

**MSc DEGREE END SEMESTER EXAMINATION - OCTOBER 2024****SEMESTER 3 : BOTANY****COURSE : 21P3BOTT11 : PLANT PHYSIOLOGY AND METABOLISM***(For Regular 2023 Admission and /Supplementary 2022/2021 Admissions)*

Duration : Three Hours

Max. Weights: 30

**PART A****Answer any 8 questions****Weight: 1**

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|---|------|
| 1. Define (a) Flux density (b) Diffusion coefficient (Ds)                         | ( )  |
| 2. Define and explain turgor pressure.  | ( )  |
| 3. What do you mean by TCA cycle? Explain its importance.                         | (U)  |
| 4. Give an account on photorespiration.   | (An) |
| 5. Explain Q cycle. Give its significance.  | (A)  |
| 6. What do you mean by cation exchange of mineral nutrients?                      | ( )  |
| 7. Name any steroid hormone and state its functions.                              | (An) |
| 8. Briefly explain transmembrane proteins and its major classes.                  | ( )  |
| 9. Explain Cyanide insensitive respiration.                                       | (A)  |
| 10. Briefly describe the nitrogen fixation by free living and symbiotic bacteria. | ( )  |
- (1 x 8 = 8)**

**PART B****Answer any 6 questions****Weights: 2**

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| 11. Briefly explain the formation of sucrose in plants.                              | (R) |
| 12. Write short note on phloem transport.  | (U) |
| 13. Give an account on ATPase pumps and its types.                                   | ( ) |
| 14. Describe nodule formation in legumes.  | ( ) |
| 15. Give an account on the factors that affect the rate of photosynthesis in plants. | (E) |
| 16. How heavy metals become a stress factor in plants?                               | ( ) |
| 17. Compare mitochondrial and chloroplast ATP synthesis.                             | (E) |
| 18. Give an account on the physiological actions of auxin.                           | (R) |
- (2 x 6 = 12)**

**PART C****Answer any 2 questions****Weights: 5**

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|---|-----|
| 19. Give an account on water movement from the leaf to the atmosphere with special mention of pathway resistances.  | ( ) |
| 20. What are Gibberellins? Give an account on its biosynthetic pathway along with its functions in plants.  | (U) |
| 21. Describe the mechanism of aerobic respiration in plants. How are the reduced acceptors regenerated and how many molecules of ATP are formed from a glucose molecule when completely oxidised? | (U) |
| 22. Explain the factors controlling translocation and assimilate partitioning in higher plants.   | ( ) |
- (5 x 2 = 10)**

**OBE: Questions to Course Outcome Mapping**

CO	Course Outcome Description	CL	Questions	Total Wt.
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Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;