SEMESTER-IV

Max. Marks – 40+10*

Time- 3 Hrs.

PAPER –I BIOLOGY AND DIVERSITY OF SEED PLANTS-II

Note: Attempt five questions in all, selecting two questions from each unit.

Question No. 1 is compulsory (short answer type).

Nine questions are to be set spread over the entire syllabus. All questions carry equal marks.

UNIT-I

Taxonomy and Systematics, fundamental components of taxonomy (identification, classification, description, nomenclature and phylogeny).

Role of chemotaxonomy, cytotaxonomy and taximetrics in relation to taxonomy. Botanical Nomenclature, principles and rules, principle of priority.

Type concept, taxonomic ranks.

Keys to identification of plants.

Flower and Types of Inflorescence.

UNIT-II

Salient features of the systems of classification of angiosperms proposed by Bentham & Hooker and Engler & Prantl.

Diversity of Flowering Plants: Diagnostic features and economic importance of the following families: Ranunculaceae, Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae, Leguminosae, Apiaceae, Asclepiadaceae, Lamiaceae, Solanaceae, Asteraceae, Liliaceae and Poaceae.

PAPER-II PLANT EMBRYOLOGY

Max. Marks – 40+10*

Time- 3 Hrs.

Note: Attempt five questions in all, selecting two questions from each unit.

Question No. 1 is compulsory (short answer type).

Nine questions are to be set spread over the entire syllabus. All questions carry equal marks.

UNIT-I

Flower-a modified shoot; functions of various floral parts.

Microsporangium, its wall and dehiscence mechanism.

Microsporogenesis, pollen grains and its structure (pollen wall).

Pollen-pistil interaction; self incompatibility.

Pollination (types and agencies); pollen germination (microgametogenesis). Male garnetophyte.

UNIT-II

Structure of Megasporangium (ovule), its curvatures; Megasporogenesis and Megagametogenesis.

Female gametophyte (mono-, bi- and Tetrasporic).

Double fertilization.

Endosperm types and its biological importance.

Embryogenesis in Dicot and Monocot; polyembryony.

Structure of Dicot and Monocot seed.

Fruit types; dispersal mechanisms in fruits and seeds.

PAPER -III
PRACTICALS

Max. Marks- 80+20
Time- 6 Hrs. (2 Sessions)

Biology and Diversity of Seed Plants, Plant Anatomy and Plant Embryology

1. Describe/compare the given flowers A and B in semi-technical language giving V.S. of flowers, T.S. of ovaries, Floral Diagrams and Floral Formulae. Identify and assign them to their respective families giving reasons. 20
2. Identify, classify and write morphological notes on the given specimens C and D '(from Gymnosperms)

10

3. Cut Transverse Section and prepare a double-stained permanent mount of the given material (from angiosperms/gymnosperms). Identify giving reasons and show it to the examiner. 12
4. Identify, giving the important characters of identification, the spots 1 and 2 (one material/slide each from gymnosperms and embryology of angiosperms). 10
5. Write morphological notes on the specimens E and F (from angiosperms). 10
6. Dissect out the globular/heart-shaped embryo from the given material. 4
7. Note-book, Collection and Collection Report. 12
8. Viva-voce. 12