

Exam. Code : 210001

Subject Code : 4789

M.Sc. Botany 1st Semester

PLANT PHYSIOLOGY

Paper—BOT-C514

Time Allowed—Three Hours] [Maximum Marks—50

Note :—Candidates are required to attempt **FIVE** questions, selecting at least **ONE** question from each Section. The **fifth** question may be attempted from any Section. All questions carry equal marks.

SECTION—A

1. Write short notes on :

(i) Diffusion with suitable examples

(ii) Raoult's law

(iii) Principles of thermodynamics

(iv) Bioenergetics. 2.5×4

2. Define coupled reaction. Also explain the mechanism of electron transport and oxidative phosphorylation.

2,8

SECTION—B

3. What is signal transduction ? Give an overview of receptors and elaborate the G-protein signal cascade.

2,8

4. Explain the following :
- (i) Outline of calcium-calmodulin signaling
 - (ii) Sucrose-sensing mechanism. 5×2

SECTION—C

5. Define biological nitrogen fixation. Write in detail the mechanism of nitrogen fixation in the root nodules of plants. 2,8
6. Write short notes on :
- (i) Symbiotic nitrogen fixation
 - (ii) Ammonia uptake and transport
 - (iii) Nitrate reduction process
 - (iv) Carbon metabolism. 2.5×4

SECTION—D

7. Give an account of Sulphur metabolism. Explain the uptake, transport and assimilation of sulphur in plants. 2,8
8. What is glutathione ? Describe the synthesis of glutathione and write short note on one of its derivatives. 2,8