B.Sc (CBCS) BOTANY- II YEAR
Semester-III - Paper-III
Taxonomy of Angiosperms and Medicinal Botany

DSC-1C (4 hrs./week) Theory syllabus

Credits-4
(60 hours)

UNIT - I

1. Introduction: Principles of plant systematics, Types of classification: Artificial, Natural and Phylogenetic; Systems of classification: Salient features and comparative account of Bentham & Hooker and Engler & Prantle. An introduction to Angiosperm Phylogeny Group (APG). (7h)
2.. Current concepts in Angiosperm Taxonomy: Embryology in relation to taxonomy, Cytotaxonomy, Chemotaxonomy and Numerical Taxonomy. (4 h)
3.. Nomenclature and Taxonomic resources: An introduction to ICBN, Vienna code - a brief account. Herbarium: Concept, techniques and applications. (4 h)

UNIT-II

4.. Systematic study and economic importance of plants belonging to the following families: Polypetalae : Annonaceae, Capparidaceae, Rutaceae, Fabaceae (Faboideae/papilionoideae, Caesalpinioideae, Mimosoideae), Cucurbitaceae
5. Gamopetalae: Apiaceae, Asteraceae, Asclepiadaceae, Lamiaceae
6. Monochalmydeae: Amaranthaceae, Euphorbiaceae, Monocotyledons: Orchidaceae and Poaceae. (15h)

UNIT - III

7.. Ethnomedicine: Scope, interdisciplinary nature, distinction of Ethnomedicine from Folklore medicine. (3h)
8. Outlines of Ayurveda, Sidda, Unani and Homeopathic systems of traditional medicine. Role of AYUSH, NMPB, CIMAP and CDRI. (5 h)
9.. Plants in primary health care: Common medicinal plants – Tippateega (*Tinospora cordifolia*), tulasi (*Ocimum sanctum*), pippallu (*Piper longum*), Karakaya (*Terminalia chebula*), Kalabanda (*Aloe vera*), Turmeric (*Curcuma longa*).
Evaluation of crude drugs. (7h)

UNIT-IV

10. Traditional medicine vs Modern medicine: Study of selected plant examples used in traditional medicine as resource (active principles, structure, usage and pharmacological action of modern medicine: Aswagandha (*Withania somnifera*), Sarpagandha (*Rauwolfia serpentina*), Nela usiri *(Phyllanthus amarus),* Amla (*Phyllanthus emblica*) and Brahmi (*Bacopa monnieri*). (8h)
11.Pharmacognosy: Introduction and scope. Adulteration of plant crude drugs and methods of identification - some examples. Indian Pharmacopoeia. (4h)
12. Plant crude drugs: Types, methods of collection, processing and storage practices. (3h)

References:

1. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and Reproduction in Flowering Plants. S. Chand & Company Ltd, New Delhi.
2. Rastogi, R. R. and B. N. Mehrotra. 1993. Compendium of Indian Medicinal Plants. Vol. I & Vol. II. CSIR, Publication and Information Directorate, New Delhi.
3. Sivarajan, V. V. and I. Balasubramaniyan. 1994. Ayurvedic Drugs and their Plant Sources. Oxford
4. and IBH, New Delhi.
5. Stace, C. A. 1989. Plant Taxonomy and Biostatistics (2nd Ed.). Edward Arnold, London.
6. Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
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9. London.
10. Heywood, V. H. 1965 . Plant Taxonomy. ELBS , London.
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12. Press, London.
13. Jain, S. K. and V. Mudgal. 1999. A Handbook of Ethnobotany. Bishen Singh Mahendra Pal Singh,
14. Dehradun.
15. Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge.
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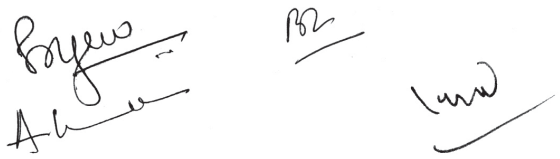

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Theory Model Question Paper

Time: 2 hrs **Max. Marks: 40**

Draw well-labeled diagrams wherever necessary.

1. Write short notes on any FOUR of the following: - **4 X 2 = 8M**

a. Artificial system of classification.

b. Floral structure of Cucurbitaceae .

c. Role of AYUSH and CIMAP.

d. Active principles of *Phyllanthus niruri*.

e. Herbarium

f. *Aloe vira*

II. Essay Questions:

4 X 8 = 32M

1 a. Discuss in detail the Bentham and Hooker's system of classification and add a note on its merits and de-merits .

(OR)

b. Write an account on Chemotaxonomy.

2 a. Write salient features of the sub-family Fabaceae with a note on its economic importance .

(OR)

b. Discuss in detail the important characters of Asteraceae family with a note on its advanced characters.

3 a. Discuss the outline of Ayurvedic system of medicine.

(OR)

b. Write in detail organicleptic evaluation of *Ocimum sanctum* and its medicinal importance .

4 a. Discuss the morphological aspects of *Rauwolfia serpentina* and Discuss its medicinal importance .

(OR)

b. Write an account on methods of collection, processing and storage practices associated with Crude drugs.

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Practical syllabus

(45 hours)

1. Systematic study of locally available plants belonging to the families prescribed in theory syllabus
   (Minimum of one plant representative for each family) (24h)
2. Demonstration of herbarium techniques. (3 h)
3. Identification,medicinal value & active principle present in the following plants : Tulasi (*Ocimum sanctum*), Karakaya (*Terminalia chebula*), Kalabanda (*Aloe vera*). (6 h)
4. Ethnomedicinal value/practice of the following plants :
   Aswagandha (*Withania somnifera*), Sarpagandha (*Rauwolfia serpentina*), Amla (*Phyllanthus emblica*) and
   Brahmi (*Bacopa monnieri*). (6h)
5. Pharmacognosy:
   Powder analysis : Pippalu (*Piper longam)*, Nela usiri (*Phyllanthus niruri*),
   Study of Organoleptic (sectional study) of the following:
   Tippateega (*Tinospora cordifolia*)and Turmeric (*Curcuma longa*). (6h)
6. Candidate have to submit at least 30 herbarium sheets

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Practical Model Paper

Time: 2 $^{1}/_{2}$ hrs **Max. Marks: 25**

1. Technical description of the given plant twig ' A ' 9M
2. Identify the given material ' B ' & write its medicinal properties **3M**
3. Identify the specimen ' C ' & write organoleptic evaluation 3M
4. Identify the given material D ' & discuss the ethno medicinal value of it. **3M**
5. Identify the given material ' E ' . Write the active principle and uses **3M**
6. Herbarium **2M**
7. Record **2M**