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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |
| **M.Sc. MICROBIOLOGY- II SEMESTER** |
| **SEMESTER EXAMINATION: APRIL 2017** |
| **MB 8316 - Molecular Biology** |

**Time: 2 1/2 hrs Max. Marks - 70**

**This paper contains 2 printed page and 4 parts**

**I. Answer any FIVE of the following 5x3=15 marks**

1. What is pre replicative complex? Name its components.
2. What makes a RNA polymerase bind specifically to promoter regions and why is specificity a mandate?
3. What is the product of reverse transcriptase enzyme and what substrate does it prefers? Write its significance.
4. Draw a neat labeled diagram of tRNA.
5. What are translational inhibitors? What significance do they find in disease control?
6. List the different types of protein translational modification.
7. How does DNA methylation regulates gene transcription?

**II. Answer any FIVE of the following 5x5=25 marks**

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1. Describe the role of histones in the compaction of eukaryotic DNA into chromosomes.
2. Compare and contrast Rho dependent transcription with Rho independent transcription.
3. Describe the role of elongation factors in prokaryotic protein synthesis.
4. How are proteins secreted to the chloroplast?
5. Describe in brief gene silencing.
6. How does the positive regulation of Lac operon system function?
7. What are termination codons and why are they called so? Can termination codons be made to code for amino acids?

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

1. Describe the following events:

a. Transcription initiation in prokaryotes

b. Aminoacylation of tRNA

MB-8316-C-17

1. Define Inducible and repressible gene regulatory systems. Give suitable examples. Describe attenuation of tryptophan operon.
2. With suitable example explain hormonal regulation of gene expression. Add a note on

 RNA editing.

**III. Answer the following 2X10=10 marks.**

1. How can a gene under investigation be made constitutive and how can we make the protein secrete outside the cell?