

Department of Botany
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B.Sc. (HONS WITH RESEARCH) / B.Sc. BOTANY
III SEMESTER EXAMINATION DECEMBER 2025

Paper Name: **Plant Anatomy and Embryology**

Paper Code: **BBO-DSC301**

Time: **2½ 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.

Abbreviations used:

CO-Course Outcomes

CLO 1: develop an understanding of concepts and fundamentals of plant anatomy and embryology (understand);

CLO 2: develop critical understanding of the evolution of the concept of organization of shoot and root apex (understand);

CLO 3: evaluate the adaptive and protective systems of plants (evaluate);

CLO 4: recall the history of reproductive biology of angiosperms (remember); and

CLO 5: recognize the importance of genetic and molecular aspects of flower development, pollination and fertilization (understand).

BTL-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
1	Name the meristem responsible for increase in root length.	1	1	1
2	What is sapwood?	1	1	2
3	Give one difference between monocot and dicot leaf venation.	1	1	4
4	Name the tissue present between xylem and phloem in dicot stems.	1	1	2
5	What is the main component of the cuticle?	1	3	1
6	Define trichomes.	1	3	1
7	Give one function of stomata.	1	3	2
8	What is suberin?	1	3	1
9	What is the function of the tapetum in anther development?	1	4	2
10	Name the most common type of ovule in angiosperms.	1	4	1
11	What is double fertilization?	1	4	1
12	Define pollen viability.	1	5	1
13	What is an embryo sac?	1	4	1
14	Name the structure that becomes the plumule in a dicot embryo.	1	4	2
15	Give one example of a plant showing polyembryony.	1	4	1

Please turn over

SECTION B

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

5 x 5 = 25 Marks

Q.No.	Question	Marks	CO	BTL
1	Explain adaptations in hydrophytes with suitable examples.	5	3	2
2	Differentiate between internal structure of dicot leaf and monocot leaf with suitable diagram.	5	1	3, 4
3	Explain the role of vascular cambium in secondary growth.	5	1	2
4	What is double fertilization? Explain briefly.	5	4	2
5	Differentiate between anatropous and orthotropous ovules.	5	4	4
6	Define pomixes and describe its types.	5	5	2

SECTION C

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

2 x 10 = 20 Marks

Q.No.	Question	Marks	CO	BTL
1	Describe and critically compare the apical cell theory, histogen theory, and tunica-corpor theory of the shoot apical meristem.	10	2	4,5
2	Explain the different types, mechanisms, and adaptations of pollination in angiosperms.	10	5	2
3	A. Differentiate between secretory ducts and laticifers. B. Describe the nuclear, cellular, and helobial types of endosperm.	10	3 1	4 2

END OF QUESTION PAPER