SEMESTER 1

Generic Elective (GE- 1)

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

(Credits: Theory-4, Practical-2) F.M.~~70~~ 50

QUESTION PATTERN: Question no. 1 will be compulsory, and ask for 10 objective type questions (MCQ/True-False/Fill in the Blanks etc.), for 2 marks each. Question no.s 2 to 6 will be short answer type questions of which 4 have to be answered for 5 marks each. Question no.s 7 to 10 will be long answer type questions of which 2 have to be answered for 15 marks each.

Lectures: 60

Unit 1: Microbes (10 lectures)
Viruses –General structure, TMV; Economic importance
Bacteria –General characteristics and cell structure; Economic importance.

Unit 2: Algae (12 lectures)
General characteristics; Morphology and life-cycles of the following: *Nostoc*, *Volvox*, *Oedogonium, Batrachospermum*. Economic importance of algae.

Unit 3: Fungi (12 lectures)
General characteristics, life cycle of *Albugo, Peziza, Agaricus, Alternaria*
Symbiotic Associations-Lichens

Unit 4: Bryophytes (10 lectures)
General characteristics, morphology, reproduction of *Marchantia, Anthoceros and Sphagnum*

Unit 5: Pteridophytes (8 lectures)
General characteristics, morphology and reproduction of *Selaginella* and *Pteris*.(Developmental details not to be included).Heterospory and seed habit, stelar evolution.

U nit 6: Gymnosperms (6 lectures)
General characteristics; morphology, and reproduction of *Pinus*(Developmental details not to be included).

BOTANY UG

LOCF

SEMESTER II

Generic Elective (GE-2)

Plant Ecology and Taxonomy

(Credits: Theory-4, Practical-2) F.M.-~~70~~ 50

QUESTION PATTERN: Question no. 1 will be compulsory, and ask for 10 objective type questions (MCQ/True-False/Fill in the Blanks etc.), for 2 marks each. Question no.s 2 to 6 will be short answer type questions of which 4 have to be answered for 5 marks each. Question no.s 7 to 10 will be long answer type questions of which 2 have to be answered for 15 marks each.

Unit 1: Introduction to Ecology (2 lectures)

Unit 2: Ecological factors (10 lectures)
Soil: Origin, formation, composition, soil profile. Water: States of water in the environment. precipitation types. Light and temperature: Variation Optimal and limiting factors; Shelford law of tolerance. Adaptation of hydrophytes and xerophytes

Unit 3: Plant communities (12 lectures)
Characters; Succession; Processes and types

Unit 4: Ecosystem (10 lectures)
Structure; energy flow trophic organisation; Food chains and food webs, Ecological pyramids;
Biogeochemical cycling; Cycling of carbon, nitrogen.

Unit 5: Pollution
Air & Water – Cause & Control.

U nit 6 Introduction to plant taxonomy (2 lectures)
Identification, Classification, Nomenclature.

Unit 7 Taxonomic hierarchy (outline) (2 lectures)
Ranks, categories and taxonomic groups

U nit 8 Botanical nomenclature (6 lectures)
Principles and rules of ~~IUCN~~ ICBN

Unit 9 Classification (6 lectures)
Types of classification-artificial, natural and phylogenetic. Bentham and Hooker (upto series),Hutchinson (upto orders).

Unit 10 Angiospermic Families (10 lectures)
Catharanthaceae, Acanthaceae, Amaranthaceae, Lamiaceae, Cyperaceae

SEMESTER III

E.S. ND
70+30

E.S. – Th – 50
Pr – 20 } 70

Generic Elective (GE- 3)

Plant Anatomy and Embryology

(Credits: Theory-4, Practical-2) F.M.- ~~75~~ 50

QUESTION PATTERN: Question no. 1 will be compulsory, and ask for 10 objective type questions (MCQ/True-False/Fill in the Blanks etc.), for 2 marks each. Question no.s 2 to 6 will be short answer type questions of which 4 have to be answered for 5 marks each. Question no.s 7 ~~to 10~~ will be long answer type questions of which 2 have to be answered for ~~15~~ marks each.
8
1
10

Lectures: 60

Unit 1: Meristematic tissues (8 lectures) RU
Apical, Intercalary and Lateral Meristems; simple and complex tissues

Unit 2: Secondary Growth (8 lectures)
Vascular cambium – structure and function, seasonal activity. Normal and Abnormal growth

Unit 3: Anomalous secondary growth
Boerhavia, Dracaena and Tinospora

SJ

Unit 4: Structural organization of flower (8 lectures)
Structure of anther and pollen; Structure and types of ovules; Types of embryo sacs, organization

Unit 5: Fertilization (8 lectures)
Double fertilization

SK

Unit 6: Embryo and endosperm (8 lectures)
Endosperm types, structure and functions; Dicot and monocot embryo; Embryo endosperm Relationship

BOTANY SEM-4

LOCF

E.S. + M.S
70 + 30

E.S. 70 — 50 Th
20 Pr

SEMESTER IV

Generic Elective (GE- 4)

Plant Physiology, Cytogenetics and Biotechnology

(Credits: Theory-4, Practical-2) F.M.- ~~70~~ 50

QUESTION PATTERN: Question no. 1 will be compulsory, and ask for 10 objective type questions (MCQ/True-False/Fill in the Blanks etc.), for 2 marks each. Question no.s 2 to 6 will be short answer type questions of which 4 have to be answered for 5 marks each. Question no.s 7 ~~&8~~ will be long answer type questions of which ~~2~~ 1 have to be answered for ~~10~~ marks each.

Lectures: 60

- 25

UNIT – 1

1. Transpiration - Mechanism & significance
2. Ascent of Sap – Root Pressure transpiration pull, theory
3. Photosynthesis – Photophosphorylation, C_3, C4 Cycle
4. Respiration – Glycolysis, TCA Cycle.
5. Growth Hormone – Auxins, Gibberellins

- 25

UNIT – 2

1. Structure of Cytoplasmic Cell Organelles – Mitochondria, Chloroplast, Ribosome
2. Cell Division – Mitosis, Meiosis,
3. Principles of inheritance, Mendel's Law
4. Complimentary Genes & Epistasis
5. Gene – Mutation & Polyploidy

- 5

UNIT – 3

Plant Tissue Culture – History, Requirement, Technique & Application