PG Even Semester Exam, May 2025

Biotechnology

4th Semester

COURSE NO. BTYCC - 652

[Plant Biotechnology, Animal Biotechnology and Applications of Genetic Engineering]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, taking one from each Unit

UNIT-I

1. Define embryo culture and meristem culture. Discuss the applications of embryo culture and meristem culture in plant genetic improvement with suitable examples. 4+10=14

2. Write a note on gametoclonal variation and its utility in plant improvement. Discuss the in vitro techniques of developing a disease resistant plant and a flood tolerant plant.

Turn over

UNIT-II

3. What is a vector? Describe Ti plasmid with special reference to binary and cointegrate vector with suitable diagram. 2+6+6=14

4. Write the process of production of virus and pest resistant plants. Add a note on development of removal of marker gene in transgenic plants. 5+5+4=14

UNIT-III

5. Write short notes . 7x2=14

   a. Genomics of farm animals

   b. Molecular marker technologies

6. Discuss the procedure of QTL mapping in plants. Add a note on the applications of QTL mapping. 8+6=14

UNIT-IV

7. What is gene therapy? Describe the CAR-T cell therapy with limitations. 2+12=14

8. a. What are GMO crops? Describe a GMO crop with an example, its advantages and disadvantages. 1+6=7

   b. Why do we need biofarming? Describe the risks associated with it. 3+4=7

UNIT-V

9. What is IPR? Name different types of IPR. Discuss the advantages and limitations of a patent and a trade secret. 2+2+10=14

10. What is a patent? Discuss the criteria for grant of a patent. Write a note on how patents were awarded in microbes, plants and animals in USA. 2+6+6=14

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