

Internal Marks : 25
External Marks : 75
Total Marks : 100

SEMESTER - I
ALLIED COURSE - I
ALLIED BOTANY - I

Subject Code : UWA1
Exam Hrs : 3

OBJECTIVE :

To enable the students to understand the principles of Morphological and Anatomical characters of plant diversity.

UNIT - I: BACTERIA, VIRUSES AND ALGAE

Bacteria:

Shape and Electron Microscopic structure of a Bacterium (*Escherichia coli*), Asexual Reproduction (Binary Fission and Endospore formation) Economic importance of Bacteria.

Viruses:

Nature of Viruses

Structure of TMV and Bacteriophage

Reproduction of Bacteriophage.

Algae:

Thallus structure, Reproduction and Life cycle pattern with reference to *Spirulina*, *Oedogonium*, *Ectocarpus* and *Polysiphonia*.

UNIT - II: FUNGI AND MUSHROOM TECHNOLOGY

Fungi:

Occurrence, structure of mycelium and Reproduction of *Albugo*, *Penicillium* and *Polyporus*.

Mushroom Technology:

Cultivation technology of edible mushroom *Pleurotus* sp. (Oyster mushroom).

UNIT - III: BRYOPHYTA, PTERIDOPHYTA AND GYMNOSPERMS

Structure, Reproduction and Life cycle of the following

Bryophyta - *Funaria*

Pteridophyta - *Lycopodium*

Gymnosperms - *Cycas*

UNIT – IV : EMBRYOLOGY

Structure of Dicot anther – Microsporogenesis – Development of male gametophyte

Structure of orthotropous ovule – Megasporogenesis.

Monosporic -8 nucleate – Polygonum type of Embryo sac.

Double fertilization.

Endosperm types (cellular, Nuclear and Helobial).

UNIT – V : PLANT ECOLOGY

Morphological and Anatomical adaptation

Xerophytes - (*Opuntia* and *Nerium*)

Mesophytes - (*Helianthus* and *Hibiscus*)

Hydrophytes - (*Hydrilla* and *Nelumbium*)

General features of Mangroves and their importance.

BOOKS FOR REFERENCE

1. Kumar, H.D. and Singh, H.N., (1971). A text book of Algae. East West Press Pvt. Ltd., New Delhi.
2. Bold, H.C. and Wynne, M.J., (1978). Introduction of Algae-structure and reproduction, Prentice Hall, New Jersey.
3. Alexopoulos, C.J., (1973). Introductory Mycology. Wiley Eastern Private Ltd., New York.
4. Handbook of Mushroom Cultivation, (1999). TNAU Publication.
5. Nita Bahl, (2002). Handbook of Mushroom 4th Ed., vijay Primlani for oxford & IBH Publishing Co. Pvt. Ltd. New Delhi. Dr.C.Sebastian Rajasekaran Reader in Botany Bishop Heber College Trichy-17.
6. Suman, (2005). Mushroom Cultivation Processing and Uses, M/s. IBD Publishers and Distributors, New Delhi.
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9. Wardlaw, C.W., (1976). Embryogenesis in Plants, Methuen and Co. London.
10. Johri, P.M., (1986). Embryology of Angiosperms.
11. Bhojwani and Bhatnagar, (1990). Embryology of Angiosperms, Vikas Publishing House (P) Ltd., New Delhi.
12. Sharma, P.D. – (1992) Ecology and Environment, Rastogi Publications, Meerut, UP.
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Allied Course II
ALLIED BOTANY - II (PRACTICAL)
(One Allied practical for subjects included in Allied Botany – Paper I & III)

Subject Code : UWA2Y

In Practical, candidates are expected

- a. To describe in technical terms, plants belonging to any one of the families prescribed and identify the family.
- b. To make dissection of the flower and construct floral diagram and floral formula.
- c. To make transverse section, description and identification of Angiosperms and suitable micropreparations, description and identification of Pteridophytes and Gymnosperms included in the syllabus.
- d. To describe simple experimental set-up. (Plants Physiology).
- e. To give critical comments (Medicinal Plants, Ecology and Horticulture).
- f. To identify and give reasons (Algae, Fungi, Bryophytes, Tissues and Embryology).
- g. To submit a record of work done by the candidates, during the course of study in practical classes, duly certified and bonafide.

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II – SEMESTER
Allied Course III
BOTANY PAPER III

Subject Code : UWA3
Exam Hrs : 3

OBJECTIVE : To enable the students to understand the principles of Taxonomy, Cytology, Plant Physiology, Herbal Medicine and Horticulture of Plant diversity

UNIT – I : TAXONOMY

- ✓ General outline of Bentham and Hooker’s system of classification.
- ✓ Study of the following families with their Economic importance
- ✓ Annonaceae
- ✓ Leguminosae (Fabaceae, Caesalpiniaceae and Mimosaceae)
- ✓ Rubiaceae
- ✓ Lamiaceae
- ✓ Euphorbiaceae
- ✓ Poaceae

UNIT – II : CYTOLOGY AND ANATOMY

- ✓ Cell – Structure – Organelles (Chloroplast, Mitochondria and Nucleus).
- ✓ Tissue – Simple permanent tissues (Parenchyma, Collenchyma, Sclerenchyma fibres and Sclereids).
- ✓ Complex Permanent tissues – Xylem and Phloem.
- ✓ Primary structure of root and stem (Dicot and Monocot).
- ✓ Normal Secondary thickening of Dicot stem.

UNIT – III : PLANT PHYSIOLOGY

Plant Nutrition - Role of Macro and Micronutrients.

Photosynthesis - Light Reactions (Cyclic and Non cyclic)

Dark Reactions (Calvin cycle).

Respiration - Aerobic Respiration (Glycolysis and Krebs’ cycle)

Anaerobic Respiration (Fermentation) Nitrogen cycle.

UNIT – IV : HERBAL MEDICINE

Importance of following Medicinal plants

- ✓ *Centella asiatica*
- ✓ *Eclipta Prostrate*

- ✓ *Solanum trilobatum*
- ✓ *Aloe vera*
- ✓ *Cynodon dactylon*

UNIT – V : HORTICULTURE

- ✓ Role of growth Hormones (IAA and Gibberellins).
- ✓ Preparation of Organic Manure – Compost.
- ✓ Horticultural Practices – Grafting Methods (Cutting, Layering and Budding).
- ✓ Nursery Techniques – Field, Container, Polybag and Tray nurseries.
- ✓ Floriculture – Production of cut flowers.
- ✓ Cultivation practices and propagation - Roses.

BOOKS FOR REFERENCE

1. Agarwal, O.P., (1985). Vol. II. Chemistry of organic – natural products.
2. Gamble, J.S. and Fisher, 1921, CEC, I, II, III Flora of the Presidency of Madras Volumes.
3. Mathew, K.M., (1988). Flora of the Tamilnadu and Carnatic.
4. Nair, N.C. and Henry, A.N., (1983). Flora of Tamil Nadu, India, Botanical Survey of India.
5. Chopra, R.N., Nagar, S.L. and Chopra, I.C., (1956). Glossary of Indian Medicinal Plants.
6. Chopra, R.N., Chopra, I.C., Handa, K.L. and Kapur, L.D., (1994). Indigenous drugs of India.
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8. Dubey, R.C. and Maheswari, D.K., (2003). A text book of Microbiology. S.Chand and Campus, New Delhi.
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11. Text Book of Horticulture – K.Manibushan Rao (1991) McMillan.
12. Introduction to Horticulture – N.Kumar (1986) Rajalakshmi Publishers.
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15. Gangully , A.K General Botany , The New Book Stall ,Calcutta Vol.1 7th Edn .(1971) Vol.II Edn.1975.
16. K.N.Rao , K.Krishnamurthy and G.S Rao 1979 , Ancillary Botany , S. Visvanathan .
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