Total No. of Printed Pages—3

6 SEM TDC BOTH (CBCS) C 13

2022

(June/July)

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 photosynthesis, oxygen is liberated due to

(1) reduction of CO_2

(2) photolysis of water

(3) hydrolysis of carbohydrate

(4) breakdown of chlorophyll

(ii) In root nodule of legumes, leg hemoglobin is found in

(1) bacteroids

(2) cytosol of infected nodule cell

(3) cytosol of uninfected nodule cell

(4) All of the above

(iii) The net gain of ATP molecules in glycolysis is

(1) 0

(2) 2

(3) 4

(4) 8

(b) Fill in the blanks : 1×2=2

(i) All photosynthetic pigments except chlorophyll-a are called _____.

(ii) The process of conversion of ammonia into nitrate is called _____.

2. Write short notes on the following : 4×3=12

(a) Covalent modulation

(b) Photosynthetic pigments

(c) Factors affecting respiration

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

(a) β-oxidation of fatty acids

(b) Chemiosmotic mechanism of ATP synthesis

(c) Synthesis and degradation of sucrose

(d) Plant cell signal transduction

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

Or

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

5. What are the chief sources of nitrogen for higher plants? Describe the mechanism of nitrogen fixation by free living and symbiotic bacteria. Explain the ecological significance of this process. 2+7+3=12

Or

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

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