

MSc DEGREE EXAMINATION MAY 2026
(Second Semester)

Branch – BOTANY

PLANT ANATOMY & EMBRYOLOGY/ANATOMY AND EMBRYOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Name the living tissue that gives structural support to plants (i) Xylem (ii) Sclerenchyma (iii) Parenchyma (iv) Collenchyma	K1	CO1
	2	What is the main function of bulliform cells in monocot leaves? (i) Water conservation by leaf folding (ii) Photosynthesis (iii) Transport of nutrients (iv) Structural support	K2	CO1
2	3	Identify the cells that conduct water in secondary xylem (i) Parenchyma cells (ii) Tracheids (iii) Collenchyma cells (iv) Sclerenchyma cells	K1	CO2
	4	Which type of secondary growth is exhibited by <i>Mirabilis jalapa</i> ? (i) Intrusive secondary growth (ii) Diffuse secondary growth (iii) Normal secondary growth (iv) Anomalous secondary growth	K2	CO2
3	5	Name the cell of the pollen grain responsible for pollen tube formation (i) Generative cell (ii) Tube cell (iii) Microspore mother cell (iv) Synergid cell	K1	CO3
	6	Which of the following is a method used to overcome self-incompatibility in plants? (i) Bagging the flowers (ii) Bud pollination (iii) Cross-pollination with the same plant (iv) Avoiding pollination	K2	CO3
4	7	Which of the following describes megasporogenesis? (i) Formation of megaspores from a megasporocyte in the ovule (ii) Formation of male gametes in the anther (iii) Development of the pollen tube (iv) Fusion of male and female gametes	K1	CO4
	8	Which seed tissue provides food for the developing embryo? (i) Seed coat (ii) Pollen (iii) Endosperm (iv) Cotyledon	K2	CO4
5	9	Choose the major types of apomixis in plants (i) Microsporogenesis and megasporogenesis (ii) Self-pollination and cross-pollination (iii) Fertilization and double fertilization (iv) Gametophytic and sporophytic	K1	CO5
	10	What is the main benefit of parthenocarpy in fruit production? (i) Development of seedless fruits without fertilization (ii) Increased pollen production (iii) Enhanced seed germination (iv) Inhibition of fruit ripening	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the different types of Meristems and their functions in plants.	K3	CO1
		(OR)		
	11.b.	Describe the different types of nodal anatomy with suitable examples.		
2	12.a.	Illustrate the process of secondary growth in a dicot stem with a labeled diagram.	K4	CO2
		(OR)		
	12.b.	Analyze the anatomical adaptations of Orchid roots that aid their survival in the habitat.		
3	13.a.	Illustrate pollen–stigma interaction and explain its significance in fertilization.	K3	CO3
		(OR)		
	13.b.	Examine pollen morphology and explain its significance in plant reproduction.		
4	14.a.	Evaluate the different types of Ovules in plants with suitable diagrams.	K4	CO4
		(OR)		
	14.b.	Describe the different types of Endosperms and explain their functions.		
5	15.a.	Assess the different types of Polyembryony and discuss their significance in plants.	K5	CO5
		(OR)		
	15.b.	Explain the different mechanisms of seeds dispersal with suitable examples.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Describe the structure and functions of epidermal tissue system.	K3	CO1
2	17	Illustrate the anomalous secondary growth in <i>Nyctanthes arborescens</i> with a labeled diagram.	K3	CO2
3	18	Examine the structure and development of an anther and explain its significance in reproduction.	K4	CO3
4	19	Discuss the sequential stages of embryo development in angiosperms and explain their significance.	K4	CO4
5	20	Compare and critically analyze the similarities and differences between Apospory and Apogamy.	K5	CO5

Z-Z-Z

END