

BOTANY (CODE NO. 04)

PAPER - I

MICROBIOLOGY, PATHOLOGY, PLANT GROUPS, MORPHOLOGY ANATOMY TAXONOMY AND EMBRYOLOGY OF ANGIOSPERMS

1. Microbiology

Structure, classification, reproduction and economic importance of Virus, phytoplasma (mycoplasma), bacteria and cyanobacteria .
Microbes in industry and agriculture.

2. Plant Pathology

Knowledge of plant diseases caused by fungi, modes of infection and methods of control.

3. Plant Diversity

Structure, reproduction, life history, classification and economic importance of algae, fungi, bryophytes pteridophytes and gymnosperms.

4. Angiosperms

Tissue and tissue systems. Morphology and anatomy of root, stem and leaf. Developmental aspect and anomalous primary and secondary structures. Morphology of flower, structure of anther and ovule, microsporogenesis and megasporogenesis, fertilization and embryo development. Seed development.

5. Taxonomy

Principles of nomenclature and classification of angiosperms. Modern trends in taxonomy. A general account of the following families :
Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae (Leguminosae), Apiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Euphorbiaceae, Liliaceae and Poaceae. Botanical gardens.

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PAPER- II

Cell Biology, Genetics and Evolution, Plant Physiology, Ecology and Economic Botany

1. Cell Biology

Cell as unit of structure & function. Prokaryotic and eukaryotic cells. Ultra structure and functions of plasma membrane, endoplasmic reticulum, mitochondria, ribosomes chloroplasts and nucleus. Chromosomes : Structure, chemical nature and behaviour during mitosis and meiosis. Special types of chromosomes.

2. Genetics and Evolution

Mendelism, concept of gene, structure and types of DNA and RNA, genetic code, protein synthesis and regulation. Theories of organic evolution and evidences.

3. Plant Physiology

Absorption and conduction of water. Transpiration, Mineral nutrition. Photosynthesis, Respiration, Photorespiration, Enzymes, Nitrogen metabolism and fermentation. Growth, plant hormones and their functions. Photoperiodism. Seed dormancy and germination.

4. Ecology

Scope of Ecology, ecological factors, structure, function and dynamics of Ecosystem. Plant communities and succession. Applied aspects of ecology including conservation, control of pollution and management of natural resources. Endangered plants, endemism and red data book. Global warming, acid rains and ozone layer depletion.

5. Economic Botany

Plants as sources of food, fodder, fibers, spices, beverages, medicines and timber.