**ST. JOSEPH’S UNIVERSITY, BENGALURU -27**

Registration Number:

Date & session:8-12-22

**M.Sc (MICROBIOLOGY) – I SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**MB 7321: MICROBIAL TECHNIQUES**

**Time- 2 hours Max Marks-50**

This question paper contains **2** printed pages and **four** parts

**I. Answer any Five of the following 5X3=15**

1. How are repetitive DNA classified?

2. Comment on G-quadruplex.

3. Draw a flow chart of looped rolling circle replication.

4. Mention the properties of yeast Ty elements.

5. List the applications of plasmids in genetic engineering.

6. Write the principle of gene gun method.

7. Comment on P1 phages.

1. **Answer any Two of the following 2X5=10**

8. Tabulate the properties of different forms of DNA.

9. Write a short note on recombination repair.

10. Give an account of bacterial transposons.

**III. Answer any Two of the following 2X10=20**

11. Brief Griffith’s and Avery’s experiments and mention their significance.

12. Explain AMES test and mention its applications.

13. Illustrate Holiday model of recombination.

1. **Answer the following 1X5=5**

 14. Hfr stains of genotype **a+b+c+d+e+f+** are mixed with an **F-** strain with genotype **a-b-c-d-e-f -.** Conjugation was interrupted at regular intervals and the order of appearance of genes from the Hfr strain is determined in the recipient cells. The order of gene transfer for each Hfr strain is:

 **Hfr 1 : a+ e+ d+ b+ f+ c+**

 **Hfr 2 : b+ f+ c+ a+ e+ d+**

 **Hfr 3 : c+ a+ e+ d+ b+ f+**

**Hfr 4 : e+ a+ c+ f+ b+ d+**

On the circular bacterial chromosome, mark the order of genes, location of F factor and its polarity.