

M. SC. (BIOCHEMISTRY)
(MSCBCH)

Term-End Examination

June, 2025

MBCE-012 : PLANT BIOCHEMISTRY

Time : 3 Hours

Maximum Marks : 100

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

1. (a) Draw the structure of chloroplast and explain any *five* functions performed by chloroplast apart from photo-synthesis.

5+5

- (b) What is electrochemical gradient ? Explain its role in oxidative phosphorylation. Name any *two* inhibitors of electron transport chain and mention the stage these inhibit. 10

2. (a) Explain various components of a photosynthetic apparatus. 10
(b) Describe C₄ pathway of carbon assimilation. 10
3. Illustrate and explain how legume-*Rhizobium* symbiosis is established. 20
4. (a) Write a note on regulation of nitrate assimilation. 10
(b) Discuss glutathione biosynthesis in plants and describe its functions. 10
5. (a) How does radiation affect the overall growth and productivity of plant ? 10
(b) Write a note on reactive oxygen species and their generation in plants. 10
6. (a) Explain bacterial and fungal pathogenesis in plants. 10
(b) What are secondary metabolites ? Discuss their role in plant defense mechanism. 10

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

- (a) Auxins
- (b) Circadian rhythms
- (c) Ethylene

8. (a) What are the characteristics of alkaloids ? List their functions in plants. 10

(b) Give a detailed classification of toxins of plant origin with suitable examples. 10

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