

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7
- (a) Name the type of the metabolic pathway which is involved in the synthesis of compounds in plant bodies. 3+7=10
 - (b) What is the first stable product in the C4 pathway? 4+6=10
 - (c) Which of the given lights are strongly absorbed by plants?
(i) Indigo and Yellow 3+7=10

- (ii) Yellow and Violet
- (iii) Blue and Red
- (iv) Orange and Violet

- (d) Name the enzyme which catalyses the conversion of N_2 into ammonia during the biological N_2 fixing process. 3+7=10
- (e) Name one simple lipid. 4+6=10
- (f) Which enzyme is required for the synthesis of ATP? 3+7=10
- (g) The end product of glycolysis under anaerobic conditions is _____ (Fill in the blank) 4+6=10

2. Answer the following questions shortly : 2×4=8

- (a) Write the roles of PS-II during photosynthesis. 3+7=10
- (b) Write a note on ATP as high energy molecule. 4+6=10
- (c) Define aerobic respiration. 3+7=10
- (d) Distinguish between RuBP and RuBisCO. 4+6=10

3. Answer the following questions briefly : (any three) 5×3=15

- (a) Explain Glycolysis. State its end products. In both aerobic and anaerobic respiration, determine the fate of these products. 5+3=15
- (b) Discuss the key events and outcomes of the light reaction of photosynthesis. 5+3=15
- (c) Discuss different types of nitrogen-fixing bacteria and their symbiotic relationships with plants. 5+3=15
- (d) Explain the mechanisms of enzyme inhibition with suitable example. 5+3=15
- (e) What is meant by the term 'signal transduction'? What are some of the steps by which signal transduction can occur? 5+3=15

4. Answer the following questions as instructed : (any three) 10×3=30

- (a) Explain how the irreversible reaction catalysed by the pyruvate dehydrogenase complex leads to the entry of acetyl-CoA into the TCA cycle. Why cannot acetyl-CoA be used as a substrate for gluconeogenesis? 10+3=30