

**A-040**

Total Pages : 4

Roll No. ....

**MSCBOT-601**

**M.Sc. BOTANY (MSCBOT)**

**(Plant Physiology and Biochemistry)**

3rd Semester Examination, 2024 (June)

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.

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P.T.O.

1. (a) Discuss the mechanism of translocation of solutes through phloem tissue. Elucidate the propositions of Munch hypothesis and objections raised against this hypothesis.  
(b) Discuss the different factors affecting solute translocation through phloem. [(7+7)+5=19]
2. (a) Tabulate all the major differences between C3 and C4 plants.  
(b) What are the structural peculiarities of C4 plants ?  
[ 14+5=19]
3. (a) Differentiate between climacteric and non-climacteric fruits. Discuss the molecular basis of delaying the ripening process in fruits to increase shelf life,  
(b) What are the different forms of enzyme inhibition ?  
[(4+9)+6=19]
4. Discuss the Avena-curvature test for the discovery of auxin. How is auxin biosynthesized ? Elucidate the different roles of auxin in plant physiology.  
[(5+5)+9=19]

5. (a) Discuss the structure and functions of different classes of carbohydrates.
- (b) Discuss the four structure levels of proteins.

[11+8=19]

### 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. Write short notes on :
- (a) Electron transport chain
- (b) Glycosides [4×2=8]
2. Discuss the different techniques to study the role of mineral nutrients in plants.
3. Differentiate between :
- (a) Passive and active transport
- (b) Photosystem I and Photosystem [4×2=8]
4. Discuss the structure of nitrogenase enzyme and its role in nitrogen fixation.
5. Elaborate the different mechanism of plant tolerance against heavy metal stress.

6. Discuss the different steps of glyoxalate cycle with a diagram.
7. Discuss the deficiency symptoms of zinc and boron in plants. [4+4=8]
8. What are the causes of heat stress and its major consequences in plants ? [4+4=8]

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