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M.Sc. BOTANY (SEMESTER I)
SEMESTER EXAMINATION JANUARY 2025

Paper Name: **Plant Diversity and Systematics of Angiosperms** Paper Code: **MBO-CC101**

Time: **2 ½ hours**

Maximum Marks: **60**

Note: This paper has 3 sections A, B, and C.

Section A: Answer all the questions.

Section B: Attempt any **4** Out of **6**. Section C: Attempt any **2** out of **3**.

Abbreviations used:

CLO-Course Learning Outcomes

CLO1: interpret the morphological, anatomical and reproductive features of algae, bryophytes, pteridophytes, gymnosperms and angiosperms (apply);

CLO 2: recognize the origin and evolution of plants and concept, components and aims of plant systematics (understand);

CLO 3: explain the taxonomic hierarchy, interpret the principles and rules of ICN in botanical nomenclature (understand/evaluate); and

CLO 4: classify and predict the relationship among the plants based on molecular data (understand and evaluate).

BLT-Bloom's Taxonomy Levels

1- Remembering, 2-Understanding, 3-Applying, 4-Analyzing, 5-Evaluating, 6-Creating

SECTION A

Very Short Type Question (15 questions)

15 x 1 = 15 marks

Q.No.	Question	Marks	CLO	BTL
1	Define stele.	1	1	1
2	What is the significance of elaters in bryophytes?	1	1	1
3	Botanical name of "Horsetail" plant is.....	1	1	1
4	Write any two ecological role of bryophytes.	1	1	1
5	First International Botanical Congress was held at Paris in the year	1	3	1
6	"Flora of Delhi" was authored by	1	2	1
7	Rearrange the hierarchy in descending order: Family, variety, sub-species, genus, order, forma, species.	1	3	3
8	Explain the author citation " <i>Cerasus cornuta</i> Wall. ex Royle"	1	3	2
9	Write down the alternate name of "Cruciferae".	1	3	1

Please turn over

10	Explain the term "monophyletic group" in the context of cladistic classification	1	4	1
11	APG stands for.....	1	4	1
12	What is meant by phenetics?	1	4	2
13	What is the significance of sequence alignment?	1	4	2
14	Define PhyloCode.	1	4	4
15	Name any one method used for evaluating the robustness of phylogenetic tree.	1	4	1

SECTION B

Short Type Question. (Attempt any **FOUR**)

4 x 5 = 20 marks

Q.No.	Question	Marks	CLO	BTL
1	What are land plants? What adaptations were useful in the colonization of land by early plants?	5	1	2
2	Give an outline classification of Bryophytes.	5	1	1
3	What is typification? Write brief note of nomenclatural type.	5	3	2
4	Differentiate between Pre-Darwinian and Post-Darwinian systems of classification.	5	3	4
5	Write a short note on Species Concept.	5	3	2
6	Explain the various steps involved in the DNA barcoding process.	5	4	2

SECTION C

Long type Question (Attempt any **TWO**)

2 x 12.5 = 25 marks

Q.No.	Question	Marks	CLO	BTL
1	Provide an overview of Bentham and Hooker's system of classification highlighting its advantages and disadvantages.	12.5	4	2
2	a) What are the key differences among nuclear, chloroplast, and mitochondrial genomes in plants?	2.5	4	2
	b) Explain gene or genetic regions (ANY TWO) from chloroplast and mitochondria employed in plant systematics.	5	4	3
	c) ITS is a highly suitable and powerful region for resolving plant taxonomic and phylogenetic problems. Explain.	5	4	5
3	Write down significant similarities and differences between a) Algae and Bryophytes b) Pteridophytes and gymnosperms	6.5+6	1	4

END OF QUESTION PAPER