

April 2025
B.A./B.Sc.
Sixth Semester
CORE – 13
BOTANY
Course Code: BOC 6.11
(Plant Metabolism)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

Answer five questions, taking one from each unit.

UNIT-I

1. Define metabolism. Differentiate between anabolic and catabolic reactions. Discuss on the functions and regulations of metabolism. 2+4+4+4=14
2. What is sucrose made of? Discuss on the synthesis of sucrose with the help of flow chart. 2+8+4=14

UNIT-II

3. Why is sugarcane known as a C₄ plant? Discuss on the C₄ cycle with the help of a flow chart. 2+8+4=14
4. Write notes on the following: 7×2=14
 - (a) Role of photosynthetic pigments
 - (b) Photochemical reaction

UNIT-III

5. What is glycolysis? Where does it occur? Explain the glycolytic pathways with the help of flow chart. 2+2+4+6=14
6. Give the full form of NAD. Explain the malate-aspartate shuttle system for transferring NADH to the matrix of mitochondria with the help of flow chart. 2+6+6=14

UNIT-IV

7. Define gluconeogenesis. Explain the glyoxylate pathway with the help of schematic illustration. 2+12=14
8. Write notes on the following: 7×2=14
- (a) Substrate level phosphorylation
 - (b) Boyer's conformational model

UNIT-V

9. Define the term nutrition. Give an account of total and partial stem and root parasitic angiospermic plants with examples. 2+12=14
10. Write notes on the following: 7×2=14
- (a) Nitrate assimilation
 - (b) Ammonia assimilation
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