

SYLLABUS

(Panjab University)

SEMESTER-I

Paper-A : PLANT DIVERSITY-I

UNIT - I

Bacteria : Salient features, types and cell structure.

Algae General Characters; systematic position, structure and life history of *Oscillatoria* (Cyanophyceae), *Volvox*, *Cladophora* (Chlorophyceae); *Vaucheria* (Xanthophyceae)

UNIT - II

Systematic position, structure and life history of *Dictyota* (Phaeophyceae); *Batrachospermum* (Rhodophyceae) and economic importance of algae.

UNIT - III

Fungi General characters; systematic position, structure and life history of *Albugo* (White rust of Crucifers; *Albugo candida*), *Rhizopus* and *Saccharomyces*.

UNIT - IV

Systematic position, structure and life history of *Agaricus*, *Ustilago* (Loose smut of wheat; *Ustilago tritici*), *Puccinia* (Black rust of wheat; *Puccinia graminis tritici*), *Colletotrichum* (Red rot of sugarcane; *Colletotrichum falcatum*); general account of Lichens and their economic importance.

Paper-B : CELL BIOLOGY

UNIT - I

Ultrastructure and functions of a typical plant cell and its organelles; Nucleus, Mitochondrion, Plastids, Ribosome, Endoplasmic reticulum, Golgi apparatus, Lysosomes, Structure and functions of cell wall and plasma membrane : fluid mosaic model only.

UNIT - II

Physical structure of chromosome; Giant chromosomes; Polytene and Lampbrush chromosomes; chromosomal alterations (deletion, duplication, inversion, translocation) and their importance; variations in chromosome number, (aneuploidy and polyploidy) introduction and their importance

UNIT - III

Cell divisions, Mitosis and Meiosis in plants and their significance, Synaptonemal complex, DNA Structure (Watson and Crick model), Nucleosome, types of DNA and role of DNA, Replication of DNA.

UNIT - IV

Structure and concept of gene; One gene-one enzyme hypothesis; Genetic Code : Characteristics, exceptions, Wobble hypothesis; RNA; Structure and types; Transcription and translation; Regulation of gene expression in prokaryotes (Lac operon and Tryptophan operon) and in eukaryotes (a brief account).