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Register Number:

DATE:12.04.2019

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

**M.Sc MICROBIOLOGY- II SEMESTER**

**SEMESTER EXAMINATION- APRIL 2019.**

**MB 8318 - Molecular Biology**

**Time: 2 ½ hrs Max Marks: 70**

This question paper has **2** printed pages and **4** parts.

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

1. State the importance of sigma factor giving an example.
2. How does tailing of eukaryotic mRNA occur?
3. What are the features of an ideal promoter?
4. List the important features of the nucleosome model.
5. Expand the following:

a. pTEFb b. MCM c. TAT - SF

1. What is a positive inducible operon?
2. List three inhibitors of transcription with their mode of action.

**II. Answer any Five of the following questions 5x5= 25**

1. Discuss the importance of post-translational modifications with suitable examples.
2. Describe spliecosome mediated splicing.
3. What is the mechanism of action of miRNA? Discuss.
4. How is eukaryotic replication initiated and maintained once per cell cycle?
5. How does aminoacyltRNAsynthetase pick the right amino acid?
6. What is the significance of remodeling the chromosome? How does the cell achieve it?
7. Explain the entry of protein into the mitochondrial matrix.

**III. Answer any Two of the following questions 2x10 =20**

15. Explain the initiation and elongation of eukaryotic translation.

16.a. Differentiate between Class I and Class II synthetases.

b. What are the modifications that give rise to a mature tRNA?

17. How is the synthesis of tryptophan regulated in *E. coli*?

**IV. Answer the following: 1x10 = 10**

18. a.Treating viral diseases effectively is a challenge to the medical fraternity as a Molecular biology student can you suggest and explain some molecular drug targets.

b.There are around 15,500 genes in *Drosophilla* but it has 20,674 modeled

proteins according to Swiss Expasy database, what do you think is the reason

for this increase in the number of protein models?