

Reg. No..... Name.....

M.SC DEGREE END SEMESTER EXAMINATION OCTOBER 2016
SEMESTER - 3: BOTANY

COURSE: P3BOTT10 - PLANT PHYSIOLOGY & PLANT BREEDING
Common for Regular (2015 Admission) & Supplementary / Improvement (2014 Admission)

Time: Three Hours

Max. Marks: 75

I. Answer *any eight* questions briefly; each question carries 2 marks

1. Differentiate between osmosis and facilitated diffusion
2. Explain how the architecture of the guard cell wall facilitates stomatal opening and closing
3. Define cation exchange capacity
4. What is calmodulin?
5. Explain the structure of nitrogenase complex.
6. Explain the role of gap junction in plants
7. Write an account on hydathodes
8. What are ABC transporters? Mention their role
9. What are Gamma gardens?
10. Write a note on Nernst Equation
11. Citing examples, differentiate between inter specific and inter generic crosses
12. Write an account on cyanide resistant respiration (2 x 8 = 16)

II. Answer *any seven* questions; each question carries 5 marks

13. Citing a suitable example explain circadian rhythm
14. With the help of a suitable example explain apoplast, symplast and transmembrane pathways
15. Write an account on glycolysis.
16. Elaborate on CAM pathway.
17. Write an account on photoprotective mechanisms. Add a note on photoprotective agents.
18. Explain the importance of mycorrhiza in plant life.
19. Elaborate on the three classes of membrane transport proteins ; channels, pumps and carriers.
20. Explain the importance of mutagens in plant breeding.
21. Write a note on the modern trends in plant breeding.
22. What is male sterility? Explain its significance in plant breeding. (5 x 7 = 35)

III. Answer *any two* questions; each question carries 12 marks

23. Explain how the coordinated action of PSI and PSII in non-cyclic electron transport causes the formation of ATP.
24. List out the stresses to which plants are generally exposed. Explain the effects of the various abiotic stresses on plants.
25. Which are the major classes of plant growth hormones? Add a note on their physiological effects.
26. Write an essay on the centers of origin of cultivated plants. (12 x 2 = 24)

