

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

**M.Sc. (MICROBIOLOGY) – II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination Conducted In May 2023)**

**MB 8321: MOLECULAR BIOLOGY**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 50**

**This paper contains 1 printed page and 4 parts**

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

1. What is chromatin? Write its chemical composition.
2. What role does sigma and transcriptional factors play in transcription?
3. Describe catabolite repression with suitable example.
4. What is gene silencing and what application does it find in research?
5. Compare and contrast mRNA with tRNA.
6. Bring out the differences between RNA polymerase and Reverse transcriptase.
7. What is genetic code? Mention its features.
8. **Answer any Two of the following 2X5=10**
9. What is end replication problem? How is that problem solved?
10. Give an overview as to how proteins synthesized in eukaryotes are localised.
11. How can translation be regulated with inhibitors? Write its significance.

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

1. a. Describe Rho dependent and Rho independent transcription termination in prokaryotes.

b. Illustrate prokaryotic translation.

12. Explain tryptophan operon with suitable diagram.

13. What is chromatin remodeling? Describe the process and write a note on its significance.

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

14. Device a strategy towards making a constitutive gene an inducible one.