

Roll No. ....

Total Pages : 3

MDQ/D-23

5224

## PLANT PHYSIOLOGY AND PLANT BIOCHEMISTRY

Paper–Bot.301

Time Allowed : 3 Hours]

[Maximum Marks : 80

**Note** : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

### Compulsory Question

1. Explain the following :

- |  |   |
|--|---|
| (i) Capillary water.                     | 2 |
| (ii) Solute potential.                   | 2 |
| (iii) Macro and Micro nutrients.         | 2 |
| (iv) CO <sub>2</sub> compensation point. | 2 |
| (v) Warburg effect.                      | 2 |
| (vi) Isozymes.                           | 2 |
| (vii) Cofactor.                          | 2 |
| (viii) Nodule formation.                 | 2 |

### UNIT–I

- |  |   |
|--|---|
| 2. (a) Define the concept and components of Water potential.         | 8 |
| (b) Discuss the factors affecting transpiration.                     | 8 |
| 3. (a) Describe unique properties and importance of Water of plants. | 8 |
| (b) Discuss the mechanism of passive Water absorption.               | 8 |

### UNIT–II

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|---|---|
| 4. (a) Describe the criteria of essentiality of elements and mention the functions and deficiency symptoms of Calcium and Cobalt. | 8 |
| (b) Discuss the effects of environmental factors on photosynthesis.   | 8 |
| 5. (a) Describe the Hatch and Slack pathway of CO <sub>2</sub> fixation.  | 8 |
| (b) What are CAM plants? Discuss their characteristics.   | 8 |

### UNIT–III

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|--|---|
| 6. (a) Discuss the process of ammonium and nitrate assimilation in plants. | 8 |
| (b) Describe the biosynthesis of amino acids in plants.                    | 8 |

7. (a) Describe the Pentose Phosphate pathway in plants. 8  
(b) Mention the steps involve in Embden-Meyerhoff-Pranas pathway. 8

#### **UNIT-IV**

8. Describe the steps involved in beta oxidation of fatty acids their conservation into carbohydrates. 16
9. (a) Describe the properties and functions of enzymes. 8  
(b) Discuss the factors affecting rate of enzymatic reactions. 8