

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 :

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

UNIT–I

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| 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 ₂ 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