

SEAT NO. _____

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[92/95/105]

SARDAR PATEL UNIVERSITY
M.Sc. (III-SEMESTER) Examination (CBCS)
M.Sc. Biochemistry/Biotechnology/Microbiology
PS03EBIC214 PS03EBIT214 PS03EMIC214 PLANT BIOCHEMISTRY

Date: 05/01/2021, Tuesday
TIME: 02:00 PM-04:00PM

TOTAL MARK 70

1.(A) Choose the correct answer.

(1x8=8)

- i. Passive, directional movement of molecules is part of the process called _____
(a) free energy (b) Brownian movement (c) diffusion (d) lysis
- ii. The membrane around the vacuole is known as
(a) Tonoplast (b) Elaioplast (c) Cytoplast (d) Amyloplast
- iii. The quantum yield of oxygen evolution during photosynthesis drastically drops in far red light. This effect is known as
(a) Far red drop (b) Red drop (c) Blue drop (d) Visible spectrum drop
- iv. Hatch-Slack cycle takes place in
(a) Mesophyll (b) Bundle sheath (c) Both a and b (d) none
- v. Nitrite reductase is present in
(a) Cytoplasm (b) Leucoplast (c) Chloroplast (d) Both b and c
- vi. Bolting of rosette plants is caused by
(a) Auxin (b) Cytokinin (c) Gibberellins (d) Ethylene
- vii. Which one of the following is not a phenolic compound?
(a) Flavonoids (b) Anthocyanins (c) Lignin (d) Cocaine
- viii. Canavanine is an analog of
(a) Arginine (b) Proline (c) Glycine (d) None

1. (B) Do as directed

(16)

- i. The middle lamella is a layer which cements the cell walls of two adjoining plant cells together. True/False
- ii. Meristematic cells will have large vacuoles. True/False
- iii. Guttation happens through _____.
- iv. Transpiration is known as 'necessary evil'. True/False
- v. Chlorophyll pigments have one porphyrin ring and a _____ 'tail'.
- vi. In some plants leaves are purple due to the presence anthocyanins. True/False
- vii. Kranz anatomy is associated with C₃ plants. True/False
- viii. 'Rubisco' is the first enzyme in Calvin-Benson cycle. True/False
- ix. To take up one nitrate from soil, plant spends two ATPs. True/False
- x. In chloroplast NADPH is used as reducing agent for ammonia synthesis. True/False
- xi. The host plants signals its readiness to form nodules by excreting several _____ as signal compounds.
- xii. Homocitrate is a component in the cofactor of nitrogenase. True/false
- xiii. Casparian strip of root endodermis is formed of _____.
- xiv. Glucosinolates are present in Brassicaceae. True/False
- xv. Artemisinin is a sesquiterpenoid used as _____ drug.
- xvi. Condensed tannins are made up of _____.

[1]

[P.T.O.]

2. Attempt any seven

(14)

- a. Why plasma membrane is called semipermeable membrane?
- b. Comment upon the importance of water in plant life.
- c. Why photorespiration almost negligible in C4 plants?
- d. What is meant by cyclic photophosphorylation?
- e. List factors which activate nitrate reductase gene.
- f. What is the function of leghemoglobin?
- g. What are cyanogenic glycosides?
- h. Define 'systemic acquired resistance'.
- i. What is cutin?

3. Define: water potential and explain three major factors influencing water potential of cell?

(08)

OR

3. Write an account on plant cell wall.

(08)

4. Give an account of the mechanism of CO₂ fixation, explain major steps and the end products in photosynthesis.

(08)

OR

4. Explain the structural feature of chloroplast support the light reaction and describe the role of PS-I and PS-II in the light reaction of photosynthesis. (08)

5. Briefly explain the process of biological nitrogen fixation.

(08)

OR

5. Explain the transport and mode of action of auxins.

(08)

6. Write an account on synthesis of phenolic compounds.

(08)

OR

6. What are terpenes? Explain their role in plant defense.

(08)

————— X —————