

B. Sc. V Semester Botany

Code: BOT-501

Univ Code:

Contact Hours: 50 Hours

Workload: 3 hours per week

Credit Points:

Evaluation: Continuous Internal Assessment - 30 marks

Semester and Examination- 70 marks

Paper- 5.1 – Morphology, Taxonomy and Economic Botany

Unit 1: MORPHOLOGY: Vegetative Morphology

1. **Root:** General introduction including classification, Modifications for storage (fusiform, conical, napiform & fasciulated), support (epiphytic / aerial) & respiration (pneumatophores) floating and haustoria.
2. **Stem:** General introduction, including branching types, Modifications: Rhizome, stem tuber, bulb, corm, stolon, sucker, offset, phylloclade, thorn & tendril.
3. **Leaf:** General introduction, types (Simple & Compound), Phyllotaxy (Alternate, opposite & whorled) and stipules. Modifications: Phyllode, spines, tendrils, hooks. Insectivorous plant, pitcher plant, sundew plant & bladder-wort.
4. **Inflorescence:** General account of racemes & cymose including special cymes.
5. **Floral Morphology of Flower:** Complete account of flower
6. **Fruit:** General account including classification & Types of fruits
7. **Seed:** Structure of monocot & Dicot seed, germination of seeds. **18 Hrs**

Unit 2: TAXONOMY OF ANGIOSPERMS

1. Principles of classifications, Binomial nomenclature, species concept, systems of classification by Bentham & Hooker, AGP III and their merits and demerits.
2. Herbarium techniques, botanical gardens and Botanical Survey of India and its functions & Important herbaria of India.
3. Study of the following families with plants of economic importance (Bentham & Hooker's system to be followed).
4. **Dicots:** Anonaceae, Brassicaceae, Capparaceae, Malvaceae, Rutaceae, Anacardiaceae, Fabaceae (Caesalpinioideae, Mimosoideae & Fabioideae), Myrtaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Asteraceae, Apocynaceae, Solanaceae, Acanthaceae, Lamiaceae, Amaranthaceae and Euphorbiaceae.
5. **Monocots:** Liliaceae, Arecaceae, Orchidaceae & Poaceae. **18 Hrs**

Unit 3: ECONOMIC BOTANY:

1. **Food:** - Cereals, Millets & Pulses: Jower, Ragi, Wheat, Rice, Black gram & Bengal gram.
2. **Oils & Fats:** Ground nut, Coconut & Safflower
3. **Beverages :** Tea, Coffee
4. **Textile Fibres :** Cotton & Coir.
5. **Spices:** Clove
6. **Timber:** Teak & Rosewood
7. **Narcotic plants:** Tobacco.
8. **Medicinal Plants:** *Rauwolfia serpentine*, *Catharanthus rosea*, *Tylophora asthamatica*, *Artemisia nilagirica*, *Withania somnifera*. **04 Hrs**

Botanical Study tour of 3-7 days is compulsory.

Every student has to submit 10 herbarium sheets (plants from cultivated lands or college campus) and 15 plant based products at the time of examination.

Suggested Reference

1. Davis, P.H. and Heywood, V.H. 1963. Principles of Angiosperm Taxonomy. Oliver and Boyd, London.
2. Heywood, V.H. and Moore, D.M. (Eds.) 1984. Current concepts in Plant Taxonomy Academic Press, London.
3. Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge, London.
4. Jones, S.B. Jr. and Luchsinger, A.E. 1986. Plant Systematics (2nd edition). McGraw Hill Book Co., New York.
5. Radford, A.E. 1986. Fundamentals of Plant Systematics. Harper and Row, New York.
6. Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
7. Stace, C.A. 1989. Plant Taxonomy and Biosystematics (2nd edition). Edward Arnold, London.
8. Dutta, S.C. 1988. Systematic Botany. Wiley Eastern, New Delhi.
9. Jaques, H.E. 1999. Plant families – How to know them. IBS, New Delhi.
10. Lawrence, G.H.M. 1951. Taxonomy of vascular plants. MacMillan, New York.

B. Sc. Botany fifth semester Practical Syllabus Paper- V (5.1): Morphology, Taxonomy, Economic PRACTICAL- V: QUESTION PAPER MODEL

Time: 03 Hrs

Max Marks: 40

1. Identify the families A, B, C, and D with reasons.	12
2. Describe 'E' with technical terms & Draw floral diagram with floral formula	06
3. Write the morphological & Biological importance of F, G & H and I	08
4. Write the economic importance of J and K	04
Record	05
Herbarium	05
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Total Marks 40	

B.Sc. Botany FIFTH SEMESTER PRACTICAL - V (5.1) Morphology, Taxonomy, Economic Botany Scheme of Evaluation

Q-1. One each from Polypetalac (A), Gamopetalae (B), Monochlamydae (C), and Monocot (D) (Identification = 01 Marks, Salient characters = 02 Marks)	12
Q-2. E = Technical description= 03 Marks F= Floral Diagram & Floral Formula=03 Marks	06
Q-3. G= Root / Stem / Leaf Modifications =02 Marks H= Inflorescence = 02 Marks I Fruit = 02 Marks J Seed = 02 Marks	08
Q-4. One each from Monocot (K) & Dicot (L) Family and Botanical Name - 1 Parts used and Uses - 1	04
Record	05
Herbarium Submission (Ten plants from cultivated lands or college campus)	05
Total	40