

Exam. Code : 210001

Subject Code : 5371

M.Sc. Botany I<sup>st</sup> Semester

Paper—BOT-C514 : PLANT PHYSIOLOGY

Time Allowed—3 Hours] [Maximum Marks—50

SECTION—A

**Note :—** All questions are compulsory and each question carries 1 mark.

1. List two physical properties of water.
2. Explain first law of thermodynamics in biology.
3. Draw structure of trimeric G-protein.
4. Name two symbiotic nitrogen fixation bacteria.
5. Define Enthalpy.
6. Name three amino acids involved in Glutathione synthesis.
7. Name the gene which is responsible for nodule formation in plants.
8. In which form sulphur is absorbed by plants ?

SECTION—B

**Note :—** The section consists of *ten* questions. Attempt any *seven* questions and each question carries 3 marks.

1. Define Raoult's law and its principle.
2. Define water potential and how it gets measured.
3. Give brief account of enzyme induction and repression.
4. Write short note on coupling reaction.

5. Define G-proteins and their role in signalling pathways.
6. Define cyclic nucleotides and their role in signalling transduction.
7. Explain enzymology of nitrogen fixation.
8. Write short note on nitrite reduction.
9. Explain sulphur reduction pathway in plants.
10. Give brief account on function of glutathione and its derivatives.

### SECTION—C

**Note** :— The section consists of *five* questions out of which attempt any *three*. Each question is of 7 marks.

1. Describe sulphur function, uptake and transport in plants.
2. Draw two-component sensor-regulator system in plants.
3. Explain the oxidative phosphorylation in plants.
4. Explain briefly :
  - (a) Ammonia uptake and transport
  - (b) Symbiotic nitrogen fixation.
5. Briefly explain :
  - (a) Chemical and Potential gradients of water
  - (b) Water relation kinetic theory.