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MBCE-012

M. SC. (BIOCHEMISTRY) (MSCBCH)

Term-End Examination

December, 2025

MBCE-012 : PLANT BIOCHEMISTRY

Time : 3 Hours

Maximum Marks : 100

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Draw and describe any *two* plant pigments. 10
- (b) Explain the mechanism of ATP synthesis and calculate ATP yield during oxidative phosphorylation. 10
2. (a) Differentiate between cyclic and non-cyclic photophosphorylation. Name any *five* inhibitors of photosynthesis along with their site of action. 10

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- (b) Describe Calvin's cycle of carbon fixation in plants. 10
3. What are the unique characteristics of nitrogenase enzyme ? Give the roles of nif genes and nitrogenase in nitrogen fixation. 6+7+7
4. (a) Discuss the role of nitrate and nitrite reductases during nitrate assimilation in plants. 10
- (b) Give an overview of sulphate uptake and transport in plants. 10
5. (a) What are various abiotic stressors ? Give examples. Describe water stress. 10
- (b) How does expression of genes and modification of cell wall help against biotic stress ? 10
6. Write short notes on any *two* of the following : 10+10
- (a) Cytokinins

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- (b) Gibberellins
 - (c) Photoperiodism
7. (a) What is abiotic stress ? Describe plants response to drought and salinity. 10
- (b) Discuss about any *two* non-enzymatic anti-oxidants found in plants. 10
8. (a) Classify terpenoids and list their functions. 10
- (b) Write a note on cyanogenic glycosides as plant toxin. 10

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