>
</tr>
<tr>
<td>H.N. Srivastava</td>
<td>Diversity of seed Plants &amp; their Systematic.</td>
</tr>
<tr>
<td>H.N. Srivastava</td>
<td>Plant Physiology.</td>
</tr>
<tr>
<td>H.N. Srivastava</td>
<td>Ecology &amp; Utilizations of Plant.</td>
</tr>
<tr>
<td>K.N. Bhatia &amp; M.P. Tyagi</td>
<td>Elementary Biology.</td>
</tr>
<tr>
<td>G.M. Smith</td>
<td>Cryptogrammic Botany Vol-II.</td>
</tr>
<tr>
<td>Dutta</td>
<td>Botany for degree Students.</td>
</tr>
<tr>
<td>V.K. Jain</td>
<td>Fundamentals of Plant Physiology.</td>
</tr>
<tr>
<td>V.Verma</td>
<td>Text Book of Plant Physiology.</td>
</tr>
<tr>
<td>Odum &amp; Barrett</td>
<td>Fundamental of Ecology.</td>
</tr>
</tbody>
</table>
PAPER-X : FIELD CROPS
Max Marks: 60
Duration of the Paper: 3 hrs.

Theory : 44
Internal Assessment : 16

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

Theory
Section-A
Botany, Cultivation Practices, Improved varieties and harvesting of:
Cereals: Wheat, Maize, & Rice.
Millet: Bajra & Sorghum.
Oilseeds: Raya, Groundnut & Sunflower.
Sugar Crops: Sugarcane.
Fibre Crops: Cotton.

Section –B
Botany, Cultivation Practices, Improved varieties and harvesting of:
Pulses : Gram, Soybean, Arhar,& Moong.
Fodder Crops: Barseen, Lucerne & Cluster bean.
Tuber Crops: Potato.
Botany, part used and medicinal value of : Celery & Mentha.

PRACTICALS
Max Marks : 40
Duration of the Paper: 3 hrs.

Practical study of the cultivation, Preparation of seed bed, application of manure, sowing and harvesting and threshing techniques of crops studied in theory. Recognition and Judging of crops for maturity and yield. Quality tests in crops; lint in cotton, juice in sugarcane.
The students to cultivate co-operatively a block of land following a suitable rotation with all agronomic practices.
Estimation of crops yield.
Nursery raising techniques.
Visit to experimental farm of crops.

Books Recommended
Fugh B.M : Production of field Crops in India, Kitabistan, Allahabad.
Chhidda Singh, Prem Singh & Rajbir Singh : Modern techniques of raising field Crops.
PAPER-XI : MANURES AND FERTILIZERS

Max Marks: 60
Duration of the Paper: 3 hrs.

Theory : 44
Internal Assessment : 16

INSTRUCTIONS FOR THE PAPER-SETTER
The question paper will consist of three sections A, B and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 7 marks each. The section C will consist of 8 short answer type questions which will cover the entire syllabus uniformly and will carry 16 marks in all.

INSTRUCTIONS FOR THE CANDIDATES
Candidates are required to attempt two questions from each section A and B and the entire section C.

**Theory**

**Section-A**
Mineral constituents of soil, Arnons’s criteria of essentiality of an element, essential plant nutrient elements (macro and micro), their sources, content in soil and functions. Mechanism of absorption, deficiency symptoms in plants. Availability in soils, mechanism of transformation in soil.

**Section-B**

**PRACTICALS**

Max Marks : 40
Duration of the Paper: 3 hrs.

Estimation of Nitrogen in the soil and plants. Identification and characteristics of common fertilizers. Types of manures and their effects. Preparation of farm yard manure, green manure and vermi compost.

**BOOKS RECOMMENDED**

- **Ranjan Kumar Basak**: Fertilizers: A Text Book
PAPER XII : All UG Courses - II Years (4th Semester)

Environmental and Road Safety Awareness

Session : 2015-16, 2016-17 & 2017-18

Time Allowed: 3 hours
Total Marks: 100
Total lectures: 50
Pass marks: 35

**Theory Paper: 70 marks+ Internal Assessment 30 marks**

**Instructions:**

a) The paper has been introduced from the session 2013-14.

b) The paper will be taught in the Second year/fourth Semester of all the U.G. Courses (B.A., B.Com., B.Sc., Law, Engineering, Commerce, Agriculture etc.) except L.L.B. three year course and will be a qualifying paper only. The marks of this paper will not be counted towards final score of the under graduate degree.

c) This will cover only preliminary and basics of the subject and the paper will be set accordingly.

d) The question paper will consist of three sections A, B and C. Section A and B will have four questions in each section from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 15 short-answer type questions which will cover the entire syllabus uniformly and will carry 30 marks in all.

e) Candidates are required to attempt two questions from each section A and B and the entire section C.

**Section – A**

**Unit 1:** The multidisciplinary nature of environmental studies. Definition, scope and importance

- Concept of Biosphere – Lithosphere, Hydrosphere, Atmosphere.
- Need for public awareness (6 lectures)

**Unit – 2:** Natural Resources – Renewable and non-renewable resources.

- Natural resources and associated problems.

  a) Forest resources: use and over exploitation, deforestation and its impact.
b) Water resources: use and overutilization of surface and ground water and its impact.

c) Rain water harvesting.

d) Mineral resources: use and effects on environment on over exploitation.

e) Food resources: Effects modern agriculture, fertilizer-pesticide problem, water logging and salinity.

f) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy resources.

g) Role of an individual in conservation of natural resources for sustainable development. (7 lectures)

Unit 3: Ecosystems

- Ecosystem and its components: Definition, structure and function; producer, consumer and decomposer.
- Types of Ecosystem (Introduction only)
- Food Chains, food web and ecological pyramids (6 lectures)

Unit – 4: Biodiversity and conservation

- Hot spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of Biodiversity. (6 lectures)

Section – B

Units 5: Environmental Pollution

- Definition, causes, effects and control measures of

  a) Air pollution
  b) Water pollution
  c) Soil pollution
d) Marine pollution

e) Noise pollution

f) Thermal pollution

g) Nuclear hazard

- Role of an individual in prevention of pollution.
- Solid waste management: vermin-composting.
- Disaster management: Floods, earthquake, cyclone and landslides (7 lectures)

**Unit 6: Social Issues and the Environment**

- Urban problems related to energy.
- Water conservation rain water harvesting, water shed management.
- Resettlement and rehabilitation of people: its problems and concerns.
- Climate changes, global warming, acid rain, ozone layer depletion.
- Consumerism and waste products.
- Population explosion – Family welfare programme (6 lectures)

**Unit 7: Introduction to Environmental Protection Laws in India**

- Environmental Protection Act.
- Air (Prevention and control of pollution) Act.
- Water (Prevention and Control of pollution) Act.
- Wild life Protection Act.
- Forest Conservation Act.
- Issues involved in the enforcement of environmental legislation. (6 lectures)

**Unit 8: Road safety Awareness**

- Concept and significance of Road safety.
- Traffic signs.
- Traffic rules.
- Traffic Offences and penalties.
- How to obtain license.
- Role of first aid in Road Safety. (6 lectures)
पत्रद्वार अत्र यूर्तूस-पेक्तूस सी लूट-लेखा

पेशा-व

वर्तमान तक पुस्तक संपादित सी वीडी साबिती

पेशा-अ

प ए-1 संयम उच्चता
प ए-2 विभागतत:
(i) भूत विश्लेषण विभागततां तक पहुंच दे महापती
(ii) भूत घटक अते भूत घटक
(iii) विकल्प घटक: पहुंच दे बाल

पेशा-ट

पेशा ते अत्र ए देह विभागतत दास पेशा दिले संयम दूरें दास यूर्तूस।

अंक-चौंड देखि पेशा नैटव लटी उपाधिय

1. पेशा देखि पेशा देखि रण देहि बांटू/मनव (दिल्ली दिल्ली दिल्ली) 12 अंक
2. पहुंच दूरें (दिल्ली दिल्ली दिल्ली) 12 अंक
3. संयम उच्चता 09 अंक
4. पेशा अ-2 दिल्ली विभागतत दास पेशा दिले दर्ददानुबंध यूर्तूस (दिल्ली दिल्ली दिल्ली) 12 अंक
5. पेशा देखि पेशा देखि अ-2 विभागतत दास पेशा दिले संयम दूरें दास

15 यूर्तूस पूण्डे मात्र। विभागततां ते मात्र यूर्तूस बाले देखि।

पेशा यूर्तूस देखि 2 अंक देखि। 15x2=30 अंक
मण्डित्र धातू-सम्बन्धी

1. डा. नेशिन चिंत्र धुधाव बाटे ओहा, पंसाही ग्राम र दिशांचार गाँव-1, पंसाही ग्राम अश्वंती नक्साल, 1991, पंक्ति 67-73
2. डा. नेशिन चिंत्र धुधाव बाटे ओहा, पंसाही ग्राम र दिशांचार गाँव-11, पंसाही ग्राम अश्वंती नक्साल, 1992
3. शा. खल चिंत्र थे उदवीतार चिंत्र, बालक पंसाही दिशांचार, पंसाही मेटेट पूजारी. टेम्बट बृंदावन, मेक्कोवालो
4. मेव चिंत्र शेरें, माधुर्याराध, लागंड बृंदावन, कृष्णाराध
5. पंसर धरुव (बालक दिशेसंग आत्म), पंसाही बुद्धीविद्वानी, धरिवाल
भंडाबुध अदेश पृष्ठ-पृष्ठ दी दृष्टिकोण

निदेशपत्र पृष्ठः भंडाबुध दी पाठ पुस्तक, परवर्तक मिश्र चीमा,
परवर्तक मिश्र, भंडाबुध पुस्तक, परवर्तक कीमा.
(टिप्पणी पृष्ठवर्ती बांग्ला शब्द: सिद्धांतविद्या अदेश लेखपत, बांग्ला शीर्ष: भंडाबुध दी पाठ पुस्तक द्वारा पाठ पृष्ठ 25 लेख भूमिकाओं

**पाठ-अ**

सिद्धांतविद्या अदेश लेखपत

**पाठ-ब**

1. भंडाबुध दी पाठ पुस्तक अदेश द्वारा पुस्तकों की शब्द विभाजन पृष्ठवर्ती बांग्ला शब्दाः खिलाड़ी नाम.
2. पाठ पृष्ठ 25 लेख पृष्ठ के स्वरूप.
3. पाठ पृष्ठ 25 लेख पृष्ठें.
4. पाठ पृष्ठ 25 लेख पृष्ठें.
5. पाठ पृष्ठ 25 लेख पृष्ठें.
6. पाठ पृष्ठ 25 लेख पृष्ठें.
7. पाठ पृष्ठ 25 लेख पृष्ठें.
8. पाठ पृष्ठ 25 लेख पृष्ठें.
9. पाठ पृष्ठ 25 लेख पृष्ठें.
10. पाठ पृष्ठ 25 लेख पृष्ठें.

**पाठ-ब**

एम. ब्रह्म देशमुख निदेश पत्र स्वरूप

1. पाठ पृष्ठ 25 लेख पृष्ठें.
2. पाठ पृष्ठ 25 लेख पृष्ठें.
3. पाठ पृष्ठ 25 लेख पृष्ठें.
4. पाठ पृष्ठ 25 लेख पृष्ठें.
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7. पाठ पृष्ठ 25 लेख पृष्ठें.
8. पाठ पृष्ठ 25 लेख पृष्ठें.
9. पाठ पृष्ठ 25 लेख पृष्ठें.
10. पाठ पृष्ठ 25 लेख पृष्ठें.
11. पाठ पृष्ठ 25 लेख पृष्ठें.
12. पाठ पृष्ठ 25 लेख पृष्ठें.
13. पाठ पृष्ठ 25 लेख पृष्ठें.
14. पाठ पृष्ठ 25 लेख पृष्ठें.
15. पाठ पृष्ठ 25 लेख पृष्ठें.

16. पाठ पृष्ठ 25 लेख पृष्ठें.
17. पाठ पृष्ठ 25 लेख पृष्ठें.