



Date:

Registration number:

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27

B.Sc. MICROBIOLOGY - IV SEMESTER

SEMESTER EXAMINATION: APRIL 2022

(Examination conducted in July 2022)

MB 416 – MICROBIAL GENETICS AND MOLECULAR BIOLOGY

Time – 1½ hour

Max Marks-35

This question paper contains **1** printed page and **3** parts

I. Answer any Five of the following

5x2=10

1. What were the contributions of Messelson and Stahl and Arthur Kornberg?
2. Differentiate the stability of the three types of RNA?
3. What is the role of topoisomerases in genome organisation?
4. How RNA primers are removed post their extension by DNA polymerase III in prokaryotic DNA replication?
5. Differentiate site specific recombination with that of homologous recombination.
6. What is amino acid activation? Mention its significance.
7. What is operon? What role does operator play in an operon?

II. Answer any Four of the following

4x5=20

8. Draw the labelled diagram of clover leaf model of tRNA.
9. Illustrate the mechanism of DNA replication initiation in prokaryotes.
10. How do base modifiers and intercalating agents mutate DNA?
11. Describe the mechanism of conjugation between F+ and F- cells.
12. In brief describe transcription termination in prokaryotes with the help of diagrams.
13. Draw the structure of a composite transposon. Write a note on the replicative transposition.

III. Answer the following

1X5=5

14. What would happen to the regulation of Lac operon if the operator region is mutated making it non-functional? How would this impact the cell? How would you reverse the change making the operator functional?