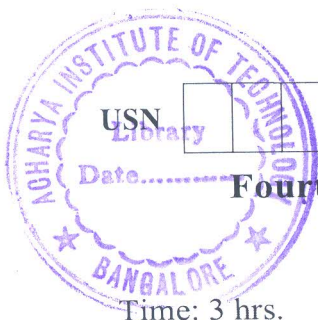


# CBCS SCHEME

18BT42



## Fourth Semester B.E. Degree Examination, July/August 2021 Molecular Biology

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions.**

- 1 a. Explain in detail about structure and functions of tRNA. (06 Marks)  
b. Discuss in detail on characteristic features of Genetic code. (06 Marks)  
c. Explain Chromosomal theory of inheritance by taking suitable example. (08 Marks)
- 2 a. Explain the process of initiation and elongation of DNA replication in prokaryotic, with a neat diagram. (10 Marks)  
b. Give an account on structure and forms of Nucleic acid – DNA, with neat diagram. (10 Marks)
- 3 a. With the help of diagram, explain the mechanism of transcription in Eukaryotic. (10 Marks)  
b. What is Splicing? Illustrate Intron mediated and Spliceosome mediated splicing in RNA. (10 Marks)
- 4 a. What are Rho factors? Explain the process of rho dependent and independent mode of transcription termination. (10 Marks)  
b. What is SiRNA? Explain the mechanism by which SiRNA causes gene silencing. (10 Marks)
- 5 a. Distinguish between Prokaryotic and Eukaryotic protein synthesis. (06 Marks)  
b. Illustrate on activation or charging of tRNA during initiation of protein synthesis. (06 Marks)  
c. Explain initiation of protein synthesis in prokaryote with neat labeled diagram. (08 Marks)
- 6 a. Explain in detail about post translational modification protein. (10 Marks)  
b. Define Protein Splicing. Outline autocatalytic reactions in protein splicing. (10 Marks)
- 7 a. Briefly describe the process of regulation of gene expression in Lac operon. (10 Marks)  
b. Explain the levels of gene expression regulations in Eukaryotic. (10 Marks)
- 8 a. Explain the structure of Gal Operon in detail. (08 Marks)  
b. Give an account on homeobox in control of development in insects. (06 Marks)  
c. Explain in detail about Tryptophan Biosynthetic regulation. (06 Marks)
- 9 a. What is Mutation? Explain in detail about different types of mutation. (10 Marks)  
b. What is Recombination? Explain Genetic recombination in Bacteria. (10 Marks)
- 10 a. What are Transposons? Explain transposable elements in maize and Drosophila with its significance. (10 Marks)  
b. Outline on DNA damage and repair mechanism. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.