TM242595O

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2024

2023 ADMISSIONS REGULAR

SEMESTER II - CORE COURSE BOTANY

BO2C07TM20 - Plant Physiology and Biochemistry

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. What are the soil characteristics that influence nutrient availability to plants?
2. Explain the significance of the structure of chloroplast in light harvesting.
3. Discuss the role of light in photosynthesis based on Emerson's experiment.
4. What is cellular respiration? Which are the organelles involved in respiration in aerobes and summarize the process in a formula.
5. Mitochondria is the power house of the cell. Justify the statement.
6. Discuss the significance of leg-hemoglobin in leguminous plants.
7. Write a short note on nitrate and ammonia assimilation.
8. Explain buffer capacity.
9. Explain the hierarchical structural levels of protein.
10. Describe the kinetic equation of enzyme action.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Give an account on the K+ ion channels in plants.
12. What are aquaporins? Discuss its structure and functions.
13. Discuss the Glycolate pathway and its significance.
14. Give a comparative account on photophosphorylation and oxidative phosphorylation.
15. What is alternate oxidase? What is its significance in plants?
16. Describe the structure of the phytochrome and their role in governing flowering.
17. Write a short account on Ramachandran plot.
18. Explain the mechanism of enzyme action. Add a note on theories of enzyme action.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Give an account on the mechanism of stomatal opening and closure. Explain the theories regarding movement of guard cells.
20. What is photophosphorylation? Discuss the events involved in this process during photosynthesis.
21. 'The presence of plant growth regulators is crucial for the overall development of the plant'. Substantiate with examples.
22. Write an essay on accurate measurement of pH using pH meter. Add an elaborate note on electrodes.