# 2024

## 6th Semester Examination

## BOTANY (Honours)

### Paper : C 14-T

### [Plant Biotechnology]

[CBCS]

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Full Marks : 40 Time : Two Hours

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as practicable.*

### Group - A

Answer any ***five*** questions from the following : 2×5=10

1. What do you mean by totipotency?
2. What is cryopreservation? Mention its significance.
3. In Recombinant DNA technology, how does the role of cloning vector differ from that of shuttle vectors?
4. Briefly mention the components of YAC. What is its specific use?
5. Define cDNA and genomic DNA libraries.

P.T.O.

6. Briefly mention the advantages of genetically modified crop of Flavr Savr tomato in contrast to the preexisting varieties.

7. State the importance of industrial enzymes : Aspergillase and protease.

8. What specific role does Restriction Endonuclease play in gene cloning? Give an example.

## Group - B

Answer any ***four*** questions from the following : 5×4=20

9. What are the basic constituents of a tissue culture medium? Write the names of any two tissue culture media mentioning its specific application.

10. How do somatic embryos differ from zygotic embryos? Discuss the advantages and disadvantages of somatic embryos.

11. What are secondary metabolites? How do they differ from primary metabolites? With a suitable example briefly mention the steps of production of secondary metabolites.

12. How is Bt cotton genetically modified? Enumerate the advantages and drawback of Bt cotton.

13. What do you mean by bacterial transformation? What are selectable markers and how do they help in identifying successful bacterial transformation?

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14. Write short notes on the following gene transfer techniques

    (a) Electroporation

    (b) Microprojectile bombardment

## Group - C

Answer any ***one*** question from the following : 10×1=10

15. Draw a flowchart of the steps involved in genetic engineering of any two of the transgenic crops :

    (a) Golden rice,

    (b) Round Up Ready soybean

    (c) Moondust carnation.

    Discuss the role of superbug in bioremediation. What are edible vaccines? Give an example. 3+3+2+2

16. Write a short note on Polymerase Chain reaction. Briefly mention the application of PCR. What do you mean by chromosome walking? How would you screen cDNA library for a location specific gene of interest? 4+2+2+2

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