DEGREE OF BACHELOR OF SCIENCE

CHOICE BASED CREDIT SYSTEM

Syllabus for

B. SC. BOTANY

(SEMESTER PATTERN)

(For Candidates admitted in the Colleges affiliated to Periyar University from 2017 - 2018 onwards)
REGULATIONS

Objectives of the course:

- This course will enable the students
- To gain knowledge of the importance of plants in conserving food and fuel.
- To acquire skills in drawing by actual observation at its original and natural condition.
- To know the nutritive value of food and maintain 'Health and Care Problems’
- To create awareness in the understanding of extinct plants.
- To create awareness of natural resources and methods of Conservation.
- To develop student skills of growing various horticultural plants thereby to raise a nursery.
- To train in techniques of Vegetative propagation and gardening.
- To motivate for self-employment by knowledge and practicing in the preparation of Mushroom technology.
- 'Earn while learn' can be done with the acquirement of basic knowledge in growing some medicinal plants.
- To gain knowledge for exploration of new plants of unknown value and known plants of unknown value of their secondary metabolites.
- To gain a knowledges of the techniques of producing desirable plants through the study of molecular biology and genetic engineering.

SCOPE

This course considers the patterns of plant diversity and the processes that generate and maintain plant diversity. It is an interdisciplinary approach in which major groups of plants are overviewed in holistic manner.

This course also considers the Biology of plants. Different branches of Botany are given due importance as they deserve. Practical's are framed with an aim to improve skills in microcopy, observation, drawing, and laboratory exercise. During field trips the students are exposed to basic ecological principles and interactions.

Students who complete this course will have better understanding on the types and sources of plants by diversity and the role of human and non-human factors in plant diversity. Students will better understanding plants and their importance in Biosphere as life sustaining components.

Students who complete this course can pursue research. As topics from relevant course are included there is a scope for the student to have opportunity in employment in state and central governments. Also the student has a scope for self-employment.
1. **CONDITION FOR ADMISSION**

A candidate who has passed Higher Secondary Examination in Academic or vocational stream with Botany/Biology under higher secondary board of examination, Tamil Nadu or an examination accepted as Equivalent there to by the syndicate subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc degree examination of this university after a course of study of three academic years.

2. **DURATION OF THE COURSE**

The course for the degree of Bachelor of Science shall consist of three academic years divided into six semesters. Each Semester consists of 90 working days. Practical examinations will be at the end of even semesters.

3. **FEATURES OF CBCS:**

Under Choice Based Credit System (CBCS), a set of papers consisting of Core papers, Elective papers, Skill based elective papers and Non-major elective papers are offered. Beside the Core Papers, which are totally related to the major subject, the students have the advantage of studying supportive papers and non-major papers. This provides enough opportunity to the students to learn not only the major subject but also inter disciplinary and application oriented subjects.

4. **CREDITS:**

In CBCS, each paper is assigned with a certain number of Credits depending upon the workload of the students. The total Credits to be earned by a student to qualify for the degree is 140. The credit of the paper is fixed by giving due weightage to the syllabus content and contact hours per week.
5. PASSING MINIMUM

THEORY

University Examination (EA) 75 Marks

Internal Assessment (CIA) 25 Marks

Classification of Internal Assessment Structure

Marks

Internal Assessment

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Passing Minimum (CIA) 40% - 10 Marks
Passing Minimum (UE) 40% - 30 Marks

**Total** - **40 Marks**

PRACTICAL

University Examination (EA) 60 Marks

Internal Assessment (CIA) 40 Marks

Classification of Internal Assessment Structure

Marks

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Passing Minimum (CIA) 40% - 16 Marks
Passing Minimum (EA) 40% - 24 Marks

**Total** - **40 Marks**
The candidate shall be declared to have passed the examination if the candidates secure not less than 30 marks out of 75 marks in the University examination in each theory paper and 10 marks out of 25 marks in the Internal Assessment and in total not less than 40 marks.

For the practical paper 24 marks out of 60 marks in the University examination and the record notebook taken together and 16 marks out of 40 marks in the Internal Assessment and in total 40 marks. There is no passing minimum for the record notebook. However submission of a record notebook is a must.

6. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Candidates who secure not less than 60% of the aggregate marks in the whole Examination shall be declared to have passed the examination in First class.

All other successful candidates shall be declared to have passed in the Second class.

Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in First Class with Distinction provided they pass all the examinations prescribed for the course at the first appearance.

Other successful candidates who secure below 50% shall be declared to have passed the examination in Third class.

Candidates who pass all the examinations prescribed for the course in the first instance and within a period of two academic years from the year of admission to the course only are eligible for University Ranking.

7. MAXIMUM DURATION FOR THE COMPLETION OF THE UG PROGRAMME

The maximum duration for completion of the UG Programme shall not exceed twelve semesters.

8. COMMENCEMENT OF THIS REGULATION

These regulations shall take effect from the academic year 2017-18, i.e., for students who are to be admitted to the first year of the course during the academic year 2017-2018 and thereafter.

9. TRANSITORY PROVISION

Candidates who were admitted to the UG Course of study before 2017-18 shall be permitted to appear for the examinations under those regulations for a period of three years i.e., up to and inclusive of the examination of April / May 2021. Thereafter, they will be permitted to appear for the examination only under the regulations then in force.
### PERIYAR UNIVERSITY

**Course Structure from the Year 2017 onwards**

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### SEMESTER – V

| III  | Core - VII | Morphology and Taxonomy of Angiosperms | 5 5 3 25 75 100 |
|      | Core - VIII | Cytology and Genetics                | 5 5 3 25 75 100 |
|      | Core - IX  | Bio Instrumentation and Bio Statistics | 5 5 3 25 75 100 |
|      | Core- X    | Practical (Core course -VII,VIII&IX) | 3+3 |
|      | Elective   | Plant biotechnology                 | 5 5 3 25 75 100 |
| IV   | SBEC - IV  | Agricultural microbiology           | 2 2 3 25 75 100 |
|      | SBEC - V   | Plant breeding and Plant utilization as food | 2 2 3 25 75 100 |
|      |            | Plant Breeding                      |               |

### SEMESTER – VI

| III  | Core - XI | Plant physiology                   | 5 5 3 25 75 100 |
|      | Core - XII | Plant Ecology & Plant geography    | 5 5 3 25 75 100 |
|      | Core - XIII | Plant Protection                  | 5 5 3 25 75 100 |
|      | Core - X   | Practical (V Sem Core course)      | 3 4 3 40 60 100 |
|      | Core - XIV | Practical (Core course XI, XII&XIII) | 3+3 4 3 40 60 100 |
|      | Elective   | Biochemistry                       | 5 5 3 25 75 100 |
| IV   | SBEC - VI  | Medico -Ethnobotany                | 2 2 3 25 75 100 |
|      | SBEC - VII | Seed technology                    | 2 2 3 25 75 100 |
|      |            | Extension Activities               | 1               |

SBEC - Skill Based Elective Courses
NMEC - Non Major Elective Courses
B. Sc. BOTANY

SEMESTER -I

CORE – I ALGAE PLANT DIVERSITY –I

(ALGAE & BRYOPHYTES)

UNIT-I  15 Hrs.

UNIT-II  15 Hrs.
A detailed study of Structure, Reproduction and life cycle of the following algae genera: Oscillatoria, Anabaena, chlamydomonas, Volvox and Oedogonium

UNIT-III  15 Hrs.
A detailed study of Structure, Reproduction and life cycle of the following algae genera - Caulerpa, Chara, Cyclotella, Sargassum and Polysiphonia

BRYOPHYTES

UNIT-IV  15 Hrs.
Bryophytes - General characteristics, Occurrence, Distribution and classification (Rothmaler, 1951) A detailed study of the Structure, Reproduction and life cycles of the following genera – Marchantia

UNIT-V  15 Hrs.
A detailed study of the Structure, Reproduction and life cycles of the following genera Porella, Anthoceros and Polytrichum. Economic Importance of Bryophytes.

PRACTICAL  3 Hrs./Week
1. Micro preparation and detailed microscopic analysis of vegetative and reproductive parts of the following Algae - Oscillatoria, Anabaena, Chlamydomonas, Volvox, Oedogonium, Caulerpa, Chara, Cyclotella, Sargassum and Polysiphonia

2. Micro preparation and detailed microscopic analysis of vegetative and reproductive parts the following Bryophytes – Marchantia, Porella, Anthoceros and Polytrichum. Study the Economic importance of Algae (Spotter - Agar-Agar, Carrageenan, SCP (Spirulina) - Chlorellin, Gelling agent (Ulva), Fodder (Sargassum) - Diatomite.
B Sc BOTANY

ALGAE Text Book

Reference books:

BRYOPHYTES Text Books

Reference Books
B. Sc. BOTANY

SEMESTER –II

CORE – III     -     PLANT DIVERSITY –II

(FUNGI, LICHENS, BACTREIA AND VIRUSES) FUNGI

UNIT-I


UNIT-II

Detailed study of occurrence, Morphology, Reproduction, Life cycle and Economic importance of the following genera: Albugo, Saccharomyces, Aspergillus, Neurospora, Peziza.

UNIT-III

Detailed study of Occurrence, Morphology, Reproduction, Life cycle and Economic importance of the following genera: Puccinia, Polyporus and Cercospora

LICHENS AND VIRUSES

UNIT-IV

Lichens: General characteristics, Occurrence, Distribution, Classification, Reproduction and Economic importance of Lichens. Detailed study of Usnea

Viruses: General characters of Plant viruses – General account of Bacteriophages – Cyanophages, Mycophages. Mycoplasma (PPLO) – Reproduction of T4 phage

BACTERIA

UNIT-V


PRACTICAL:

1. Micro preparation and Detailed microscopic analysis of Vegetative and Reproductive Parts of the following Fungi- Albugo, Saccharomyces, Aspergillus, Neurospora, Peziza, Puccinia, Polyporus and Cercospora.
2. Micro preparation and detailed microscopic analysis of vegetative and Reproductive Parts of the *Usnea*.


4. Study of Structure of Bacteria using permanent slides/photographs.

**Fungi Textbooks**


**Reference book**


**Lichens**

**Reference Books**


**Bacteria Textbooks**


**Reference Books**


**VIRUSES Text Books**


**Reference Books**

B. Sc. BOTONY

SEMESTRE- II

SKILLED BASED ELECTIVE COURSE – I

MUSHROOM CULTURE TECHNOLOGY

UNIT - I  6 Hrs.

Introduction - history - scope of edible mushroom cultivation - Types of edible mushrooms available in India - temperate mushroom, sub-tropical mushroom and tropical mushroom. Detail study of *Pleurotus citrinopileatus*, *Agaricus bisporus*.

UNIT - II  6 Hrs.

Pure culture - preparation of medium (PDA and Oatmeal agar medium) sterilization - preparation of test tube slants to store mother culture – culturing of *Pleurotus* mycelium on Petri plates, preparation of mother spawn in saline bottle and polypropylene bag and their multiplication.

UNIT - III  6 Hrs


UNIT - IV  6 Hrs.

Storage and nutrition: Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickels, papads), drying, storage in salt solutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins. Medicinal values of mushrooms

UNIT - V  6 Hrs.

Food Preparation: Types of foods prepared from mushroom; Soup, Cutlet, Omelets, Samosa, Pickles, Curry. Value added products of mushroom. – mushroom soup powder, mushroom biscuit, mushroom nuggets, mushroom ketchup, candy, murabba, chips etc,. Research Centers - National level and Regional level. Cost benefit ratio - Marketing in India and abroad, Export Value.

References:


   Mushrooms - cultivation, marketing and consumption. Directorate of Mushroom research, ICAR, Chambaghat, Solan, HP-173213.
B. Sc. BOTONY

SEMESTER –III

CORE – IV - ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS ANATOMY

UNIT – I  10 Hrs.
Meristems: Classification, distribution, structure and function. Shoot apex and Root apex organization. Theories: Histogen, Tunica – Corpus and quiescent center. Simple permanent tissues: Parenchyma, Collenchyma, Sclerenchyma. (Fibers and Sclereids)

UNIT – II  15 Hrs.

UNIT – III  15 Hrs.

EMBRYOLOGY OF ANGIOSPERMS

UNIT – IV  10 Hrs.

UNIT – V  10 Hrs.
A brief account on pollination, Fertilization, Double fertilization and Triple fusion.

PRACTICALS

ANATOMY OF ANGIOSPERMS
1. Study of simple and complex tissues by using permanent slides.
2. Study of primary structure and sectioning of Dicot stem, root, leaf, Monocot stem, root and leaf.
4. Anomalous secondary structures – *Bignonia, Nyctanthes, Dracaena*.(Permanent slides)
5. Stomatal types: Anomocytic, Anisocytic, Paracytic, Diacytic and Graminaceous. (Peel out From leaf).

**EMBRYOLOGY OF ANGIOSPERMS**
1. Structure of Anther (Young and Mature from *Datura* or *Cassia* flower)
3. Stages in Microsporogenesis and Megasporogenesis (Permanent slides onion flower Bud).
4. Structure of Male gametophyte and Female gametophyte (Permanent Slides/photographs).
5. Dissection of embryo and observe the globular and Heart shape
6. Structure of Endosperm. Nuclear (Coconut water) cellular endosperm (Cucumber seed) Ruminate (fruit of *Arecha catechu*)

**ANATOMY**

**Text Book**

**Reference Book**

**EMBRYOLOGY Text Book**
B Sc BOTANY


Reference book

B. Sc. BOTONY

SEMESTER –III

SKILLED BASED ELECTIVE COURSE – II

HORTICULTURE

UNIT - I  6Hrs

UNIT - II  6Hrs

UNIT - III  6Hrs

UNIT - IV  6Hrs
FLORICULTURE: Importance and Scope of Floriculture. Commercial Floriculture: Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life; Cultivation of Important cut flowers (Chrysanthemum, Jasmine, Rose).Ikebana.

UNIT - V
Ornamental gardens: Flowering annuals; Herbaceous, perennials; Divine vines; Shade and ornamental trees; Ornamental bulbous and foliage plants; Cacti and succulents; Palms. Ornamental garden:  Green House, Water garden, Rockery, Bonsai techniques.

HORTICULTURE Text Book

Reference books


B. Sc. BOTONY

SEMSETRE- III

NON – MAJOR ELECTIVE COURSE – I

MUSHROOM CULTIVATION

UNIT - I 6 Hrs
Introduction, History. Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms. Types of edible mushrooms available in India - Pleurotus citrinopileatus, Agaricus bisporus

UNIT - II 6 Hrs
Pure culture: Preparation of Medium (Potato dextrose and Oatmeal Agar medium), Sterilization – culturing of Pleurotus mycelium on test tube Slants, Petri plate -Preparation of mother spawn in saline bottle and poly propylene bag –substrate for spawn preparation(cereal grain, coir pith)

UNIT - III 6 Hrs

UNIT - IV 6 Hrs

UNIT - V 6 Hrs
Food Preparation: Types of foods prepared from mushroom. Research Centres - National level and Regional level.Cost benefit ratio - Marketing in India and abroad, Export Value.

Reference Books


B. Sc. BOTONY

SEMESTER – IV

CORE – VI - PLANT DIVERSITY- III

(PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY)

PTERIDOPHYTES

UNIT - I 15Hrs


UNIT - II 10Hrs

Morphology, Anatomy, Reproduction and life cycle of *Lycopodium, Selaginella, Equisetum*

UNIT - III 10 Hrs

Morphology, Anatomy, Reproduction and life cycle of *Gleichenia, Adiantum and Marsilea.*

UNIT - IV 10 Hrs

GYMNOSPERMS


UNIT - V 5 Hrs

GYMNOSPERM AND PALEOBOTANY: Detailed study of the Gnetum.

Paleobotany – geological time scale, Radiocarbon dating, Fossilization process. Types of fossils. Brief study of the following fossils- *Lepidodendron, Lepidocarpon, Calamites, Williamsonia*

PRACTICAL 3Hrs/Week

1. Study of the Habit, TS of leaf and Stem, Morphology of Reproductive structures of Following Pteridophytes. *Lycopodium, Selaginella, Equisetum, Gleichenia, Adiantum and Marsilea*

2. Study of the Habit, TS of leaf and stem, Morphology of Reproductive structures of following gymnosperm genera *Cycas, Pinus* and *Gnetum*

3 Study the following fossil members, *Lepidodendron, Lepidocarpon, Calamites, Williamsonia* through permeant slides
PTERIDOPHYTES

Textbooks


Reference Books


GYMNOSPERMS Textbooks


Reference Books


**PALEOBOTANY Reference Books**


B Sc BOTANY

B. Sc. BOTONY

SEMESTER –IV

SKILLED BASED ELECTIVE COURSE -III

PLANT TISSUE CULTURE

UNIT - I          6 Hrs
Introduction to Plant Tissue culture - Historical background, Principle – Totipotency - differentiation –
dedifferentiation and re-differentiation; vascular differentiations.

Laboratory organization, Tools and techniques, methods of sterilization. Laboratory contaminants - its
control and measures.

UNIT - II          6 Hrs
Media and Culture Preparation: Role of Micro and Macro nutrients, Vitamins, Hormones and carbon source
in tissue culture, Media preparation- pH, Temperature, Solidifying agents, M.S. Media preparations.
Maintenance of cultures, Environmental Conditions, Explants selection.

UNIT - III          6 Hrs
Types of culture - Cell, tissue and organ culture – Callus induction, subculture and maintenance. Isolation of
single cells, selection and types of cells. Cell suspension cultures - Batch, continuous. Synchronization of
suspension culture.

UNIT - IV          6 Hrs
Protoplast : Isolation, Culture and Fusion, Somatic hybridization and Cybridization. Organogenesis - Anther
culture and production of haploids - Somatic embryogenesis Synthetic seed production - Cryopreservation.

UNIT - V          6 Hrs
Application of tissues and Cell culture – Micropropagation – Clonal propagation – Production of genetically
variable plants – Resistance to herbicides, insecticides, virus and other diseases. Production of
secondary metabolites – Gene conservation bank.

Text Book


Reference Books

2. Purohit SS (2010). Plant tissue culture, Student edition, Jodhpur
UNIT - I 6 Hrs.
Herbal medicines: History and scope – Indian system of medicines – Siddha, Ayurvedha and Unani systems. Classification of Crude drugs

UNIT - II 6 Hrs.
Organized drugs –Drugs obtained from Wood – *Ephedra*. Drugs obtained from Barks – *Cinchona*. Drugs obtained from Roots and Rhizomes – *Catheranthus*, *Rauwolfia* and Ginger.

UNIT - III 6 Hrs.
Drugs obtained from leaves - *Aloe vera, Gymnema sylvestre, Ocimum sanctum*. Drugs Obtained from Flower - *Syzygium aromaticum*. Drugs from fruits - *Coriandrum sativum*. Drugs from Seed - *Strychnos nux vomica*. Plants and Herbs – *Bacopa monnieri, Andrographis paniculata*

UNIT - IV 6 Hrs.
Pharmacological action of plant drugs-action on the autonomic nervous system, central nervous system(*Mucuna pruriens, Withania somnifera*). Heart muscle, Blood vessels (*Terminalia arjuna, Azadirachta indica*). Gastro-intestinal tract (*Curcuma longa, Foeniculum vulgare*)

UNIT - VI 6 Hrs.

Text books

4. Kumar,NC (1993). An Introduction to Medical Botany and Pharmacognosy

Reference Book


B. Sc. BOTONY

SEMESTER –V

CORE – VII - MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS

UNIT - I

10 Hrs

The plant body (Parts). Root types and Modification. Stem – Types Aerial and underground Stem modification. Leaf Morphology – Types, Venation, Phyllotaxy

UNIT - II

15 Hrs.

Inflorescence: Racemose types - Cymose types - Special type. Morphology of flower- Flower as modified-shoot-detailed structure of flowers-floral parts-their arrangement, Relative position symmetry, Aestivation and placentation types- Floral Diagram and Floral Formula. Fruits: Types and classification

UNIT - III

15 Hrs.

Aim, Scope and Significance of taxonomy, System of Classification- Artificial (Linnaeus), Natural system (Bentham and Hooker) and Phylogenetic (Engler and Prantl), Angiosperm Phylogeny Group system 2009 (APGIII) (Introduction only). Only outline of Classification with merits and Demerits need be indicated

Plant nomenclature - Binomial, ICBN/ICN – Principles -Rule of priority and author citation. Types concept. Herbarium technique- Preparation of herbarium, their preservation. Important ; herbaria, Flora and uses.

UNIT - IV

20 Hrs.

Detailed study of families: Study the following families of Bentham and Hooker's System with special reference to their morphological and floral characters. Special attention should be given to common and economically important plants within the families, Annonaceae, Capparidaceae, Rutaceae, Leguminosae (Mimosaceae, Caesalpiniaceae and Fabaceae), Myrtaceae, Cucurbitaceae, Apiaceae,

UNIT - V

20 Hrs.

Detailed study of families : Study the following families of Bentham and Hooker's System with special reference to their morphological and floral characters. Special attention should be given to common and economically important plants within the families: Apocyanceae, Asclepiadaceae, Verbenaceae , Lamiaceae, Euphorbiaceae, Orchidaceae, Liliaceae, Poaceae.

PRACTICAL

3hrs /Week

1. Describe the plant parts with suitable plants- Technical term habit, habitat form, types of leaves, with leaf shape, margin, texture, modification of leaf.

2. Study the Types and modification of root and stem with suitable example Identify the following inflorescence and fruits:
a) Inflorescence - Simple raceme, Spike, Corymb, Head, simple cyme, Cyathium and Hypanthodium.


3. Floral formula from floral description.
4. Identify the families mentioned in the syllabus by noting their vegetative and floral Characters.
5. Students must describe the floral parts, draw the L.S., floral diagram and write the floral formula of at least one flower from each family
6. Study the products of plants mentioned in the syllabus of economic botany with Special reference to the morphology, botanical name and family.
7. Prepare herbarium of 20 plants with field notes (internal assessment).
8. Conduct field trips for a minimum of 3 to 5 days under the guidance of a teacher and Submit field report.

Text Book


Reference books

B. Sc. BOTANY

SEMESTER –V

CORE – VIII - CYTOLOGY AND GENETICS

CYTOLOGY

UNIT - I 15 Hrs.


UNIT - II 15 Hrs.

Chromosomes – Morphology, Structure of Polytene, Lampbrush and B-Chromosomes.


Gene regulation – Lac operon.

GENETICS

UNIT - III 15 Hrs.


UNIT - IV 15 Hrs.

Linkage and crossing over, Cytological basis of crossing over, mapping of genes on chromosomes, Sex linkage in Drosophila (Eye color) and Humans (color blindness). Cytoplasmic inheritance (Plastid inheritance-, Mitochondria- male sterility in maize)

UNIT - V 15 Hrs.

B Sc BOTANY

PRACTICAL

1. To observe the plant cell structure with onion epidermal peel out.
2. Study of the photomicrographs of cell organelles
3. Microscopic view of cell organelles in plant cells – Chloroplast (Hydrila leaf)
4. Starch grains (Potato), Aleurone grains (wheat), Inulin Crystals(potato), Raphides (Petiole –Colacasia /Nymphaea) and Cystoliths –(leaf peel out -Ficus/Momordica).
5. Study the polytene and lamp brush chromosome structure through photograph
6. Identification of different stages of mitosis by using squash and smear techniques –Onion Root tip.
8. Simple problems of monohybrid and Dihybrid ratios and factor interaction
9. Construction of chromosome map – three point test cross

Text Book


Reference book

B. Sc. BOTONY

SEMESTER – V

CORE IX - BIOINSTRUMENTATION AND BIOSTATISTICS

UNIT - I  
15 Hrs

UNIT - II  
15 Hrs
Micro technique – preparation for microscopic observation – Whole mount, Smears, Squash, sections.
Microtomy: Fixation, Dehydration, Infiltration, Embedding, Sectioning.
Microtome's – Types- Principles and operating mechanisms of Rotary Microtome.
Stains and Staining techniques - Preparation of following stains: Safranin, Cotton blue in lactophenol, Acetocarmine, Methylene blue and Crystal violet.

UNIT - III  
15 Hrs

UNIT - IV  
15 Hrs
Principle and Application of Colorimetry and Spectrophotometer. Basic principles of pH meter and its operation, types of Electrodes, Measurement of pH.

UNIT - V  
15 Hrs
Biostatistics – Statistics data, population, samples, parameters; Representation of Data: Tabular, Graphical; Measures of central tendency: Arithmetic mean, mode, median; Measures of dispersion: Range, mean, Standard deviation, Variation.

PRACTICAL  
3hr/Week
1. Parts of microscope and its operation
2. Measurement of Microscopic objects using Micrometer
3. Demonstrate the counting of Spore /Miro algae by using Haemocytometer
4. Familiarize stains, fixatives and mounting media
5. Demonstrate the Preparation of specimen and sectioning using microtome
6. Chromatography – Separation of pigments - TLC,
7. Demonstration of the working of different kinds of centrifuges
8. Determination of the concentration of a sample solution using colorimeter/ Spectrophotometer
9. Measure the pH in different water sample using pH meter
10. Study of blotting techniques: Southern, Northern and Western, through photographs.
11. Work out the problems related to mean, median, mode, standard deviation.

Text Book

References Books
B. Sc. BOTONY

SEMESTER –V

MAJOR ELECTIVE COURSES- I

PLANT BIOTECHNOLOGY

UNIT - I


UNIT - II

Gene transfer in plants-Aims, strategies for development of transgenic plants-Direct gene transfer methods- Biolistics – Electrophoration ,lipofection , Microinjection. Vector mediated gene transfer in higher plants – Agrobacterium mediated gene transfer – T DNA , Ti Plasmid and Ri plasmid derived vector system

UNIT - III


UNIT - IV

Genes of agronomic interest and transgenic crops: Golden rice, Bt cotton and Bt brinjal Terminator seed technology- antisense RNA (flavr savr) and RNAi technology – Disease resistance ,herbicide resistance enhancement of shelf life of flowers and fruits. Medical biotechnology – Insulin, Monoclonal antibodies and Hybridoma techniques.

UNIT - V


TEXTBOOKS :


B Sc BOTANY


Reference Book


B. Sc. BOTANY
SEMMESTER –V
SKILL BASED ELECTIVE COURSE -IV
AGRICULTURAL MICROBIOLOGY

UNIT - I

UNIT - II

UNIT - III
Azotobacter - Isolation, Mass production and Field application. Cyanobacteria (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, Blue green algae and Azolla in rice cultivation

UNIT - IV

UNIT - V
Organic farming- green manuring and organic fertilizers, recycling of biodegradable municipal, agricultural and industrial wastes- Biocompost making methods, types and method of vermicomposting-field application.

Reference Book
B Sc BOTANY

B. Sc. BOTONY

SEMESTER V

SKILL BASED ELECTIVE COURSE – V

PLANT BREEDING AND PLANT UTILIZATION AS FOOD

UNIT - I

Plant Breeding: Historical aspect of plant breeding, Objectives of plant breeding. Breeding Methods: Plant introduction - Types and procedures - Centers of diversity and origin of cultivated plants. Acclimatization. Selection methods, (pure line, clonal and mass)

UNIT - II


PLANT UTILIZATION AS FOOD.

UNIT - III

Cereals: A list of major cereals and millets, nutritive value of cereals. Oryza-origin, Distribution, botany, method of cultivation, uses, improved varieties, rice conversion, nutritional value.

Pulses: Major pulse crops of our country, nutritive value of pulses. Origin, distribution, Botany, ecology, cultivation, uses of Red gram.

UNIT - IV

Sugar Crop: A list of common sugar yielding plants. Sugarcane: Origin, distribution, botany, ecology, cultivation, extraction of juice, uses, by-products of sugar industry, improved varieties.

Oil Crop: Classification of vegetable fatty oils and its uses, important fatty oil yielding plants. Groundnut: Origin, Botany of the plant, pod structure, ecology, cultivation, important varieties, oil extraction, uses.

UNIT - V


Vegetables: Types, the importance of vegetables in human diets. Origin, distribution, Ecology and uses of Onion.
Text Books


Reference Books

B. Sc. BOTONY

SEMESTER –VI

CORE – XI - PLANT PHYSIOLOGY

UNIT - I  

UNIT - II  

UNIT - III  

UNIT - IV  

UNIT - V  

PRACTICAL 3Hrs/Week
1. Determination of DPD by using Rheo leaf/Onion leaf
2. Effect of temperature on Membrane permeability
3. Effect of chemical on Membrane permeability
4. Calculation of stomatal index and stomatal frequency of mesophyte and Xerophyte plant leaf
5. Effect of light on transpiration using Ganong's potometer
7. To study the effect of light intensity on Photosynthesis by using Wilmotts bubbler
8. To study the effect of and concentration of CO₂ on Photosynthesis by using Wilmotts bubbler
9. Measurement of rate of respiration in germinating seed using Simple Respiroscope
10. Measurement of rate of respiration in flower buds using Simple Respiroscope

Text Books


Reference books

B. Sc. BOTANY

SEMSEMESTER –VI

CORE – XII - PLANT ECOLOGY AND PLANT GEOGRAPHY

UNIT - I 15 Hrs

Approaches to the study of ecology- autecology and synecology. Plant environment: climatic, edaphic and biotic factors

UNIT - II 15 Hrs


UNIT - III 15 Hrs


UNIT - IV 15 Hrs

Environmental pollution- introduction, definition; Air pollution- air pollutants, types, sources, effect of air pollution on plants and humans, control measures; Water pollution-water pollutants, types, sources, impact. Control measures. Water quality standards–BOD, Eutrophication; Soil Pollution- causes, sources, solid waste, biodegradable, non- biodegradable, waste dumps, municipal waste, Agrochemicals management of solid waste, Composting, e – waste.

UNIT - V 15 Hrs


PRACTICALS 3 Hrs/Week

1. Study of the morphological and structural adaptation of locally available hydrophytes, Mesophytes, xerophytes to correlate to the particular habitat.

2. Determination of Dissolved oxygen in water

3. The light and dark bottle experiment for primary productivity study in the aquatic Ecosystem
4. Determination of dissolved carbon di oxide in water
5. Study the vegetation types and distribution with maps

Text Books

Reference Books
B. Sc. BOTONY

SEMESTER –VI

CORE – XIII - PLANT PROTECTION

UNIT - I 15 Hrs
Types of insects causing damage to crops. Nature and classification of plant nematodes. Damage to crops of India by Insects, Nematodes, Rodents, Fungi, Bacteria and viruses - a general outline.

UNIT - II 15 Hrs
Types of plant diseases and causal agents. A general account of preventive measures of plant diseases including plant protection and quarantine measures. Legislations in plant protection, seed certification, weed control.

UNIT - III 15 Hrs
Study of symptoms, etiology and control measures of the following diseases: damping off of seedling, bud rot of coconut, black rust of wheat, blast of paddy, smut of maize, Tikka disease of groundnut.

UNIT - IV 15 Hrs

UNIT - V 15 Hrs

PRACTICAL

2. Study of fungal, bacterial and viral diseases mentioned in the syllabus.
3. Handling of plant protection appliances (Dusters, sprayers, and other appliances.)
4. Preparation of 5 herbarium sheets of Pathology – specimens studied
Text Books


Reference


UNIT - I  

UNIT - II  
Carbohydrates: Structure and properties of Mono - Disaccharides – Polysaccharides. Chemical structure and function of starch and cellulose.

UNIT - III  
Amino acids: Basic structure & properties (physical and chemical); function, Essential and standard amino acids. Proteins: structure-peptide bond -solubility and composition. The peptide bond- primary structure-secondary structure- tertiary structure -quaternary structure – function of protein

UNIT - IV  
Enzymes: Nomenclature, classification -mechanism and regulation of enzyme action, enzyme kinetics, factors affecting enzyme action.

UNIT - V  
Lipids - structure of simple lipid and compound lipid (phospholipids and glycolipids), fatty acids- saturated and unsaturated fatty acids-Secondary carbon metabolism and the metabolites: Polyphenolics - Terpenoids and Alkaloids.

Text Books
Reference Book

UNIT - I  
6 Hrs

UNIT - II  
6 Hrs
Ethnobotany – definition, scope and objectives; Major and minor ethnic groups in South India and their Ethnobotanical and Ethnobiological heritage. Ethnomedicines.

Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management (participatory forest management)- Mythology and conservation of ecosystems, conservation of selected plant species: sacred groves, ethnobotanical field methods

UNIT - III  
6 Hrs
Role of ethnobotany in modern Medicine-Medico-ethnobotanical sources in India; Significance of the following plants in ethnobotanical practices (along with their habitat and morphology)  a) Azadiractha indica b) Ocimum sanctum c) Vitex negundo. d) Gloriosa superba e) Tribulus terrestris f) Pongamiapinnata g) Cassia auriculata h) Indigofera tinctoria. Role of ethnobotany in modern medicine with special example Rauvolfia sepentina, Trichopus zeylanicus, Artemisia, Withania.

UNIT - IV  
6 Hrs
Drugs obtained from leaves - Aloe vera, Gymnema sylvestre, Ocimum sanctum. Drugs Obtained from Flower - Syzygium aromaticum. Drugs from fruits - Coriandrum sativum. Drugs from Seed - Strychnos nux vomica - Plants and Herbs - Bacopa monnieri, Andrographis paniculata

UNIT - V  
6 Hrs
Text Books


Reference

B. Sc. BOTONY

SEMESTER – VI

SKILL BASED ELECTIVE COURSES - VIII

SEED TECHNOLOGY

UNIT - I 6 Hrs
Floral biology. Seed formation. Seed morphology and structural details of Dicot (Castor) and Monocot (Paddy) seeds. Roles and goals of seed technology, importance of quality seeds in agriculture, characteristics of quality seed.

UNIT - II 6 Hrs

UNIT - III 6 Hrs
Seed viability – Topographical tetrazolium or T2 test embryo excision method. Seed moisture Importance – methods of moisture determination basic methods.

UNIT - IV 6 Hrs
Certified seed production of the following Paddy, groundnut, and cotton.

UNIT - V 6 Hrs

REFERENCES:

B. Sc. BOTONY

ALLIED BOTANY

FIRST /SECOND ALLIED COURSE – I

THALLOPHYTES, BRYOPHYTES, PTRERIDOPHYTES, GYMNOSPERMS,
PLANT PHYSIOLOGY AND ECOLOGY.

UNIT - I  
12 Hrs

Thallophytes: Algae, general characters, study of the structure and life cycle of the following genera—*Oscillatoria, Oedogonium, Sargassum* and *Polysiphonia*.

Fungi: General Characters, study of the structure and life cycle of the following genera *Albugo, Penicillium, Agaricus*. Economic importance of fungi

UNIT - II  
12 Hrs

A general study of Bacteria and viruses. Economic importance of bacteria. Bryophytes: General Characters, study of the structure and life cycle of *Funaria*.

UNIT - III  
12 Hrs

Pteridophytes and Gymnosperms: Structure and lifecycle of *Lycopodium* and *Cycas*.

UNIT - IV  
12 Hrs


UNIT - V  
12 Hrs

Plant Ecology: Factors affecting vegetation - climatic, edaphic and biotic. Morphological and anatomical adaptations in Hydrophytes and Xerophytes

BOOKS

B. Sc. BOTONY

ALLIED BOTANY

FIRST / SECOND ALLIED COURSE – III

EXTERNAL MORPHOLOGY, TAXONOMY OF ANGIOSPERMS, CYTOLOGY, GENETICS, ANATOMY AND EMBRYOLOGY.

UNIT - I 12 Hrs
Inflorescence - Racemose, Cymose, Special types. Terminology with reference to flower description.

UNIT - II 12 Hrs
Taxonomy: Bentham and Hooker's system of classification. Study of the following families and their economic importance - Leguminosae, Cucurbitaceae, Rubiaceae, Asteraceae, Euphorbiaceae, Arecaceae.

UNIT - III 12 Hrs
Cytology: Ultra structure of plant cell and brief outline of cell wall, Plasma membrane, Endoplasmic reticulum, Mitochondria, Chloroplast, Nucleus.

UNIT - IV 12 Hrs
Primary structure of Dicot stem and Dicot root and Dicot Leaf. (Mesophytic only)

UNIT - V 12 Hrs
Embryology - Structure and development of anther, male gametophyte. Structure and development of ovule and female gametophyte (Polygonum type), Fertilization. Structure and development of dicot embryo (Capsella type).

PRACTICAL 3hr/week

1. To describe in technical terms plants belonging to any of the families prescribed and Identify the family.
2. To identify the plant family and morphology of the parts used for the following plant Specimens.

1. *Arachis hypogea* - Ground nut
2. *Dolichos biflorus* - Horse gram
3. *Cicer arietinum* - Bengal gram
4. *Pisum sativum* - Pea
5. *Phaseolus mungo* – Black gram
6. Phaseolus radiatus – Green gram
7. *Tamarindus indica* - Fruit
8. *Abrus precatorius* - Seed
9. *Acacia concinna* – Soap nut
10. *Luffa aegyptiaca* -Fibrous skeleton of the fruit
11. *Cucumis sativus* - Fruit
12. *Coffea arabica* - Seeds
13. *Ixora* - Flower
14. *Cinchona officinalis* - Plant
15. *Musa Paradisica* – Fruit
16. *Phoenix sylvestris*-Date fruit
17. *Areca catechu*-Nut
18. *Cocos nucifera*-Kernal

3. To make suitable Micropreparations, describe and identify materials of Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms prescribed.

4. To describe simple experimental set-up in plant physiology section of the syllabus.
B.Sc., BOTANY

MAJOR AND ALLIED BOTANY THEORY

QUESTION PAPER MODEL.

B.Sc., Degree Examination, APRIL / NOVEMBER

Time: 3 hrs. Maximum: 75 Marks

Part - A:
(10 x 2 = 20 Marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words

(Two questions from each unit)

1 & 2 - From UNIT-I
3 & 4 - From UNIT-II
5 & 6 - From UNIT-III
7 & 8 From UNIT-IV
9 & 10 - From UNIT-V

Part – B
( 5x5 = 25 marks) Answer all questions

All Question carry equal marks

(One question from each unit internal choice)

Each answer should not exceed 200 words.

Q.No. 11. a (or) B - UNIT-I
Q.No. 12. a (or) B - UNIT-II
Q.No. 13. a (or) B - UNIT-III
Q.No. 14. a (or) B - UNIT-IV
Q.No. 15. a (or) B - UNIT-V
Part – C
(3x10 = 30 marks) Answer any three questions

All Question carry equal marks.

Each answer should not exceed 500 words.

Q.No. 16. - UNIT-I
Q.No. 17. - UNIT-II
Q.No. 18 - UNIT-III
Q.No. 19. - UNIT-IV
Q.No. 20. - UNIT-V
MODEL QUESTION PAPER

B. Sc., BOTANY DEGREE EXAMINATION

(For Students Admitted from the academic year 2017 – 2018 onwards under CBCS Pattern)

SEMESTER -I

CORE – I

PLANT DIVERSITY –I (ALGAE AND BRYOPHYTES)

Time: 3 Hrs. Maximum: 75 marks

PART A

(10 x 2=20 marks) Answer all questions

All questions carry equal marks, Draw diagrams wherever necessary, Each answer should not exceed 50 words.

1. Palmelloid form
2. SCP
3. Heterocyst
4. Gliding movement
5. Globule
6. Floridean Starch
7. Elater
8. Trabeculae
9. Calyptra
10. Peat moss
PART B

(5 X 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Enlist any ten character feature of Algae
               Or
       b) Briefly describe the pigmentation in algae

12. a) Describe the Ultra structure of Chlamydomonas.
               Or
       b) List out the prokaryotic characters in Cyanobacteria

13. a) Briefly describe the structure of Chara sex organs
               Or
       b) Explain the structure of Receptacles in Sargassum

14. a) Describe the sporophyte structure of Marchantia
               Or
       b) Give short account on Distribution of bryophytes

PART C

(5 x 10 = 30 Marks) Answer any three questions

All Question carry equal marks. Draw diagrams. Wherever necessary, Each answer should not exceed 500 words.

16. Write an essay on classification of Algae by F.E. Fritsh

17. Give an account of sexual reproduction in Oedogonium

18. Briefly explain the post fertilization changes in Polysiphonia

19. Write an essay on classification of Bryophytes by Rothmaler

20. Describe the development of Sporangium and structure of mature sporangium in Porella.
MODEL QUESTION PAPER

B. Sc., BOTANY DEGREE EXAMINATION

(For Students Admitted from the academic year 2017 – 2018 onwards under CBCS Pattern)

SEMESTRE II

CORE COURSE – III

PLANT DIVERSITY – II

(FUNGI, LICHENS, BACTREIA AND VIRUSES)

Time: 3 Hrs.                                      Maximum: 75 marks

1. Hypha
2. Conidium
3. Budding
4. Heterokaryosis
5. Uredinispores
6. Diploidization
7. Isidia
8. Capsomers

PART A

(10 x 2 = 20 marks) Answer all questions

All questions carry equal marks, Draw diagrams wherever Necessary, each answer should not exceed 50 words.

9. Incipient nucleus

10. Pili
PART B

(5 X 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words.

11. a) Write a note on the ultra-structure of fungal cell
   Or
   b) Give an account of the useful aspects of Fungi.

12. a) Describe the structure and asexual reproduction in Albugo.
   Or
   b) Describe structure and reproduction in Peziza

13. a) Give an account the structure and life cycle of Puccinia
   Or
   b) Write a brief note on Cercospora

14. a) Write short notes on economic importance of Lichens.
   Or
   b) Give short notes on Cyanophages

15. a) Write about Nutrition in Bacteria.
   Or
   b) Describe the structure of Bacteria cell wall

PART C

(5 x 10 = 30 marks) Answer any three questions

All Question carry equal marks Draw diagrams. wherever necessary, Each answer should not exceed 500 words.

16. Write an essay on classification of Fungi by Alexopoulos and Mims
17. Write an essay on the structure and reproduction in Albugo
18. Write about the structure and formation fruiting body of Polyporus.
19. Diagrammatically describe the structure and Reproduction of T4 phage
20. Give an account of the economic importance of Bacteria.
MODEL QUESTION PAPER

B. Sc., BOTANY DEGREE EXAMINATION

(For Students Admitted from the academic year 2017 – 2018 onwards under CBCS Pattern)

SEMESTRE -II

SKILLED BASED ELECTIVE COURSE – I

MUSHROOM CULTURE TECHNOLOGY

Time: 3 Hrs.  
Maximum: 75 marks

PART A

(10X2=20 marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary. Each answer should not exceed 50 words.

1. Define mushroom.

2. Write the common name of *Pleurotus citrinopileatus*.

3. What are edible mushrooms?

4. What is mother spawn?

5. Define sterilization.

6. What is oatmeal agar medium?

7. What is mushroom bed?

8. List out materials used for mushroom cultivation.

9. Write the name of any two medicinal mushroom names and its application.

10. Write the name of any three national mushroom research centers.
PART B

(5 X 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b) Draw diagrams wherever necessary, Each answer should not exceed 200 words

11. a) Write short notes on *Agaricus bisporus* mushroom.
   Or
   b) Write notes on scope of edible mushroom cultivation.

12. a) Describe the methods of sterilization.
    Or
    b) Write about the preparation of PDA medium.

13. a) Describe the factors affecting mushroom cultivation bed preparation.
    Or
    b) List out the material required for mushroom cultivation.

14. a) List out the nutritional value of edible mushroom.
    Or
    b) What is short term and long term storage?

15. a) List out the application of mushroom cultivation
    Or
    b) Write about the preparation of mushroom pickles.

PART C

(3 x 10 = 30 Marks) Answer any three questions.

All Question carry equal marks. Each answer should not exceed 500 words

16. Explain briefly about *Pleurotus citrinopileatus*.

17. Give a brief account on *in vitro* mushroom cultivation.

18. Discuss in detail about mushroom cultivation in polythene bags.


20. List out the national and regional level mushroom research centers.
B. Sc., BOTANY DEGREE EXAMINATION
(For Students Admitted from the academic year 2017 – 2018 onwards under CBCS Pattern)

SEMESTER – III
CORE COURSE – IV
ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS

Time: 3 Hrs. 
Maximum: 75 marks

PART A
(10X2=20 Marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary. Each answer should not exceed 50 words

1. Procambium
2. Collenchyma
3. Vessels
4. Tyloses
5. Phellogen
6. Heart wood
7. Pollen kit
8. Polar nuclei
9. Endosperm
10. Anemophily
PART B
(5 x 5 = 25 Marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Write in detail about quiescent center in plant root
Or
b) Describe the Tunica carpus theory

12. a) Give a short account on Annual rings or growth ring
Or
b) Diagrammatically describe the structure of lenticels

13. a) Describe the primary structure of Dicot stem
Or
b) Distinguish the internal structure of dicot root from monocot root

14. a) Describe the T.S of mature Anther
Or
b) Write short notes on types of ovules

15. a) Give short notes on nuclear endosperm
Or
b) Discuss the pollination through water

PART - C
(3 x 10 = 30 marks) Answer any three of following questions

All Question carry equal marks. Each answer should not exceed 500 words.

16. Write essay on structure and function of Scelerids

17. Describe the different types of meristem and their function

18. Diagrammatically describe structure and development of Anomalous Structure of Dracaena stem

19. Write an essay on development of male gametophytes

20. Give a detail account on development of Dicot embryo.
MODEL QUESTION PAPER
B. Sc., BOTANY DEGREE EXAMINATION
(For Students Admitted from the academic year 2017 – 2018 onwards under CBCS Pattern)

SEMESTER –III
SKILLED BASED ELECTIVE COURSE –II
HORTICULTURE

Time: 3 Hrs. Maximum: 75 marks

PART A
(10 x 2 = 20 marks) Answer ALL the questions

All questions carry equal marks Draw diagrams wherever necessary
Each answer should not exceed 50 words

1. Scope of horticulture
2. Formal garden
3. Layering
4. Grafting
5. Types of grasses
6. Pruning
7. Floriculture
8. Ikebana
9. Green house
10. Bonsai techniques
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a). Give an account about Importance of horticulture
    Or
    b) Classify the horticulture crops.

12. a) What is budding? Briefly explain the methods of budding
    Or
    b) Briefly explain the growth regulators.

13. a) Write notes on weeding.
    Or
    b) Briefly explain the cultivation of Rose.

14. a) How will you make dry flowers? Comment on its uses
    Or
    b) Discuss the maintenance of nursery.

15. a) Write notes on water gardens
    Or
    b) Write notes on hydroponic techniques.

PART C

(3x10 = 30 marks) Answer any three questions of following.

All questions carry equal marks. Each answer should not exceed 500 words.

16. What are the types of gardens? Critically discuss its designs.

17. Write an essay on the growth hormones and the applications to in horticulture.

18. Give the details of various types of lawn and a note on their aesthetic values.

19. Describe the cultivation methods of commercial flowers with two examples.

20. Discuss about the storage of horticultural crops.
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SEMESTRE- III

NON – MAJOR ELECTIVE COURSE – I

MUSHROOM CULTIVATION

Time: 3 Hrs.                                           Maximum: 75 marks

PART A

(10 x 2=20 marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Define mushroom.
2. Write the common name of Pleurotus citrinopileatus.
3. What are edible mushrooms?
4. What is mother spawn?
5. Define sterilization.
6. What is oatmeal agar medium?
7. What is mushroom bed?
8. List out materials used for mushroom cultivation.
9. Write the name of any two medicinal mushroom names and its application.
10. Write the name of any three national mushroom research centers.
PART B

(5 x 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words.

11. a) Write short notes on *Agaricus bisporus* mushroom.
   b) Write notes on scope of edible mushroom cultivation.

12. a) Describe the methods of sterilization.
   b) Write about the preparation of PDA medium.

13. a) Describe the factors affecting mushroom cultivation bed preparation.
   b) List out the material required for mushroom cultivation.

14. a) Discuss the nutritional value of edible mushroom.
   b) What is short term and long term storage?

15. a) List out the application of mushroom cultivation.
   b) Write about the preparation of mushroom pickles.

PART C

(3x10 = 30 marks) Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Explain briefly about *Pleurotus citrinopileatus*.

17. Give a brief account on *in vitro* mushroom cultivation.

18. Discuss in detail about mushroom cultivation in polythene bags.


20. List out the national and regional level mushroom research centers.
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SEMESTER –IV
CORE COURSE – VI
PLANT DIVERSITY- III
(PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY)

Time: 3 Hrs. Maximum: 75 marks

PART A

(10 x 2 = 20 marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary.
Each answer should not exceed 50 words

1. Actinostele.
2. What is apospory?
3. Ligule.
4. Vallecular canal
5. Sporocarp
6. Ramenta
7. Sago
8. Sulfur rain
9. How will you name a fossil plant?
10. Molds
PART B

(5 x 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words

11. a) Bring out the salient features of Pteridophytes.
   Or
   b) “Pteridophytes are widely used as ornamental plants“ comment.

12. a) Describe the various types of Steles in Lycopodium.
   Or
   b) Give an illustrate account of the Spore –producing organ of Equisetum

13. a) Describe the Sorus in Adiantum.
   Or
   b) Write a short notes on anatomy of Gleichenia Stem

14. a) Describe the structure Pinus ovule
   Or
   b) Why “Cycads are living fossils” ? Justify

15. a) List out that Angiosperm Character in Gnetum
   Or
   b) Describe the stem of Calamites.

PART C

(3 x 10 = 30 marks) Answer any three questions.

All Questions carry equal marks. Each answer should not exceed 500 words.

16. Write an essay on Heterospory and Seed habit

17. Describe morphological features of Selaginella sporophyte

18. Explain the male gametophyte in Cycas

19. Write an essay on Economical importance of Gymnosperm

20. Write a detail account of Williamsonia with suitable diagram
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SEMESTER –IV

SKILLED BASED ELECTIVE COURSE -III

PLANT TISSUE CULTURE

Time : 3 Hrs. Maximum : 75 marks

PART A

(10 x 2 = 20 marks) Answer all the questions

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Haberlandt
2. Totipotency
3. IAA
4. PVP
5. Callus
6. Turbidostats
7. Sodium Alginate
8. Liquid nitrogen
9. Erythrorhizon
10. Germplasm
PART B

(5x5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Write an account on the sterilization techniques.
    Or
    b) Discuss the history and development of plant tissue culture

12. a) Give an account on plant growth regulator used in plant tissue culture
    Or
    b) How do you select explant? Explain

13. a) Write a short notes on importance of organ culture
    Or
    b) Give a general account of cell suspension culture

14. a) Write short notes on somatic hybridization.
    Or
    b) Describe the isolation of plant protoplast

15. a) Write short notes on clonal propagation
    Or
    b) Give a brief account on Gene conservation bank

PART C

(3x10 = 30 marks) Answer any three questions.

All Questions carry equal marks. Each answer should not exceed 500 words.

16. Give an outline of a plant tissue culture laboratory

17. What is culture medium? State the basic composition of general plant tissue culture medium

18. How the callus tissue is formed in vitro? Discuss the morphology, Internal structure and other characteristics of the callus tissue

19. What is somatic embryogenesis? Discuss the principle of Somatic embryogenesis

20. Discuss the importance of Plant tissue culture in plant pathology.
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SEMESTER –IV
NON –MAJOR ELECTIVE COURSE –II
HERBAL BOTANY

Time: 3 Hrs. Maximum: 75 marks

PART A

(10X2=20 marks) Answer all the questions.

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Materia Medica
2. Ayurveda
3. Ephedrin
4. Vincristine
5. Andrographolide,
6. Aloe vera uses
7. Psychoactive drug
8. Nux vomica
9. Cardio vascular drugs
10. Biomedicine
PART B

(5 x 5 = 25marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary.
Each answer should not exceed 200 words.

11. a) Give a Brief account on siddha
     Or
     b) Write a short note on Unani.

12. a) Give an account on phytochemistry of Ginger
     Or
     b) Give an account of pharmaceutical importance of Vinca rosea.

13. a) Brief account on therapeutic uses of Aloe vera.
     Or
     b) Give brief account on the utility value of Bacopa monnieri

14. a) How will you cure the gastrointestinal disorders by using plant drugs

15 a) Briefly explain Drying of crude drugs
     Or
     b) Give a short notes on Storage of crude drug

PART C

(3 x 10 = 30 marks) Answer any three questions.

All Questions carry equal marks. Each answer should not exceed 500 words

16. Define the term drug and give an account on the classification of natural drugs.

17. Write down the cultivation, collection and natural drug preparation of Rauwolfia Serpentine

18. Write down the cultivation and utilization of Andrographis paniculata

19. Give brief account on herbal drug used for cure central nervous system disorder

20. Write an essay of drug Adulteration.
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SEMESTER – V

CORE COURSE – VII

MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS

Time: 3 Hrs.  
Maximum: 75 marks

PART A

(10 x 2 = 20 marks) Answer ALL the questions.

All question carry equal marks. Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1.  Cladode
2.  Compound leaf
3.  Hypothodium
4.  Drupe
5.  Linnaeus
6.  Holotype
7.  Obdiplostemonous
8.  Binomial of Clove
9.  Resupination in orchid
PART B

(5 x 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary.

Each answer should not exceed 200 words.

11. a) Write a short account on Modifications of tap root.
   Or
   b) Discuss the any four types of stipules.

12. a) Explain Head inflorescence.
   Or
   b) Give a brief account on placentation

13. a) Give a short account on Author citation
   Or
   b) Briefly discuss the APG III system of classification

14. a) Give a brief account of identifying characters of Rutaceae.
   Or
   b) Discuss the Types of androecium in Cucurbitaceae.

15. a) Give an account of floral characters of Orchidaceae
   Or
   b) List out the Economic importance plant in Asclepiadaceae family

PART C

(3 x 10 = 30 marks) Answer any Three questions.

All question carry equal marks. Each answer should not exceed 500 words.

16. Give an account of Aerial stem modifications.

17. Enumerate the types of Racemose inflorescence and explain.

18. Give an account of Bentham and Hooker's classification with merits and demerits.

19. Write an essay on Economic importance of Apiaceae with suitable example

20. Write about the family Poaceae.
PART A

1. Robert brown
2. Semiautonomous organelle
3. Histone
4. Synaptonemal complex
5. Testcross
6. What is phenotype?
7. Define Crossing over.
8. What is linkage?
10. What is polyploidy?
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary.

Each answer should not exceed 200 words.

11. a) Explain the fluid mosaic model of plasma membrane
    Or
    b) Describe the ultrastructure of Mitochondria

12. a) Write short notes on lampbrush chromosome
    Or
    b) Write a brief account on double helix structure of DNA.

13. a) Discuss the Mendel’s law.
    Or
    b) What do you know about epistasis?

14. a) What is crossing over? Explain its significance.
    Or
    b) Explain cytoplasmic inheritance with an example.

15. a) Describe briefly on the types of polyploidy.
    Or
    b) Write short notes on the changes in chromosome structure?

PART C

(3 x 10 = 30 marks) Answer any three questions.

All question carry equal marks. Each answer should not exceed 500 words.

16. Write an account on the structure and function of nucleus.

17. Explain the Mitotic cell division with suitable illustration

18. Write an essay on Multiple alleles

19. Discuss the cytoplasmic inheritance with suitable example.

20. Discusses Hardy –Weinberg law, using a hypothetical example of two alleles Locus
PART A

(10 x 2 = 20 marks) Answer ALL the questions.

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Resolving power
2. Stage micrometry
3. FAA
4. Dehydration
5. Rpm
6. SDS
7. Beer lambert law
8. Standard deviation
9. Mean
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words.

11. a) Give a short account on compound microscope

 Or

 b) Describe a phase contrast microscope and its functioning

12. a) Give an account of chemical fixative mixtures

 Or

 b) Describe the method of embedding specimens in paraffin wax.

13. a) Write short note on types of rotors in centrifuge

 Or

 b) Explain the thin layer chromatography

14. a) Discuss the structure and function of combine pH electrode

 Or

 b) Write short note on principle of colorimetry

15. a) What are the advantages of arithmetic mean over median

 Or

 b) Significance of sampling in a population.

PART C

(3 x 10 = 30 marks) Answer any Three questions.

All question carry equal marks. Each answer should not exceed 500 words.

16. Describe the components and functioning of a transmission Electron Microscope

17. Why should biological material be dehydrated? explain the principle involved in dehydration

18. Explain the basic principle involved in separation of protein by Electrophoresis

19. With a neat diagram, explain the parts and functions of a spectrophotometer

20. Calculate standard deviation for the following data: Marks 102030405060

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SEMESTER –V

MAJOR ELECTIVE COURSES I

PLANT BIOTECHNOLOGY

Time: 3 Hrs.  
Maximum: 75 marks

PART A

(10x2 = 20 Marks) Answer all the questions:

All questions carry equal marks. Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Shuttle vector
2. Define restriction endonuclease
3. Lipofection
4. Octopine
5. Taq polymerase
6. RAPD
7. Golden rice
8. Flavr savr
9. SCP
10. Biogas
PART B (5 x 5 = 25 marks)

Answer all questions;
All questions carry equal marks, (either a or b). Draw diagrams wherever necessary.
Each answer should not exceed 200 words.

11. a) Write an account on History and development of biotechnology
    Or
    b) Write short notes on enzymes used in recombinant DNA technology.

12. a) Explain the microinjection
    Or
    b) Diagrammatically describe the structure Ri plasmid

13. a) Write short notes on DNA fingerprinting
    Or
    b) Discuss the DNA sequence analysis

14. a) Write about Antisense RNA technology
    Or
    b) How is genetic engineering used to create bacteria capable of producing human insulin?

15. a) What are the biological agents used in hazardous waste management?
    Or
    b) Define bioremediation, discuss the different process, strategies for bioremediation using microbes

PART C

(3 x 10 = 30 marks) Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Write an essay cloning vectors used in Recombinant DNA technology

17. Write an account on Agrobacterium mediated gene transfer

18. Explain the procedure for DNA amplification using PCR.

19. Write an essay on Hybridoma technology and its application

20. Discuss the application of biotechnology in pharmaceutical industry
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SEMESTER – V

SKILL BASED ELECTIVE COURSE - IV

AGRICULTURAL MICROBIOLOGY

Time: 3 Hrs.                           Maximum: 75 marks

PART A

(10 x 2 = 20 marks) Answer ALL the questions.

All question carry equal marks. Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Rhizosphere
2. Nitrogen fixation
3. Leghemoglobin
4. YEMA medium
5. Azolla
6. Nitrogenase enzyme
7. Inoculant
8. Mycorhiza
9. Green manure
10. Biocompost
PART B

(5 x 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words.

11. a) Explain the role of rhizosphere microorganism in improving the soil fertility
   Or
   b) What are major contributions of phosphate-solubilizing bacteria in plant functioning

12. a) Discuss the methods of inoculum production of Rhizobium
   Or
   b) Discuss the field application method of *Azospirillum*

13. a) Give the steps of mass cultivation of *Anabaena azollae*
   Or
   b) Explain the role of cyanobacteria in agriculture

14. a) Explain the morphology of AM
   Or
   b) Discuss the types of Mycorrhiza association

15. a) What is the significance of organic farming?
   Or
   b) Explain the organic farming practices used in rice farming

PART C

(3 x 10 = 30 marks) Answer any Three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Write essay on Agriculture important soil microflora

17. Give a detailed account of mass cultivation of *Azospirillum*

18. Explain the procedure for large scale production of algal flakes.

19. Give an account on the method of isolation and inoculum production of AM

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SEMESTER V

SKILL BASED ELECTIVE COURSE – IV

PLANT BREEDING AND PLANT UTILIZATION AS FOOD

Time: 3 Hrs.  Maximum: 75 marks

PART A

(10 x 2 = 20 marks) Answer ALL the questions.

All question carry equal marks. Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Plant introduction
2. Pure line
3. Hybrid vigour
4. Polyploidy
5. Binomial of foxtail millet
6. Mention any two variety of Cajanua cajan
7. Coconut oil
8. Carpophore
9. Organic acid in papaya
10. Origin of onion
PART B (5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Write short notes on Domestication of plants
   Or
   b) Give a detailed account on origin for cultivated plant

12. a) Discuss the various types of hybridization
   Or
   b) Write short notes on Aneuploidy breeding

13. a) Give a detailed account on cultivation of Rice
   Or
   b) List out any five pulses variety with nutritive content

14. a) Discuss the byproduct of sugar industry
   Or
   b) Write short notes on important of Ground nut oil

15. a) Give a detailed account general properties of fruits
   Or
   b) Discuss the nutritive value of onion

PART C

(3 x 10 = 30 marks) Answer any Three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Write an essay on the methods of selection that can be employed in self-pollinating crops

17. Write an essay on mutation breeding and its potential and limitation

18. Describe origin, distribution and cultivation of Red gram

19. Classify the vegetable fatty oil and their uses

20. Write a detailed account on cultivation and uses of Papaya
PART A

(10 x 2 = 20 marks) Answer ALL the questions.

All question carry equal marks. Draw Diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Osmosis.
2. Trace elements.
3. Quantosomes
4. Emerson enhancement effect.
5. Fermentation.
6. ATP and NADP
7. Transamination.
8. Proline.
10. Senescence.
PART  B

( 5 x 5 = 25marks) Answer all questions

All questions carry equal marks,(either a or b).Draw diagrams wherever necessary

Each answer should not exceed 200 words

11. a) Explain the Active absorption
   Or
   b) Give the role of macro elements.

12. a) Discus the CAM pathway
   Or
   b) Write notes on the factors affecting photosynthesis.

13. a) Describe the glycolysis
   Or
   b) Explain oxidation phosphorylation.

14. a) Give short notes on nitrification
   Or
   b) Explain the water stress

15. a) Define nastic movements. Briefly explain seismonastic movement
   Or
   b) What are the physiological role of gibberellins

PART  C

(3 x 10 = 30marks) Answer any Three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Explain the mechanism of Stomatal movement.

17. Describe the calvin cycle.

18. Explain the process of Krebs cycle

19. Write an essay on Nitrate assimilation

20. Write an account on the Physiological role of auxin and ethylene.
PART A

(10 x 2 = 20 marks) Answer ALL the questions:

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words.

1. Rainfall
2. Autecology
3. Primary productivity
4. Autotrophs
5. Migration
6. Colonization
7. BOD
8. Acid rain
9. Hotspots
10. Willis
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary,

Each answer should not exceed 200 words

11. a) Write briefly about the effect of wind on plants.
Or
b) Define thermoperiodism.

12. a) How grazing by animals influence vegetation?
Or
b) Illustrate the pyramid of biomass.

13. a) Explain the Hydrarch succession
Or
b) Describe the character feature of Hydrophytes

14. a) Describe about soil pollution.
Or
b) Give short notes on e-waste

15. a) What is evergreen forest? Give examples.
Or
b) Explain continental drift theory

PART C

(3 x 10 = 30 marks) Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.


17. Write an essay on pond Ecosystem

18. Explain the adaptations of Xerophytes.

19. Give an account on the causes and control measures of water pollution.

20. Write a detail account on in situ and ex situ conservation.
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SEMESTER – VI
CORE COURSE – XIII
PLANT PROTECTION

Time : 3 Hrs.  
Maximum : 75 marks

PART A
(10x2 = 20 marks) All questions carry equal marks

Draw diagrams wherever necessary. Each answer should not exceed 50 words

1. Any two disease causing fungi
2. Nematodes
3. Quarantine
4. Endemic disease
5. Damping off
6. Smut disease
7. Canker
8. Rot disease
9. TMV
10. Define yellow disease
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Explain the symptoms caused by fungi

Or

b) Briefly explain the loss incurred by rodent pests in India

12. a) Explain the role of Quarantine is protection

Or

b) Write short notes on Seed certification

13. a) Give a brief account on Bud rot of coconut.

Or

b) Write short notes on Tikka disease of ground nut

14. a) Explain the important symptoms seen in bacterial disease

Or

b) What are the symptoms seen in ring rot of Potato in field condition. Illustrate

15. a) Explain the spreads and symptoms cause by Bunchy top of banana.

Or

b) Discuss the Mosaic disease in lady finger

PART C

(3 x 10 = 30) Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Why have more pest problem arisen in recent years as compared to the pest

17. Give a brief account about weed control

18. Write about the causal agent, disease spread, symptoms and control measures of paddy blast.

19. Explain citrus canker disease and its control measures.

20. Give an account of Tobacco mosaic disease.
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SEMESTER – VI

MAJOR ELECTIVE COURSE – II

. BIOCHEMISTRY

Time: 3 Hrs.  Maximum: 75 marks

PART A

(10 x 2 = 20 marks) All questions carry equal marks

Draw diagrams wherever necessary. Each answer should not exceed 50 words

1. Van der Waals forces
2. Define acid
3. Monosaccharide
4. Mutarotation
5. Peptide bond
6. Structure of glycine
7. Co-factor
8. Oxidative enzyme
9. Define saturated fatty acid
10. Alkaloids
PART B

( 5 x 5 = 25 marks ) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Describe the structure of water molecule
    Or
    b) Discuss pH and its significance

12. a) Describe the structure and importance of sucrose
    Or
    b) Explain the Reducing property of carbohydrates

13. a) Write short notes on Amphoteric property of protein
    Or
    b) List out Essential and non-essential amino acids

14. a) Discuss the factor affecting enzyme action
    Or
    b) Describe important properties of enzymes

15. a) Write a brief account on Biological significance of lipid
    Or
    b) How are fatty acid classified

PART C

( 3 x 10 = 30 marks)

Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. What are buffers? Elucidate their role in biological system

17. Describe the structures and functions of cellulose

18. Describe the structure of protein

19. How are enzymes classified? Add a note on mechanism of enzyme action

20. Write an essay on Terpenoids.
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SEMESTER –VI

SKILL BASED ELECTIVE COURSE - VI

MEDICO – ETHANOBOTANY

Time: 3 Hrs. Maximum: 75 marks

PART A

(10x2 = 20 marks) All questions carry equal marks

Draw diagrams wherever necessary. Each answer should not exceed 50 words

1. Materia Medica
2. Ayurveda
3. Tribal medicine
4. Sacred groves
5. Reserpine
6. *Artemisia*
7. *Syzygium aromaticum*
8. *Aloe vera* use
9. AYUSH
10. Biomedicine
PART B

(5 x 5 = 25 marks) Answer all questions;

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary,

Each answer should not exceed 200 words.

11. a) Give a Brief account on siddha
Or
b) Write a short note on Unani.

12. a) Brief account on therapeutic uses of Strychnos nux vomica
Or
b) Give an account of pharmaceutical importance of Gymnema sylvestre

13. a) Define ethnobotany. What is its significance?
Give and example for successful Exploitation of ethnobotany
Or
b) Give brief account on Participatory forest management

14. a) Give brief account on Ethano medicine prepared from Glorisa superba
Or
b) What are the medicinal uses of Cassia auriculata

15. a) Briefly explain Drying of crude drugs.
Or
b) Give a short notes on Storage of crude drug

PART C

(3 x 10 = 30 marks ) Answer any three questions.

All Questions carry equal marks. Each answer should not exceed 500 words

16. Define the term drug and give an account on the classification of natural drugs.

17. Discuss the method of extraction and uses drugs from Andrographis panicualata

18. Write an essay on South Indian Tribes.

19. Write down the cultivation, collection and natural drug preparation of Rauwolfia serpentine

20. Write an essay of drug Adulteration.
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SEMESTER –VI

SKILL BASED ELECTIVE COURSE - VII

SEED TECHNOLOGY

Time: 3 Hrs.                                      Maximum: 75 marks

PART – A

(10x2 = 20 marks) Answer ALL the questions:

All questions carry equal marks. Draw diagrams wherever necessary

Each answer should not exceed 50 words

1. Define cross pollination
2. Structure of Monocot seed
3. Seed vigor
4. Seed dormancy
5. G.Cot DH 7
6. Grow out test
7. Roguing
8. Define seed rate
9. Supplementary pollination
10. What is seed clearing?
PART B
(5 x 5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Mention the characters of quality of seed
Or
b) Write short notes on isolation of seed crops.

12. a) What are the requirements for germination tests?
Or
b) Give an account on seed dormancy and breaking methods.

13. a) Give an account on seed viability test
Or
b) How would you test moisture content of a seed?

14. a) Write a Rules and regulations guiding the production of paddy seed
Or
b) Seed Standard for Certified Hybrid cotton seed.

15. a) Explain the different methods of seed drying.
Or
b) What are all the classes of seeds?

PART C
(3 x 10 = 30 marks) Answer any three questions.

All questions carry equal marks. Each answer should not exceed 500 words.

16. Write an essay on the principles of seed production in self-pollinated crops.

17. Write an essay on Different types of seed germination.

18. Briefly write about the certified seed production of groundnut.

19. Give an account on the seed vigor and its importance.

20. Write the procedure of field inspection on different stages of seed production of paddy.
MODEL QUESTION PAPER

ALLIED BOTANY – I

(For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)

FIRST /SECOND ALLIED COURSE – I

Time: 3 Hrs. Maximum: 75 marks

PART - A

(10x2=20 marks) Answer all the questions

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Hormogone
2. Capcells
3. Capsomere
4. Basidiocarp of Agaricus
5. Protonema
6. Protocorm
7. Auxin
8. Osmosis
9. Commensalism
10. Symbiosis
PART B

(5X5 = 25 marks) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary, Each answer should not exceed 200 words.

11. a) Explain the asexual reproduction in Oedogonium.
    b) Describe the vegetative reproduction in Oscillatoria.

12. a) Economic importance of Fungi
    b) Asexual reproduction in Albugo.

13. a) Describe the structure of capsule in Funaria.
    b) Explain the Coralloid root of Cycas.

14. a) Describe the absorption of H₂O
    b) Explain Ammonification and Nitrification.

15. a) Describe succulent Xerophytes.
    b) How light effect the vegetation

PART C

(3 x 10 = 30 marks) Answer any Three questions

All Question carry equal marks. Each answer should not exceed 500 words.

16. Describe the alternation of generation in Ectocarpus.

17. Describe the structure and reproduction in Bacteria.

18. Describe the reproduction in Cycas.


MODEL QUESTION PAPER

ALLIED BOTANY – II

(For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern

FIRST/SECOND ALLIED COURSE – III

EXTERNAL MORPHOLOGY, TAXONOMY OF ANGIOSPERMS, CYTOLOGY, GENETICS, ANATOMY AND EMBRYOLOGY.

Time: 3 Hrs.  Maximum: 75 marks

PART A

(10x2=20 marks) Answer all the questions

All questions carry equal marks. Draw diagrams wherever necessary.

Each answer should not exceed 50 words

1. Epigynous Flower
2. Define phyllotaxy.
3. What type of inflorescence found in Musaceae?
4. Write note on syngenesious anther.
5. Which part of a cell is called power houses?
6. Write two kinds of endoplasmic reticulum.
7. Define meristem.
8. Name of the cells found in xylem.
9. What is tapetum?
10. How many cells are there in an embryo?
PART B

( 5 x 5 = 25 marks ) Answer all questions

All questions carry equal marks, (either a or b). Draw diagrams wherever necessary. Each answer should not exceed 200 words.

11. a) Describe the different types of phyllotaxy
Or
b) Explain the types of leaf

12. a) Write down the economic importance of *Arecaceae*.
Or
b) What are the salient features of *Cucurbitaceae*

13. a) Briefly explain the functions of ribosomes.
Or
b) Describe the incomplete dominance.

14. a) Write short notes on the structure and function of parenchyma.
Or
b) With suitable diagram explain the internal structure of a dicot leaf.

15. a) Write short notes on fertilization.
Or
b) Explain the structure of an ovule.

PART C

( 3 x 10 = 30 marks ) Answer Any Three questions

All Question carry equal marks each answer should not exceed 500 words.

16. Describe the Racemose inflorescence.

17. Write the distinguishing characters and economic importance of family *Leguminosae*.

18. Write an essay about mitosis.

19. With suitable diagrams explain the primary structure of in dicot root.

20. Describe the structure and development of embryo in dicots'
MODEL QUESTION PAPER
B. Sc., Botany Degree Examination
((For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)

CORE COURSE – II

MAJOR PRACTICAL I (Covering the core courses I & III)
(ALGAE, BRYOPHYTES, FUNGI, LICHENS, BACTERIA, VIRUSES)

Time : 3 Hrs. Maximum: 75 marks


2. Draw diagrams and write notes of interest on D, E, F, and G. (4 x 4 = 16)

3. Name the genus, group and morphology of given part of H, I and J.
   (Diagrams not Necessary) 3 x 3 = 9

4. Identify and write notes on economic importance of K and L. 2 x 2 = 4

KEY
A - Algae
B - Fungi
C - Bryophytes
   (Preparation-1, Identification-1, Diagram-2, Reason-3) 7 x 3 = 21

D - Algae-slide
E - Fungi-slide
F - Bryophyte-slide

G - Lichens-fruit body (Identification-1, Diagram-1, Reason-2) 4 x 4 = 16

H - Algae I-Fungi J.Bryophyte (Genus 1, Group 1, Morphology 1) 3 x 3 = 9

K - Algae

L - Fungi (identification 1,Reason 1) 2 x 2 = 4
MODEL QUESTION PAPER
B. Sc., Botany Degree Examination
((For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)
CORE COURSE – V
MAJOR PRACTICAL II (Covering the core courses IV & VI)
(ANATOMY & EMBRYOLOGY OF ANGIOSPERM, PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY)
Time : 3 hrs.
Maximum: 60 Marks
Practical: 50 Marks        Record : 10 Marks
2. Make a suitable micro preparation of D. Identify giving reasons. Draw diagrams. Leave the Slides for valuation. (6 marks)
3. Dissect and mount any one of the stages of the given material E. (notes not necessary) (4 Marks)
4. Name the genus, group and morphology of given part of F and G. (2X3=6 marks)
5. Write notes on H, I, J, K and L. (5X2=10 marks)
KEY
D. Reproductive part – Pteridophyte (or) Gymnosperm. (Preparation 2, Identification 1, Diagram 1, Reason 2) (6 marks)
E. Embryo – dicot – Tridax - (preparation 3, diagram1) 4 mark
F & Macroscopic – Pteridophyte (or) Gymnosperm.
G. (Genus 1, Group 1, Morphology 1) (2 x 3 = 6 mark)
H, I, Permanent slides (Anatomy, Embryology,
J, K Pteridophytes, Gymnosperms, Fossil slides)
and  (Identification 1, Reason 1) (5X2=10)
L.
MODEL QUESTION PAPER

B. Sc., Botany Degree Examination

((For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)

CORE COURSE – X

MAJOR PRACTICAL III

(Covering the core courses VII, VIII&IX)

(MORPHOLOGY AND TAXONOMY OF ANGIOSPERMS, CYTOLOGY AND GENETICS, BIOINSTRUMENTATION AND BIOSTATISTICS)

Maximum: 60 Marks  Practical : 50 Marks

Record: 10 Marks

1. Refer A and B, to their respective families. Point out the characters on which the identification is based at each level. (Diagrams not necessary)  (2 x 4=8 Marks)

2. Make acetocarmine preparation of C (Squash) any one stage. draw diagram  (4 Marks)

3. Describe D in Technical terms. Draw diagrams of the floral parts only.
   Construct the floral Diagram. Give the floral formula  (5 Marks)

4. Construct the chromosome map with the data provided E  (5 marks)

5. Solve the given genetic problem F and G  (2 x 3=6marks)

6. Determine the quantity/concentration of sample by using given H Biochemical Instrument - (6 marks)

7. Spot at sight I and J  2 x 2 = 4

8. Write the name of the genus, species, family and morphology of the useful parts of K &L  (4 x 2 = 8 marks)

9. Identify and write notes on M and N  (2 x 2 = 4 marks)
KEY

A & B-Family - (2 x 4 = 8 marks)

C-Onion root tip - (preparation =3 marks , diagram -1 marks) D-Plant with flowers.
(preparation -1 marks, Floral diagram – 2 marks, Floral formula -2 marks )

E-Chromosome map - 5 marks

F&G-Genetic problems – (2 x 3 =6 Marks)

H-Bioinstrumentation experiment – ( Procedure – 4 marks, Result -2 marks) = 6 marks

I&J-Cytology spotter - Identification -1 marks, Reason -1 2 x 2 =4

K& L -Morphological parts: Genus -1mark, Species -1 marks, family-1mark,
Morphology -1 mark

M. - Micro technique - identification 1 mark, Reason -1 mark

N- Biostatistics - Identification 1 mark, Reason -1 mark
MODEL QUESTION PAPER
B. Sc., Botany Degree Examination
((For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)

CORE COURSE – XIV
MAJOR PRACTICAL IV
(Covering the core courses XI, XII & XIII)
(PLANT PHYSIOLOGY, PLANT ECOLOGY AND PLANT GEOGRAPHY, PLANT PROTECTION)

Maximum: 60 Marks  Practical: 50 Marks
Record: 10 Marks

1. Outline the procedure, apparatus and materials required for investigating the physiological Problem. A, assigned. Set up the experiment. Tabulate the data obtained and report the Results. Leave the set up for valuation. (10)

2. Based on morphological and anatomical characters, assign, B and C to their respective probable habitats. Draw suitable diagrams. Submit slides for valuation. 2 x 5 = 10

3. Estimate dissolved oxygen content of D given water sample 10 marks

4. Draw and comment on the set up E (6 marks)

5. Identify the causal organism of the diseased material 'E'. Draw diagrams. Describe the symptoms and list the control measures. (10 marks)

6. Comment on 'F' 2 Marks

7. Locate two phytogeographical zones in the map G provided - 2 marks

Key
A - Physiology: Procedure& material – 6 marks, Setup – 2 marks, Result - 2 marks = 10 marks
B&C: Ecology material: preparation - 1 mark, identification - 1 mark, Reason - 3 marks = 2x5=10 marks
D  Estimation of DO in water sample - Procedure– 6 marks, calculation- 2 marks Result - 2 marks=10 marks

E - Physiology set up   - Identification – 2 marks; Diagram -2 marks, Reason – 2 marks =6 marks

E - Any disease in the syllabus - Name disease – 2 marks, Causative organism – 2 marks, Symptom – 2 marks, Control measure – 2 marks, Diagram – 2marks =10 marks

F - Plant protection appliances – 2 marks

G - Phytogeography – Vegetation maps -2 marks
MODEL QUESTION PAPER

B.Sc., ALLIED BOTANY PRACTICAL

(For Students Admitted from the Academic Year 2017 – 2018 onwards under CBCS Pattern)

FIRST / SECOND ALLIED COURSE – II

Time : 3 hrs.                         Maximum: 60 Marks
Practical : 50 Marks                  Record : 10 Marks

1. Refer A & B to their families giving reasons (Diagrams not necessary) 10 Mark

2. Identify the plant, family and morphology of the parts used for C, D, E, F and G. 15 mark

3. Cut transverse section of H & I. Stain and mount in Glycerin. Identify giving reasons. Draw diagrams. Submit the slides for valuation. 10 marks

4. Write critical notes on J, K, L, M, N, O. Draw diagrams. 12 mark

5. Physiology Experiment P 3 mark

KEY

1. For A and B - Any two plants prescribed in the syllabus. (Reasons 3, Identification -2 ) 2 x 5 = 10 marks

2. For C, D, E, F and G - any 5 specimens given in the practical syllabus. 5 x 3 = 15 Marks

3. For H and I – (Slide -2 Identification -1 Reasons – 2 ) 2 x 5 = 10 marks

4. Notes 1, Diagram 1 for J, K, L, M, N, O ( 2 x 6 = 12 marks)

5. Physiology Experiment P 3 Marks