

[35/A42]

SARDAR PATEL UNIVERSITY
T. Y. B.Sc. Biochemistry (SEMESTER - VI)
BIOCHEMISTRY: US06CBCH02
PLANT BIOCHEMISTRY

Date: 28/03/18 (Wednesday)

Time: 10:00 AM to 01:00 PM

TOTAL MARKS: 70

Q.1 Multiple Choice Questions : (1 Mark each)

10

1. Loss of water from stomata of leaves are known as
 - a. Guttation
 - b. Evaporation
 - c. Transpiration
 - d. None of Above
2. Plant cell wall is made of
 - a. Cellulose, hemicelluloses and pectin
 - b. Cellulose and chitin
 - c. Cellulose, hemicelluloses
 - d. Cellulose only
3. The following plant cell is responsible for opening and closing of stomata
 - a. Cork cell
 - b. Mesopyll cell
 - c. Guard cell
 - d. Parenchymal cell
4. Which of the following amino acid is precursor for biosynthesis of phenolic compound?
 - a. Tyrosine
 - b. Phenylalanine
 - c. Tryptophan
 - d. Glycin
5. Mutant of *Arabidopsis* which cause defects in _____ enzyme, are not able to synthesize flavones.
 - a. Chalcone synthase
 - b. A and B both
 - c. Chalcone Isomerase
 - d. None of Above
6. Which reaction in photosynthesis is carried out by 'Rubisco' or ribulose 1- 5 bisphosphate carboxylase?
 - a. Conversion of 3 phosphoglycerate into glyceraldehyde 3 phosphate.
 - b. Utilisation of CO₂ to produce 3 phosphoglycerate.
 - c. Carboxylation of phosphoenol pyruvate to oxaloacetate.
 - d. Conversion of glyceraldehyde 3 phosphate into ribulose 5 phosphate
7. Production of one molecule of 3-phosphoglyceraldehyde requires how many turns of the Calvin cycle?
 - a. 1
 - b. 2
 - b. 3
 - d. 4
8. High concentration of ethylene is present in
 - a. Young Leaves
 - b. Meristamatic region
 - c. Ripening fruits
 - d. buds
9. The hormone which promote apical dominance is:
 - a. Gibberellins
 - b. Auxins
 - b. Ethane
 - d. Cytokinins
10. What is the first detectable molecule in the Calvin cycle after carbon dioxide fixation?
 - a. PGA
 - b. RuBP
 - b. Glucose
 - d. None of Above

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(P.T.O.)

Q.2 Answer in very short (Any Ten)

20

1. Differentiate between Transpiration and guttation.
2. Write down the physiological function of plasmodesmata.
3. How are the phenomena of diffusion involved in the water relations of plants?
4. Write down the biochemical composition of primary cell wall.
5. How are suberin different from cutin & waxes?
6. What are phytoalexins?
7. Explain the cyclic electron flow of photosynthesis.
8. Ribulose 1, 5 biphosphate is regenerated in Calvin cycle. Why?
9. Differentiate C3 and C4 plants.
10. What are secondary metabolites? Explain their significance in plants.
11. Give an account on : SAR
12. Explain the physiological role of ABA.

- Q.3 a) Describe in detail about plant cell wall and middle lamella. [5]
b) Explain various factors affecting transpiration. [5]

OR

- Q.3 a) With suitable example or illustration explain the cohesion theory of ascent of sap in plants. [5]
a) How absorption play an important role in plant? [5]

- Q.4 a) Write a brief account on role of tannin in plant defence. [5]
b) Write an explanatory note on :- Cutin & suberin [5]

OR

- Q.4 a) Explain the following : Function of phenolics in plants [5]
b) Describe the pathway for terpenes biosynthesis and its mechanism as plant defence system. [5]

- Q.5 a) What is reductive pentose phosphate cycle? Describe the three basic stages of Calvin cycle in detail. [5]
b) Explain the organization of chloroplast and its function in details. [5]

OR

- Q.5 Write a note on: a) Photosynthetic pathway of C4 cycle. [5]
b) Structure and function of photosystem- I in Photosynthesis [5]

- Q.6 Define the term plant hormone. Give the role of gibberellins and explain its synthesis in plants. [10]

OR

- Q.6 Explain the IAA biosynthetic pathway and write down the three major biological role of auxin in plants. [10]

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