6 SEM TDC BOTH (CBCS) C 13

2024

(May)

BOTANY

(Core)

Paper : C–13

(Plant Metabolism)

Full Marks : 53
Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. *(a)* Choose the correct answer : 1×3=3

(i) In chloroplast, light reaction occurs in stroma / inner membrane / cristae / thylakoid disc.

(ii) The number of ATPs produced by $NADH + H^+$ from glycolysis through malate-aspartate shuttle in electron transport system is two / three / four / five.

(iii) Receptors are primary effectors / secondary messengers / ligands / signal transducers.

(b) Fill in the blanks : 1×2=2

(i) In chlorophyll b, instead of a methyl group, an _____ group is present.

(ii) Triglycerides are hydrolyzed by lipases into fatty acids and _____.

2. Write short notes on any *three* of the following : 4×3=12

(a) Allosteric modulation

(b) CAM cycle

(c) Boyer's conformational model

(d) Transamination

(e) MAP kinase cascade

3. Write explanatory notes on any *two* of the following : 6×2=12

(a) Glycolysis

(b) Synthesis and degradation of sucrose

(c) Gluconeogenesis

(d) Mitochondrial electron transport system

(e) Q cycle

4. What is dark reaction in photosynthesis? Describe the mechanism of dark reaction in C_3 plants. 2+10=12

Or

Differentiate between anabolism and catabolism. Explain the pathways of anabolism and catabolism. How can the pathways be regulated? 2+8+2=12

5. Describe schematically the pentose phosphate pathway of glucose oxidation. What is its significance? 9+3=12

Or

Define nitrogen fixation. Describe the biological methods of nitrogen fixation. 2+10=12

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