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MBCE–012

M. SC. (BIOCHEMISTRY) (MSCBCH)

Term-End Examination

December, 2024

MBCE–012 : PLANT BIOCHEMISTRY

Time : 3 Hours *Maximum Marks : 100*

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

1. (a) Describe the diverse roles of plant vacuoles. 10

   (b) Explain the chemiosmotic coupling hypothesis. 10

2. (a) Write a detailed note on photosystem complexes. 10

   (b) Explain the CAM pathway of carbon assimilation. 10

3. Give an overview of nitrogen cycle and discuss symbiotic nitrogen fixation in plants. 20

4. (a) Discuss the role of glutamine synthetase enzyme in nitrogen metabolism in plants. 10

   (b) Explain the differences in sulphate assimilation between plants and microbes. 10

5. (a) How does chilling and freezing stress affect the overall growth and productivity of plants ? 10

   (b) What are the sites of ROS generation in plants ? Write a detailed note on various enzymatic anti-oxidants in plants. 10

6. Explain plant defense mechanisms in response to biotic stresses. 20

7. Discuss any *two* of the following : 10+10

   (a) Novel endogenous plant growth regulators

   (b) Plant types based on photoperiodism

   (c) Phytochromes

8. (a) What are phenolics ? List their biological roles. 10

   (b) Write a note on mycotoxins. 10

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