

BOTANY (CODE NO. 04)

1. Origin and Evolution of Life

Basic ideas about the origin of Earth. Origin of life, chemical and biological evolution, geological time scale and types of fossils.

2. Cell Biology

Cell, structure and functions of cell organelles, chromosomes : Structure and types. Mitosis and meiosis.

3. Genetics

Concept of gene, DNA, RNA, laws of inheritance. Cytoplasmic inheritance, mutation and polyploidy. Plant breeding.

4. Plant Diversity

A general account of structure and reproduction of virus, bacteria, cyanobacteria, algae, fungi, lichens, bryophytes, pteridophytes and gymnosperms. Concept of alternation of generations.

5. Angiosperms

Morphology, anatomy, types of tissues and their functions. Modifications of root, stem and leaf. Reproduction : Pollination, fertilization and development of seed.

6. Taxonomy

Principles of nomenclature, classification and identification of plants. Salient features and importance of following families : Malvaceae, Fabaceae, (Leguminosae), Solanaaceae, Lamiaceae, Euphorbiaceae and Poaceae.

7. Plant physiology

Water relations of plant, mineral nutrition, enzymes, photosynthesis, nitrogen metabolism, respiration, growth, hormones, physiology of flowering, seed germination.

8. Plant pathology

A general account of important diseases of crop plants of India and their control.

9. Plants and human welfare

Role of plants in human life. Plants yielding food, fibers, wood and medicines.

10. Plants and environment

Ecosystem, ecological adaptations, natural resources and pollution, Global warming, acid rains and ozone layer depletion.

11. Biotechnology

Recombinant D.N.A. technique, tissue culture, biofertilizers, Application of biotechnology in agriculture, horticulture, medicine and industry.