

**3 MJ 60308**

THREE YEAR B.Sc. (CBCS) DEGREE EXAMINATION NOVEMBER/DECEMBER 2024

THIRD SEMESTER

Botany (Major)

Course 8 — PLANT BIOTECHNOLOGY

(w.e.f. 2023-24)

Time : Three hours

Maximum : 70 marks

(No additional sheet will be supplied)

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PART A — (5 × 4 = 20 marks)

Answer any FIVE of the following questions.

1. What is totipotency in plant tissue culture?
2. Synthetic seeds.
3. Importance of meristem culture.
4. Micropropagation
5. Differentiate between continuous and batch cultures.
6. Cybrids.
7. PR proteins.
8. Discuss the significance of herbicide resistance in plants.
9. Biofortification.
10. Plant-based vaccines.

PART B — (5 × 10 = 50 marks)

Answer ALL of the following questions.

11. Describe Discuss the formulation of media for plant tissue culture and its importance.  
Or
12. Explain the process of somatic embryogenesis and discuss factors affecting it.
13. Discuss the production of haploids through anther and pollen including their applications.  
Or
14. Discuss the importance and method of zygotic embryo culture in plant propagation.

15. Explain the strategies used to enhance the production of secondary metabolites in cell cultures.

Or

16. Explain the somatic hybridization and their applications in crop improvement.

17. Explain the mechanisms for virus resistance in transgenic plants with examples.

Or

18. Explain the ethical issues surrounding the development of genetically modified plants.

19. Discuss the role of plant biotechnology in bioenergy production.

Or

20. Explain the concept of biodegradable plastics.

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