

Department of Botany
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B.Sc. (HONS) BOTANY
III SEMESTER EXAMINATION MARCH 2024

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.

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

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	The two gymnosperm plants having porous wood are, and	1	1	1
2	Sunken stomata is an adaptive feature of plants.	1	3	2
3	A bisexual flower which never opens in its life cycle is called	1	4	1
4	How many cells are there in a typical dicot embryo sac at the time of fertilization ?	1	5	2
5	Name the fusion product of polars and male gamete.	1	1	1
6	Parthenogenesis is the development of.....	1	1	1
7	Define anatropous ovule.	1	1	1
8	Give the name and function of the innermost layer of anther.	1	1	1
9	Which theory of shoot apical meristem is exclusively based on pattern of cell division and who proposed it?	1	2	2
10	Which root apical meristem is exclusively based on pattern of cell division and who proposed it?	1	2	2
11	Draw a diagram of anisocytic stomata.	1	3	3

12	Name any two families in which anomocytic type of stomata are predominantly present.	1	3	1
13	Albuminous cells are sister cells of sieve..... present in plants.	1	1	1
14	Companion cells are associated with sieve..... inplants.	1	1	2
15	Hard woods are called aswoods and soft woods as woods due presence or absence of vessels.	1	1	4

SECTION B

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

5 x 5 = 25 marks

Q.No.	Question	Marks	CO	BTL
1	Describe briefly the apical cell theory with a suitable diagram.	5	2	4
2	Describe briefly the sunken stomata with suitable diagram.	5	3	4
3	Describe briefly the cork cells and suberization.	5	3	4
4	Write a short note on double fertilization.	5	5	1
5	Describe Polygonum type of embryo sac.	5	5	4
6	Draw a well labelled diagram of TS of a mature anther.	5	5	4

SECTION C

Long type Question (Attempt any two out of three)

2 x 10 = 20 marks

Q.No.	Question	Marks	CO	BTL
1	Describe the hydrophytic adaptations in internal structure of any one plant with suitable diagram.	10	3	4
2	Describe with suitable diagrams, (a) storied and non storied cambium, and (b) procumbent and upright cells in rays.	10	1	2
3	Discuss different types of pollination.	10	5	5
