

# FORESTRY

CODE-29

## PAPER-I

Forests types in India and their distribution. Factors influencing vegetation. Natural and artificial regeneration of forests. Collection, storage and viability tests of forest seeds, Seed Germination and pre-sowing treatment Nursery practices-selection and preparation of site. Management of nurseries. Afforestation-Site selection and preparation, selection of stock, time and method of planting. Tending operation, cost and financing.

Silvicultural systems-clear felling uniform, shelter wood, selection and coppice. Choice of silvicultural system.

Binominal nomenclature, systems of classification. Growth habitats and silvicultural characters, phenology and regeneration method of *Cedrus deodara*, *Pinus roxburghii*, *Picea smithiana*, *Abies pindrow*, *Quercus* spp. *Shorea*, *Rubus*, *Crewia optiva*, *Celtis australis*, *Dalbergia sissoo*, *Tectona*, *Grandis*, *Acacia*, *Catechu*, *Bauhinia variegata* and *Bamboo* spp.

Social Forestry- Objectives, scope and necessity, place of social forestry in the National forest policy. Species for social forestry. Utilisation of products derived from social forestry plantations. Social forestry in Himachal Pradesh. Van Mahotsava and Chipko movement.

Classification of forest, soils, their physical and chemical properties. Soil erosion- process and factors responsible. Soil conservation methods. Watershed management and water harvesting structure. Role of forests in watershed management. Soil survey and land capability classes. Problems of forest soil and their improvement.

Principles and concepts of Tree improvement- methods and techniques. Role of biotechnology, in forestry. Forest ecosystems. Ecological succession in forests, nutrient cycling. Herbaria- principles and its establishment Types of grasslands of India with special reference to Himachal Pradesh.

Measurement of trees- diameter, girth, height, form bark thickness, crown width and crown length. Measurement of stands, diameter, height, age and volume. Forest enumeration. Sample plot, layout and measurements, Estimation of growth and yield stands. Canopy density yield tables preparation and its application. Introduction and use of remote sensing, Forest inventories.

History of forest development in India. Forest policy of 1894, 1952 and amendment of 1988. Forest law its necessity. Indian forest Act, 1927, Forest conservation Act, 1980.

## PAPER-II

Logging-felling, conversion, transportation. Forest depots, saw milling. Defects of wood. Wood seasoning. Wood preservation Composite wood. Wood based industries- pulp and paper, furniture, Katha and cutch-soleosion, charcoal, rayon, Distribution, chemical constituents and parts of plants used for medicinal and aromatic values. Tanning, dyes poisonous, insecticidal and insect repellent plants. Outlines of wild fruits and seeds possessing economic values.

Insect, pests and diseases responsible for damaging forest nurseries. Problems of weeds in forest nursery and plantation. Weed control. Forest fire- its harmful and beneficial effects. Fire control methods. Fire fighting devices and extinguishing chemicals. Modern methods of forest fire control.

Forestry extension education in community development. Organisational set up of forestry development. Publicity of forestry works and its role in the implementation of forestry projects.

Cost benefit analysis of forest operations. Socio-economic analysis of forest productivity, Relationship between tribals and forests. Determination of optimal rotation of forests crops. Marketing of forest products and its role in economy. Market analysis of forest produce.

Different methods of forests survey in hilly terrain. Forest roads designing, estimation, construction and maintenance. Retaining and breast wall constructions. Design and construction of timber bridges.

Endangered species of wildlife. Wildlife conservation and zoo management. Ecological basis of wildlife management. National parks, Sanctuaries and biospheres reserves of India. Wildlife protection Act, 1972. Wildlife in Himachal Pradesh. Special projects for wildlife conservation in India.