

**Q. P. Code: 23086****2 ½ Hours****Total Marks: 75**

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculator** is **allowed**.
5. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

**Q 1 Do as directed (Any fifteen)****15**

1. Define Transcription.
2. What is an activator?
3. What does CPSF stands for?
4. Give the role of Poly (A) tail of mRNA.
5. State true or False: RNA Pol. I is found in nucleolus.
6. Give the role of Ribozymes.
7. State true or False: The 3' to 5' DNA strand that is read to make the RNA strand is not called the template strand.
8. During protein sorting, once the signal sequence is fully into the cisternal space of the ER, it is removed from the polypeptide by the enzyme \_\_\_\_\_.
9. The initiator t-RNA binds to the subunit in the \_\_\_\_\_ site.
10. Define open reading frame.
11. Give significance of following post translational modification - phosphorylation of proteins.
12. What are sense codons?
13. \_\_\_\_\_ is the enzyme which adds the formyl group to the methionine during initiation of translation in bacteria.
14. Name an amino acid encoded by a single codon.
15. Define RNA interference.
16. State the function of  $\beta$ -Galactosidase enzyme in Lac operon.
17. Tryptophan operon is an example of a \_\_\_\_\_ operon system.
18. State the role of Rec A protein in lytic pathway.
19. Define a *Cis-dominant* gene.

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20. Give one example of a genetic disease which results from effects involving Imprinting.

**Q 2 A** Elaborate the process of elongation phase of transcription in Prokaryotes. **08**

**Q 2 B** Discuss Rho independent termination of transcription. **07**

**OR**

**Q 2 C** Describe the processing of pre mRNA to mature RNA. **08**

**Q 2 D** Explain the role of gRNA in RNA processing. **07**

**Q 3 A** What is genetic code? Write short note on characteristics of genetic code. **08**

**Q 3 B** State the differences between prokaryotic and eukaryotic translation process. **07**

**OR**

**Q 3 C** Explain the process of translational termination in prokaryotes and eukaryotes with the help of a diagram. **08**

**Q 3 D** Draw the structure of t-RNA. Explain the role of t-RNA in translation. **07**

**Q 4 A** Give an account of mode of action of an inducible operon with a suitable example. **08**

**Q 4 B** "In  $\lambda$  phage, the choice between the lytic and lysogenic pathways, involves the sophisticated genetic switch." Justify. **07**

**OR**

**Q 4 C** Give an account of Regulation of Galactose utilization in yeast. **08**

**Q 4 D** Describe the model for the imprinting of the Igf2 and H19 genes. **07**

**Q 5** Write Short notes on **any three** of the following **15**

- a** RNA Pol. Holoenzyme.
- b** Post translational modifications
- c** Translocation during translational elongation.
- d** Yeast Mating types.
- e** Glucose effect in Lac operon.