M.Sc DEGREE END SEMESTER EXAMINATION - OCTOBER 2022
SEMESTER 3 : BOTANY
COURSE : **16P3BOTT11 ; PLANT PHYSIOLOGY & METABOLISM**
(For Supplementary 2016/2017/2018/2019/2020 Admissions)

Time : Three Hours   Max. Marks: 75

PART A
Answer any 8 (2 marks each)

1. What is meant by hydraulic conductivity?
2. What is meant by Donnan equilibrium?
3. What are ionophores?
4. Why cytokinin is considered to be of agricultural importance?
5. Explain bacteroids.
6. What do you mean by thylakoid reactions?
7. Explain carbon dioxide compensation point.
8. Define gluconeogenesis.
9. Explain terminal oxidation.
10. Briefly describe the heat shock proteins (HSPs) and its significance.
11. Explain the role of turgor pressure in phloem unloading.
12. With which physiological process the name 'Munch' is associated and how?

(2 x 8 = 16)

PART B
Answer any 7 (5 marks each)

13. Explain the significance of diffusion and osmosis in the context of plant water relation.
14. Explain how the polar structure of water is significant in plant water relations.
15. Write an account on the physiological actions of ABA.
16. Give an account on nitrate assimilation.
17. Explain the adaptive features of CAM plants.
18. How sucrose act as signal molecule in starch formation and degradation?
19. Give an account on the physiological significance of cyanide resistant pathway.
20. Write a critical account on physiology of flowering.
21. How high temperature stress become deleterious to plants?
22. Describe the classification of mineral nutrients based on biological function.

(5 x 7 = 35)

PART C
Answer any 2 (12 marks each)

23. Give an account on water movement from the leaf to the atmosphere with special mention of pathway resistances.
24. Write an essay on active transport of ions, solutes and macromolecules in plants.
25. Explain the polar transport of auxin with suitable illustrations.
26. Describe the mechanism of aerobic respiration in plants. How the reduced acceptors regenerated and how many molecules of ATP are formed from a glucose molecule when completely oxidised.

(12 x 2 = 24)