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MBCE-012

M. SC. (HONOURS)
(BIOCHEMISTRY) (MSCBCH)

Term-End Examination

June, 2026

MBCE-012 : PLANT BIOCHEMISTRY

Time : 3 Hours

Maximum Marks : 100

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

(ii) Draw diagram/flowchart wherever required.

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1. Describe the structure and associated redox cofactors of the mitochondrial ETC. 20
 2. (a) Illustrate the organization of photochemical reaction centres within the thylakoid membrane. 10
 - (b) Describe Calvin cycle in detail. 10

3. (a) Describe the various types of plastids found in plants. 10
- (b) "Plant vacuoles are multifunctional organelle." Justify the statement. 10
4. (a) What is Symbiotic Nitrogen Fixation ? How is Symbiosis established between rhizobia and legume ? 10
- (b) Write short notes on the following :
2×5=10
- (i) Role of Glutamine Synthetase
- (ii) Ammonia assimilation in plants
5. (a) Explain the process of sulphate uptake and transport in plants. 10
- (b) Explain any *two* of the following plant stresses and their tolerance strategies :
5×2=10
- (i) Drought stress
- (ii) Radiation stress
- (iii) Heavy metal stress

6. (a) Describe the antioxidative defense mechanisms in plants to manage and mitigate the effects of ROS. 10
- (b) How does expression of genes and modification of cell wall help the plants against pathogen attack ? 10
7. (a) Describe the coleoptile tip experiment to demonstrate the presence of auxin in plants. 10
- (b) What are the two forms of phytochromes ? Explain their role in photoperiodism. 10
8. (a) Discuss the classification of Phenolic compounds in detail. 10
- (b) Explain the classification of plant toxins on the basis of chemical structure and biological activity. 10

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