CBCS SCHEME

USN | | | | | | | | | | |

18BT42

Fourth Semester B.E. Degree Examination, Jan./Feb. 2021
Molecular Biology

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Describe the chromosomal theory of inheritance. Add a note on its significance. **(10 Marks)**
b. Outline the mechanism of reversible denaturation and hyperchromic effect. **(10 Marks)**

OR

2 a. What is repliosome? Explain in detail the coordination of repliosome proteins during DNA replication. **(10 Marks)**
b. What is central dogma? Differentiate between the different forms of RNA. **(10 Marks)**

Module-2

3 a. Elucidate the mechanism of RNA interference by Si RNAs with a pictorial representation. **(10 Marks)**
b. Explain the prokaryotic transcription process. **(10 Marks)**

OR

4 a. Describe the various post-transcriptional processing of mRNA in eukaryotes. **(12 Marks)**
b. Distinguish between the different RNA polymerases in eukaryotes. **(08 Marks)**

Module-3

5 a. How does the process of initiation differ in bacterial and eukaryotic cells? **(10 Marks)**
b. Explain the various post translational modifications of newly synthesized polypeptide chain. **(10 Marks)**

OR

6 a. Explain the different protein targeting mechanisms. **(10 Marks)**
b. Some antibiotics work by affecting the process of protein synthesis. Explain them with their action mechanism. **(10 Marks)**

Module-4

7 a. With relevant examples describe the role of DNA binding trans-activators and co-activators in eukaryotic gene expression. **(10 Marks)**
b. Explain the mechanism of trp operon regulation in E-coli. **(10 Marks)**

OR

8 a. What is a homeobox? Highlight their role in the control of development in insects. **(10 Marks)**
b. Outline lac operon model subject to positive and negative regulation. **(10 Marks)**

Module-5

9 a. With appropriate examples differentiate between transposons and insertion sequences. **(10 Marks)**
b. Explain the various repair mechanisms to resolve thymine dimers. **(10 Marks)**

OR

10 a. Summarize the techniques in gene mapping. **(10 Marks)**
b. Classify the various types of point and frame shift mutations and their possible outcomes. **(10 Marks)**

* * * * *