

**2022**  
**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. What is an enzyme? Briefly describe the role of allosteric, covalent modulation, and isozyme in the metabolic pathways. Support your answer with an example. 1+9+4=14
2. Explain the synthesis of starch with the help of flow chart. 10+4=14

**UNIT-II**

3. Define the photosystem. Briefly explain the components of photosystem-I and photosystem-II. 2+12=14
4. What are C<sub>4</sub> plants? Explain the pathways of the C<sub>4</sub> cycle with the help of a flow chart. 2+9+3=14

**UNIT-III**

5. Explain the amphibolic and anaplerotic role of Krebs cycle. 7+7=14
6. Explain the mitochondrial electron transport chain. 14

## UNIT-IV

7. Explain the process of chemiosmotic mechanism of ATP synthesis with reference to oxidative phosphorylation. 14
8. Write notes on the following: 7×2=14
- (a) Uncouplers and their role
  - (b) Structure of ATP synthase

## UNIT-V

9. Define gluconeogenesis. Explain the process of gluconeogenesis and add a note on its role during seed germination. 2+9+3=14
10. Write notes on the following: 7×2=14
- (a) Nitrate assimilation
  - (b) Biological nitrogen fixation
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