**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27**

Registration Number:

Date & Session:7-12-2022 ( 9am)

**M.Sc. BOTANY – III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**BODE 9322 : ADVANCED PHYSIOLOGY**

**Time: 2 ½ Hours Max Marks: 70**

**This paper contains TWO printed pages and THREE parts**

**Draw diagrams and give examples wherever necessary**

1. **Answer ANY TEN of the following in 2-3 sentences each 2 × 10 = 20**
2. Pfr
3. TIR1/AFB
4. Freezing Injury
5. Phototropin
6. Phytoalexins
7. Calcium signature
8. Phosphodiesterase
9. Glycophytes
10. SAR
11. Name any two alkaloids and their role in plant defense
12. Osmolytes
13. Sesquiterpenes
14. **Write critical notes on ANY FIVE of the following 6 × 5 = 30**
15. Allelopathy and its significance
16. Role of phospholipids in plant signaling
17. Physiological functions of cryptochromes
18. Discuss the mechanism to overcome drought stress in plants
19. Biosynthesis of phenolics in plants
20. What is primary salinity? Mention any two methods by which plants tolerate salt stress
21. Define ROS. What are the enzymatic components of oxidative stress? Discuss briefly.
22. **Give a comprehensive account of ANY ONE of the following 10 × 2 = 20**
23. G-proteins and their role in plant signalling
24. Read the following excerpt and discuss the stress mechanism involved in the plant “…..Plant thermotolerance can be improved by various means; major being the mass screening and morphological and biochemical markers-assisted selection, identification, and mapping of QTLs conferring heat resistance, conventional and molecular breeding, and exogenous use of osmoprotectants and stress-signaling agents. Although pretty well understood, more research efforts are required to understand novel aspects of heat tolerance including molecular cloning and characterization of genes/proteins and

understanding the basis of growth improvements with seed pretreatments and plant acclimations. In this chapter, we discuss the plant responses to high temperature stress

and integrated approaches, such as genetics, breeding and management options to improve the resistance in plants against….”

Source: Responses and Management of \_\_\_\_\_\_\_\_Stress in Plants, Environmental Adaptations and Stress Tolerance of Plants in the Era of Climate Change, 2012., Abdul Wahid, Muhammad Farooq, Iqbal Hussain.”

1. Explain the steps involved in hypersensitive response and its significance