

# **BOTANY B.Sc.-Ist Year**

## **PAPER-I—BACTERIA, VIRUSES, FUNGI, LICHENS AND ALGAE**

- UNIT-I** Viruses—General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Structure and multiplication of Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance.
- UNIT-II** Bacteria—General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, Rhizobium, Azotobacter, Anabena.
- UNIT-III** Fungi—General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of Saprolegnia, Albugo, Aspergillus, Peziza, Agaricus, Ustilago, Puccinia, Alternaria and Cercospora. VAM Fungi
- UNIT-IV** Algae—Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns and economic importance. Classification, Systematic position, occurrence, structure and life cycle of following genera : Nostoc, Gloeocapsa, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia.
- UNIT-V** Lichens—General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land. Mushroom Biotechnology

## **PAPER-II—BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY**

- UNIT-I** Bryophytes—General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in Riccia, Marchantia, Pellia, Anthoceros, Funaria. Vegetative reproduction in Bryophytes, Evolution of sporophytes.
- UNIT-II** Pteridophytes—General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, Azolla as Biofertilizer.

- UNIT-III** Systematic position, occurrence. Morphology, anatomy and reproductive structure of Psilotum, Lycopodium, selaginella, Equisetum, Marsilea.
- UNIT-IV** Gymnosperm: General characteristics, affinities, economic importance and classification, Morphology, anatomy and reproduction in Cycas, Pinus and Ephedra.
- UNIT-V** Palaeobotany—Geological time scale, types of fossils and fossilization, Rhynia, study of some fossil gymnosperms. Lygenopteris.