

A-0018

Total Pages : 4

Roll No.

MSCBOT-601

M.Sc. Botany (MSCBOT)

(Plant Physiology and Biochemistry)

Examination, June 2025

Time : 2:00 Hrs.

Max. Marks : 70

Note :- This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

Section-A

(Long Answer Type Questions) 2×19=38

Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

1. Describe the mechanism of electron transport during oxidative phosphorylation. In which region of the cell is the mechanism located ? How many ATP molecules would be produced when (a) NADH is oxidised (b) succinic acid is oxidised ?
2. What is the mean by light reaction of photosynthesis ? Discuss, how the two photosystems co-operate in producing chemical energy in light reaction of photosynthesis ?
3. Write a detailed account on biological nitrogen fixation mechanism and its significance with an account on nod factors.
4. Write down explanatory note on any *two* of the following :
 - (a) Essential elements in plants.
 - (b) Mechanism of auxin action.
 - (c) β Oxidation pathway and its significance.
5. What are enzymes ? Write about their :
 - (a) Mode of action
 - (b) K_m value

Section-B

(Short Answer Type Questions) 4×8=32

Note :- Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is water potential ? Write its significance in plant life.
2. How are sugar loaded into the phloem sieve tubes at the source and removed at the sink ?
3. Write short note on any *two* of the following :
 - (a) Kranz anatomy.
 - (b) Enzyme inhibition.
 - (c) Rubisco enzyme and its significance.
4. How pyruvic acid is synthesized in plants ? Does this process require expenditure of energy ? Discuss.
5. Describe structure of two polysaccharides composed by polymer of glucose.
6. What is photoperiodism ? Describe the mechanism of floral bud induction in plants.

7. Differentiate between any *two* of the following :
- a. Respiration and Photorespiration.
 - b. Short day plants and long day plants.
 - c. Active and passive ion absorption.
8. What is stress ? Give a brief account on salt tolerance in plants.
