

SYLLABUS

(Punjab University)

SEMESTER-III

Paper-A : DIVERSITY OF SEED PLANTS AND THEIR SYSTEMATICS-I

UNIT - I

General characteristics and economic importance of gymnosperms; differences between gymnosperms and angiosperms; differences between manoxylic and pycnoxylic wood.

UNIT - II

Fossil gymnosperms : Brief account of fossils, their formation and types (excluding details)

Lyginopteris: Introduction, external structure of stem; internal structure of primary stem, root and leaf; reproduction.

Williamsonia: Introduction, external morphology; internal structure; reproductive organs, male and female flowers.

UNIT - III

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of *Cycas*.

UNIT - IV

Structure, reproduction (male and female strobilus; structure of ovule; development of male and female gametophytes; pollination, fertilization, development of embryo and structure of seed) and life cycle of:

(a) *Pinus* (b) *Ephedra*

Paper-B : STRUCTURE, DEVELOPMENT AND REPRODUCTION IN FLOWERING PLANTS-I

UNIT - I

The basic body plan of a flowering plant.

Diversity in plant form in annuals, biennials and perennials.

Root system: Tap root and adventitious root system and their various types; structural and anatomical modifications for storage, respiration and reproduction.

UNIT - II

Stem: Modifications of aerial and underground stem.

Leaf: Venation, phyllotaxy, simple and compound leaves, functions and modifications; internal structure (dicot and monocot leaves).

UNIT - III

Flower: As a modified shoot, functions; structure of anther and pistil; structure and development of male and female gametophytes.

UNIT - IV

Double fertilization and its significance; different types of ovules and embryo-sacs.