QP Code: R253G055 | Reg. No | | | | | | | | | | | AY 24

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

M.Sc. (Third Semester – Regular) Examinations, December – 2025

24MLSPC23002 - Plant Physiology

(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 osmosis potential?	CO1	K2
b. What do you mean by essential nutrients?	CO2	K1
c. Mention two functions of the mitochondrial cristae.	CO3	K3
d. Name any two phytohormones involved in flowering.	CO3	K4
e. What are tropic movements? Give an example.	CO4	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Discuss the mechanism of ascent of sap.	5	CO1	K2
b. Discuss the factors affecting ascent of sap and evaluate the relative importance of each factor.	5	CO2	K1
(OR)			
c. Explain the structure and distribution of stomata.	5	CO1	K4
d. Write a note on antitranspirants and their types.		CO1	K2
3.a. Describe the role and deficiency symptoms of any three macronutrients.	5	CO2	K3
b. Discuss in detail the mechanisms of mineral uptake by roots.	5	CO2	K2
(OR)			
c. Describe hydroponic techniques and their applications in determining nutrient essentiality.	5	CO1	K3
d. Write a detailed note on ion antagonism and its physiological relevance.	5	CO3	K2
4.a. Explain in detail the stages of glycolysis.	5	CO3	K4
b. Explain the alternative pathways of electron transport in plants.	5	CO2	K2
(OR)			
c. Explain oxidative phosphorylation with reference to the chemiosmotic hypothesis.	5	CO4	K2
d. Explain the mechanism and significance of cyanide-resistant?	5	CO4	K3
5.a. Describe the mechanism of cyclic and non-cyclic electron flow during photosynthesis.	5	CO1	K1

b.	Explain the mechanism and significance of photorespiration.	5	CO3	K2
	(OR)			
c.	Explain the physiology of senescence and the role of hormones in regulating it.	5	CO3	K4
d.	Compare the C_3 and C_4 pathways in terms of anatomy and energy requirement.	5	CO3	K2
6.a.	Describe the mechanism of action of gibberellins.	5	CO4	K3
b.	Differentiate between tropic, nastic, and tactic movements with examples.	5	CO4	K1
	(OR)			
c.	Provide a detailed account of cytokinins, including their discovery and natural forms.	5	CO4	K2
d.	Explain in detail the ethylene biosynthesis pathway, its regulation and physiological effects.	5	CO4	K3

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