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B.Sc./6th Sem (H)/BOT/23(CBCS)

2023

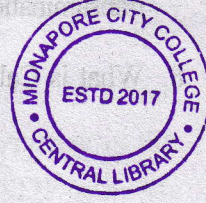
6th Semester Examination

BOTANY (Honours)

Paper : C 13-T

[Plant Metabolism]

[CBCS]



Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers  
in their own words as far as practicable.*

**Group - A**

Answer any *five* questions.  $2 \times 5 = 10$

1. Mention the role of leghaemoglobin in biological nitrogen fixation.
2. What is the significance of absorption spectrum of chlorophylls in photosynthesis?
3. What is meant by red drop phenomenon?
4. What is the purpose of the NADH shuttle in mitochondrial respiration?
5. Comment on the dual activity of Rubisco.

P.T.O.



( 2 )

6. Define  $\alpha$ -oxidation and explain its significance in fatty acid metabolism.

7. What is the difference between ammonia assimilation and transamination?

8. What is Calmodulin? Mention its role.

**Group - B**

Answer any *four* questions.  $5 \times 4 = 20$

9. Describe the role of isozymes in metabolic regulation. How do they differ from allosteric and covalently regulated enzymes? 5

10. What is Q cycle and what is its role in photosynthetic electron transport? 4+1

11. Discuss about the structure of nitrogen coenzyme complex. Give examples of two symbiotic  $N_2$ -fixing bacteria. 4+1

12. Mention the role of G-protein in signal transduction. 5

13. Describe the function of glutamate dehydrogenase in the catabolism of amino acids. 5

14. Explain the role of MAP kinase cascade in cell signalling. 5

( 3 )

**Group - C**

Answer any *one* question.  $10 \times 1 = 10$

15. Describe with diagram the mitochondrial electron transport system. What is proton motive force? 6+4

16. Describe the pathway for sucrose synthesis in plants. What is the role of sucrose phosphate synthase in this pathway? What is the role of ADP-glucose pyrophosphorylase in starch synthesis?  $5 + 2\frac{1}{2} + 2\frac{1}{2}$