

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



M. Sc. (Ag.) (First Semester - Regular) Examinations, February-2026  
**PP 504 – Physiological and Molecular Responses of Plants to Abiotic Stresses**  
(Soil Science)

Time: 2 hrs

Maximum: 50 Marks

**Answer ALL questions**  
(The figures in the right hand margin indicate marks)

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

	CO #	Blooms Level
a. Explain Xerophytes.	CO1	K2
b. Turgor pressure is important in water stress. Justify?	CO2	K5
c. “DREB” Gene show strong genetic control of all stress, relate how?	CO2	K4
d. Heat stress triggers cellulose leakage, why?	CO3	K4
e. Evaluate the function of CAT?	CO3	K5

**PART – B****(6 x 5 = 30 Marks)**Answer ANY SIX questions

	CO #	Blooms Level
2. What is stress? Define the different type of stress?	CO1	K1
3. List out the symptoms appearing in plant under drought stress?	CO2	K1
4. Define transpiration efficiency, stomatal conductance, and mesophyll efficiency?	CO2	K1
5. Explain the effect of total carbon gain & decrease in photosynthetic area and function?	CO2	K2
6. What is ROS? How they contribute to Oxidative stress in plants?	CO3	K3
7. Discuss the damage mechanism caused by Heat stress caused in plant?	CO3	K2
8. Illustrate the signalling process of SOS pathway.	CO3	K4
9. Describe the approaches adopted in plants for tolerance towards Al-toxicity?	CO3	K1

**PART – C****(10 x 1 = 10 Marks)**Answer ANY ONE question

	CO #	Blooms Level
10. Explain how water potential helps in movement of water in the soil-plant-air continuum?	CO2	K1
11. Suggest the mechanism plants adopt to show tolerance under saline conditions?	CO3	K4
12. Differentiate between Freezing & chilling stress? Explain how freezing stress injure plant with its symptoms?	CO3	K4

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