



**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)**

M.Sc. (Fourth Semester – Regular/ Supplementary) Examinations, April – 2026
24MPSPC24001 - Plant Anatomy & Embryology
(Life Science- Plant Science)

Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions

(The figures in the right-hand margin indicate marks)

PART – A**(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. What is the dermal tissue system?	CO1	K1
b. Define heterophyly.	CO5	K2
c. Explain epiphytes.	CO3	K3
d. Recall intine.	CO6	K3
e. Define aleurone layer.	CO4	K2

PART – B**(10 x 5 = 50 Marks)**Answer **ALL** the questions.

	Marks	CO #	Blooms Level
2. a. Outline plant tissue and classify it.	5	CO1	K2
b. Write on the organization of the vascular tissue system of a plant.	5	CO6	K1
(OR)			
c. Explain anomalous secondary growth with a suitable example.	5	CO5	K3
d. . Write on types and functions of mechanical tissues in plants.	5	CO4	K2
3. a. Give an account of the stages of leaf growth and differentiation.	5	CO2	K4
b. Write the anatomical differentiation of dorsiventral and isobilateral leaves	5	CO3	K2
(OR)			
c. Describe the types and functions of stomata.	5	CO6	K1
d. Explain the structure, classification, and functions of trichomes.	5	CO2	K2
4. a. Describe the anatomical adaptations of the <i>Hydrilla</i> stem for aquatic life.	5	CO3	K2
b. Write on the anatomy of a mesophytic leaf using <i>Tridax</i> as an example.	5	CO6	K3
(OR)			
c. Discuss structural adaptations of xerophytes to reduce water loss.	5	CO3	K4
d. Describe the anatomical and physiological adaptations of <i>Monotropa</i> .	5	CO3	K3
5. a. Explain microsporogenesis with the stages of pollen development.	5	CO3	K2
b. Explain nuclear behavior in tapetal cells and its significance in pollen development.	5	CO2	K3
(OR)			
c. . Describe the structure and types of ovules with diagrams.	5	CO6	K2
d. Give an account of the development of the female gametophyte.	5	CO2	K4
6. a. Describe the development and types of endosperms in angiosperms.	5	CO5	K2
b. Explain embryogeny in dicotyledons with suitable diagrams.	5	CO3	K3
(OR)			
c. Write on different types of polyembryony and their significance	5	CO5	K4
d. . Write the mechanism of self-incompatibility in flowering plants.	5	CO6	K2

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