B.Sc./6th Sem (H)/BOTA/24(CBCS)

2024

6th Semester Examination

BOTANY (Honours)

Paper : C 13-T

[Plant Metabolism]

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[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 from the following : 2×5=10

1. What is the role of Chlorophyll in photosynthesis?
2. Define photophosphorylation.
3. What is the function of NADH in glycolysis?
4. What is 'Substrate level phosphorylation'?
5. Define anabolic and catabolic pathways in metabolism.
6. What are Isozymes? Give two examples.

P.T.O.

7. Briefly explain the synthesis of starch in plants.

8. Name two enzymes involved in CO_2 fixation in CAM plants.

Group - B

Answer any ***four*** questions from the following : 5×4=20

9. Outline the receptor-ligand interactions involved in plant signal transduction. 5

10. Explain the biochemical pathways involved in nitrate assimilation in plants. How is nitrate converted to ammonium? 3+2

11. Discuss the synthesis and break down of triglycerides in plants. Name two enzymes involved in the process. 3+2

12. Explain the role of antenna molecules and reaction centers in the process of photosynthesis. What is the full form of RuBisCO? 4+1

13. Describe the process of biological nitrogen fixation in legumes. What are the role do symbiotic bacteria play in this process? Name a non-leguminous plant which have nodule.p 2+2+1

14. Describe the role of Calcium Calmodulin in plant signal transduction. How does it regulate physiological processes? 3+2

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Group - C

Answer any ***one*** question from the following : 10×1=10

15. Explain the Chemiosmotic theory of ATP Synthesis. Discuss the role of ATP Synthase and significance of experiments by Racker and Jagendorf in understanding this process. 3+(2+2½+2½)

16. Write down the key differences between C3 and C4 plants. In the light of chemiosmotic model describe the mechanism of ATP synthesis in chloroplasts. 5+5

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