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Botany Syllabus for Uttarakhand State Civil Services
Preliminary Exam-2011

BOTANY

Origin of life: Theories of origin of life; biochemical and biological aspect of evolution and speciation.

Plant Anatomy: Elementary knowledge of structure, differentiation and functions of various tissues; evolution of steles.

Plant Diversity: General accounts of structure, reproduction and life histories of main plant group- algae, fungi, lichens, bryophytes, pteridophytes, gymnosperms and angiosperms; structure, nutrition and reproduction of bacteria and viruses; principles of plant taxonomy, nomenclature and plant systematics; distinguishing features of some important families.

Plant Physiology: Water relations of plants; mineral nutrition and translocation of solutes; enzymes; photosynthesis, respiration, nitrogen metabolism; plant growth regulators, growth and movements, physiology of flowering and seed germination.

Reproduction: Vegetative, asexual and sexual modes of reproduction in angiosperms; micro and megasporogenesis, pollination, fertilization and seed development.

Cell Biology: Ultrastructure and functions of cell organelles; cell cycle, structure of chromosomes, mitosis and meiosis, numerical and structural changes in chromosomes.

Genetics: Mendel's law of inheritance, linkage and gene mapping, nature of genetic material, development of gene concept and genetic code, mutation.

Molecular Biology: Elementary idea of the structure of carbohydrates, proteins and fats; nucleic acids-structure and their role in protein synthesis; genetic engineering and plant improvement.

Plant Pathology: Principle of plant pathology, disease types, pathogens, pathogenesis, symptomatology, etiology and control.

Plant in Relation to Human welfare: Plants as sources of food, fiber, timber, drugs, biopesticides, biofertilizers, energy plantation.

Plants and Environment : Abiotic and biotic components, ecosystem, ecological adaptations, community and succession, natural resources and their conservation; environmental pollution and control, plants as indicator of pollution.