

# PAPER III. TAXONOMY AND DIVERSITY OF SEED PLANTS

Max. Marks 80

## GYMNOPERMS

**UNIT-1 Introduction:** Gymnosperms, the vessel-less and fruitless seed plants varying in the structure of their sperms, pollen grains, pollen germination and the complexity of their female gametophyte: evolution of gymnosperms,

**Classification of Gymnosperms and their Distribution in India**

**Brief account of the families of pteridospermales** (Lyginopteridaceae, Medulosaceae, Caytoniaceae and Glossopteridaceae).

## TAXONOMY OF ANGIOSPERMS

**UNIT - III Origin of intrapopulation variation :** Population and the environment; ecads and ecotypes, evolution and differentiation of species - various models.

**The species concept :** Taxonomic hierarchy, species, genera, family and other categories; principles used in assessing relationship, delimitation of taxa and attribution of rank. Salient features of the International Code of Botanical nomenclature.

**UNIT- IV Taxonomic evidence :** Morphology, anatomy, palynology, embryology, cytology, phytochemistry : genome analysis and nucleic acid hybridization.

**Taxonomic tools :** Herbarium; floras; histological, cytological, phytochemical, serological, biochemical and molecular techniques; computers and GIS.

**UNIT - V Systems of angiosperm classification :** Phenetic versus phylogenetic systems; cladistics in taxonomy; relative merits and demerits or major systems of classification, relevance of taxonomy to conservation, sustainable utilization of bio-resources and ecosystem research.

Concepts of phytogeography : Endemism, hotspots and hottest hotspots; Plant explorations; invasions and introductions; local plant diversity and its socioeconomic importance.