

Department of Botany
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M.Sc. BOTANY
III SEMESTER EXAMINATION DECEMBER 2023

Paper Name: **Developmental and Structural Botany**

Paper Code: **MBO-CC301**

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 5 out of 6.

Section C: Attempt any 2 out of 3.

Instructions: An equal representation of each course outcome should be done in each section.

Abbreviations used:

CO-Course Outcomes

CO1: recognize the structure and development of male and female gametophytes, pollination, fertilization, embryogeny and seed (understand);

CO2: describe the origin and development of apical meristem; morphogenesis and organogenesis in plants (understand);

CO3: discuss origin, development, differentiation and periodicity of vascular cambium and predict the age of plants (understand/create); and

CL4: differentiate between gymnospermous and angiospermous secondary xylem and phloem (analyze).

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.	Questions	Marks	CO	BTL
	Give appropriate answer of the following:			
1	Double fertilization was reported by	1	1	1
2	An example of semi solid style is	1	1	1
3	Polyembryony can occur due to	1	1	2
4	The most accepted theory for root meristem is	1	2	1
5	An obturator is	1	1	2
	Differentiate between the following:			
6	Heartwood and sapwood	1	4	4
7	Porous and nonporous wood	1	4	4
8	Stories and non storied cambium	1	3	4
9	Anomocytic and anisocytic type of stomata	1	2	4
10	Uniseriate and multiseriate rays	1	3	4
11	Vessel and vessel elements	1	4	4
12	Phelloderm and phellem	1	4	4
13	Active and dormant vascular cambium	1	3	4
14	Simple and compound sieve plate	1	4	4
15	Components of angiospermous and gymnospermous xylem	1	4	4

SECTION B

Short Type Question. (Attempt any five out of six)

5 x 4 = 20 marks

Q.No.	Question	Marks	CO	BTL
1	P-protein	4	4	2
2	Tunica carpus theory	4	2	2
3	Types of arrangement of parenchymates cells in T.S. of xylem tissues	4	4	2
4	Formation of unequal quantities of xylem and phloem	4	3	2
5	The molecular model of sexual incompatibility in Brassicaceae	4	1	4
6	The ABC model of flower development	4	2	4

SECTION C

Long type Question (Attempt any two out of three)

2 x 12.5 = 25 marks

Q.No.	Question	Marks	CO	BTL
1	Starting from a cambial cell, explain with labelled sketches how a vessel and sieve cells formed ?	12.5	3	3
2	(a) If you could cut the section of wood (T.S., T.L.S. and R.L.S.) what would of fibre and ray structure look like in each plain ? (only illustration required)	6.25	4	4
	(b) With the help of a labelled sketch describe the T.S. of bark	6.25	4	4
3	(a) Explain briefly the factors that are important for pollen germination.	6.25	2	3
	(b) Discuss the leaf development in plants.	6.25	2	2