B. Sc. I (Sem II)
2S – BOTANY
Gymnosperm, Morphology of Angiosperms and Utilization of Plants

UNIT-I: Palaeobotany (15)

1.1. Process of plant fossilization and types of fossils
1.2. Geological Time Scale
1.3. Fossil Gymnosperms
1.3.1. Pteridospermales: Lyginopteris oldhamia
1.3.2. Bennettitales: Bennittites

UNIT-II: Gymnosperms (15)

2.1. Classification according to D. D. Pant
2.2. General account: morphology, anatomy, life cycle and taxonomic position of Pinus and Gnetum
2.3. Affinities with pteridophytes and angiosperms
2.4. Economic importance of Gymnosperms

UNIT-III: Morphology (15)

3.1. Diversity in Plants habits – Annual, biannual,perennials
3.2. Roots – Types of root: tap and adventitious,modification of root : for food storage, respiration, and supports.
3.3. Stem – Types of Stem, Characteristic features, branching, modification of Stem – Underground and aerial
3.4. Leaf – Parts of leaf, types of leaves – simple and compound; Phyllotaxy; Venation; Stipule. Modification of leaves

UNIT-IV: Morphology (15)

4.1. Inflorescences – Types: Racemose, Cymose and Special.

4.2. Flower – Flower as modified shoot; Structure of flower – Calyx, Corolla, Androecium and Gynoecium. Placentation; Types of Pollination.

UNIT-V: Morphology and Utilization of Plants (15)

5.1. Fruits – Morphological types

5.2. Utilization of Plants

5.2.1. Food Plants – Wheat, Potato – Morphology, varieties and economic Importance.

5.2.2. Fiber Plant – Morphology, varieties and economic importance of Cotton.

5.2.3. Oil yielding Plant – Morphology, Varieties and economic importance of Ground nut.

UNIT-VI:Utilization of Plants (15)

6.1. Spices–General account and economic importance of Black pepper, Clove, Cinnamon and Cardamom

6.2. General account and sources of firewood, timber and Bamboos.

6.3. Essential oils – General account, economic importance of Eucalyptus.

6.4. Pharmacognosy and Phytochemistry with respect to following medicinal plants –

6.4.1. Aloe vera

6.4.2. Adathoda vasica

6.4.3. Asparagus racemosa

6.4.4. Azadirachta indica

6.4.5. Catharanthus roseus

6.4.6. Chlorophytum borivillianum

6.4.7. Emblica officinalis

6.4.8. Ocimum sanctum
6.4.9. Rauwolfia serpentine
6.4.10. Vitex negundo
6.4.11. Withania somnifera

LABORATORY EXERCISE

I. Gymnosperms: Morphology and anatomy of the following members
a. ***Pinus***
b. Gnetum
II. Preparation of double stained permanent mount of
Pinus stem, needle and Gnetum stem and leaf.
III. Study of fossil slides of **Lyginopteris** and **Bennettites**
IV. Detailed morphological study of types of **root**, **stem** and **leaf** with its
Modifications
V. Forms of corolla
VI. Types of placentation
VII. Morphology of fruits
VIII. Morphology of plant parts used and medicinal plants prescribed in
Syllabi
IX. Utilization of plants: Spices, fiber yielding plants and food plants
Prescribed in syllabi

Semester – II
Practical Schedule
Time: 4 hours Marks: 50

Q1. Preparation of double stained permanent mount of given Gymnospermic material and identification with reasons **10**
Q2. Comments on given Morphological specimens **12**
i. Root
ii. Stem
iii. Leaf
iv. Inflorescence

v. Flower
vi. Fruit

Q3.Comment on given medicinal plant with reference to morphology, Part used and medicinal importance (Any two) **10**

Q4. Spotting (02 marks each) **08**

a) Palaeobotany
b) Gymnosperms
c) Utilization of Plant (food, fibers, spices) (2 Materials)

Q5. Practical record **5**

Q6. Viva voce and Excursion report **5**