



**ST. JOSEPH'S UNIVERSITY, BENGALURU -27**  
**M.Sc. BOTANY – 4<sup>th</sup> SEMESTER**  
**SEMESTER EXAMINATION: APRIL 2024**  
(Examination conducted in May/June 2024)  
**BO 0223: Biotechnology**  
**(For Current batch students only)**

Registration Number:

Date & session:

**Time: 2 Hours**

**Max Marks: 50**

**This paper contains 1 printed page and 3 parts**  
**Draw diagrams and give examples wherever necessary**

**PART-A**

**Write on any FIVE of the following in two to three sentences**

**5 X 2 = 10**

1. Comment on the biotechnology scenario in India.
2. T-DNA binary vector system is both a binary and shuttle vector. Justify.
3. What is terminator seed technology?
4. What do you understand by clarification of fruit juice. Name the enzyme used for the same?
5. What are Edible vaccines? Give one example.
6. Explain the principle of DNA barcoding.
7. What are simple sequence repeats?

**PART-B**

**Write Critical notes on any FIVE of the following**

**5 X 6 = 30**

8. Elaborate on marker aided selection in plant breeding.
9. Depict the steps of Southern blotting in a flow chart, supplementing it with an illustration of the setup.
10. Write a short note on enzyme immobilization.
11. Can genetic transformation be achieved without the application of vector? If yes, elaborate on any two methods with illustration.
12. Reflect on the social and moral issues associated with genetically modified organisms.
13. Explain gene silencing giving one example.
14. Lambda bacteriophage as vector.

**PART-C**

**Give a comprehensive account of any ONE of the following**

**1 X 10 = 10**

15. Explain the production of bioinsecticides citing examples. Justify how they are more beneficial in agriculture.
16. What is a cDNA library? Using a flow chart explain the construction of cDNA library and briefly explain a screening method used.

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