

**CLASS: XII**

**Time: 3 Hrs**

**SUBJECT:BIOTECHNOLOGY**

**Max Marks:70**

**General instructions**

- (1)All questions are compulsory.
- (2)There is no overall choice. However internal choice has been provided in one question of three marks and three questions of five marks. You have to attempt only one of the choices in such questions. Question paper contains four sections – A, B, C and D
- (3)Question numbers 1 to 6 are very short answer questions, carrying 1 mark each.
- (4)Question numbers 7 to14 are short answer questions, carrying 2 marks each.
- (5)Question numbers 15 to 25 are also short answer questions, but carrying 3 marks each.
- (6)Question numbers 26 to 28 are long answer questions, carrying 5 marks each.
- (7)use of calculators is not permitted. However, you may use log tables, if necessary.

**SET A**

**SECTION A ( 1 Mark )**

1. Why type 2 restriction enzymes used in RDT?
2. How plants respond to fungal pathogen.
3. Maize and rice plants were crossed, but no hybrids were obtained .why?
4. Define expression vector.
5. What is the principle behind RFLP technique.
6. Give the commercial importance of flavr savr tomato?

**SECTION B ( 2 Marks )**

7. Write a short note on cosmids.
8. A bacterial culture contain  $10^8$  cells/ml in the beginning. Two hours later it was found to have  $10^{12}$  cells/ml. calculate
  - (a)specific growth rate of culture
  - (b)doubling time
9. List two major concerns or biosafety issues about GMcrops.
10. Explain the importance of selectable marker genes in RDT experiments.
11. Explain any two direct selection method for screening recombinants.
12. Explain how microsyringe functions to deliver gene into plant cells.
13. Explain how antifoam agents play important role in microbial culture media.
14. Why meristems are free of viruses.(any two reason)



