

U.G. 6th Semester Examination - 2026**BOTANY****[MAJOR-IX]****Course Code : BOT-MJ-CC-T-09****(Plant Metabolism)****[NEP-2020]**

Full Marks : 40

Time : 2½ Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions from the following:

2×5=10

- a) Differentiate between Coenzymes and Cofactors.
- b) What is the function of G protein?
- c) "Citric acid cycle in an amphibolic pathway" – Justify.
- d) What is PUFA? Cite an example.
- e) What is Denitrification? Name one denitrifying bacteria.
- f) What is substrate level phosphorylation?
- g) What are the factors affecting respiration?
- h) What is transamination reaction? Cite an example.

[Turn Over]

2. Answer any two questions from the following:

5×2=10

- a) Give an account of Gluconeogenesis in germinating seeds?
- b) How antenna complexes funnel energy to the Reaction Center.
- c) Briefly write about Crassulacean acid metabolism.
- d) Explain the role of regulatory enzymes in control of metabolism.

3. Answer any two questions from the following:

10×2=20

- a) Explain the mechanism of biological nitrogen fixation through symbiotic association. Write down the factors controlling the process.

7+3=10

- b) "A reductant and an oxidant are formed during photosynthesis" – Explain. Relate the Red Drop effect to the Enhancement effect. Why is the oxygenation of ribulose biphosphate a costly side-reaction?

4+2+4=10

- c) Discuss the steps involved in complete oxidation of pyruvic acid in the presence of oxygen.

10

- d) What is CAM idiling? Describe the process of CO₂ fixation in C₄ plant. What is Kranz anatomy?

2+6+2=10