

SARDAR PATEL UNIVERSITY**M.Sc.(Integrated) Biotechnology****Tuesday, 11th December****10:30 a.m. to 1:30p.m.****PS05CIGB06-(Plant Physiology)****Total Marks: 70**

Note:

- (1) Attempt all the questions (including multiple choice questions) which is to be written in the provided answer book only.
- (2) Draw neat and labeled diagrams wherever necessary.

Q.I Multiple choice questions: (08)

1. The diffusion of solvent molecules into the solution through semi-permeable membrane is called as-----
 (a) Imbibition (c) Osmosis
 (b) Diffusion (d) None of these
2. In plants, transpiration plays an important role in-----
 (a) Ascent of sap (c) Translocation of mineral salts
 (b) Regulation of temperature (d) All of these
3. Accessory pigments absorb and transfer light energy to-----
 (a) Chlotophyll-b (c) Pheophytin
 (b) Chlotophyll-c (d) Chlorophyll-a
4. Which of the following does not occur in cyclic electron transport-----
 (a) Photolysis of water (c) O₂ evolution
 (b) Formation of reduced NADPH (d) All of these
5. Which of the following phytohormones was discovered first-----
 (a) Gibberellin (c) Cytokinin
 (b) Auxin (d) Ethylene
6. Vernalization is an -----
 (a) Anerobic process (c) Aerobic process
 (b) Anerobic & aerobic process (d) None of the above
7. Which of the following is a chill tolerant plant,-----
 (a) Croton (c) Diffenbachia
 (b) Arabidopsis (d) None of the above
8. Movements of curvature which occur in response to external stimulus are called-----
 (a) Autonomous (c) Hygroscopic
 (b) Paratonic (d) All of these

Q.II Answer the following (Any seven) (14)

1. Write physical properties of water.
2. Write difference between osmosis and diffusion.
3. Define Photosynthesis. Write its importance in plants.

4. Write about Red drop and Emersons enhancement effect.
5. Define the following abbreviations with their functions (i) IAA (ii) ABA.
6. Differentiate between Photoperiodism and Vernalization.
7. Write importance of Vernalization in plants.
8. Write any three ways through which plants achieved desiccation avoidance.
9. Differentiate between Tropic movement and Nastic movement.
- Q.III** (a) Define Transpiration.Explain mechanism of stomatal transpiration. (06)
- (b) Write short note on Ascent of sap. (06)
- OR**
- (b) Write mechanism of mineral salt absorption in plants. (06)
- Q.IV** (a) What are C₃ plants? Describe in detail Calvin cycle. (06)
- (b) What is phosphorylation? Give an account on non-cyclic photophosphorylation. (06)
- OR**
- (b) Write note on excited states of molecules. (06)
- Q.V** (a) What is phytohormone? Describe the physiological role of Auxin in higher plants. (06)
- (b) Explain the physiology of photoperiodism in plants. Write its significance. (06)
- OR**
- (b) Give comparative account of physiological effects of Gibberellins and Cytokinins in plants. (06)
- Q.VI** (a) Give an outline classification of plant movements. Explain paratonic movement in detail. (06)
- (b) Write a note on salt tolerance of plants. (06)
- OR**
- (a) Give an account on autonomic movements in plants. (06)
