

Roll No.

Total Pages : 4

11483/NH**CS/2111****PLANT GROWTH, DEVELOPMENT
AND BIOTECHNOLOGY**

Paper–X

Semester–V

Time Allowed : 3 Hours] [Maximum Marks : 40

Note : The candidates are required to attempt **two** questions each from Sections A and B carrying 6 marks each and the entire Section C consisting of 8 short answer type questions carrying 2 marks each.

SECTION—A

1. Discuss the discovery, bioassay, physiological effects and applications of Cytokinins. 6
2. Elaborate the discovery, structure and mechanism of action of Phytochrome. 6
3. (a) Write a note on Photoperiodism. 3
(b) What is Circadian rhythm? Explain with reference to plants. 3
4. Define Seed dormancy. Explain the methods used for breaking seed dormancy. 6

SECTION—B

5. What is Gel electrophoresis? Discuss its principle and applications. 6
6. Discuss the Biological methods of Gene transfer with particular reference to plants. 6

7. Write explanatory notes on the following :
- (a) Cellular totipotency. 3
- (b) Anther Culture. 3
8. Describe the role of Biotechnology in Industry and Production of useful molecules. 6

- (v) Expand the term PCR. List its applications.
- (vi) What is Micro-injection?
- (vii) Define Somatic hybridization.
- (viii) What is Bt cotton? Comment on its unique features.

SECTION—C

9. Answer the following questions briefly : $8 \times 2 = 16$
- (i) Compare the Physiological effects of Auxins and Gibberellins.
- (ii) Comment on the phases of growth.
- (iii) What is the importance of Vernalization?
- (iv) Define the epigeal and hypogeal seed germination.