



CBCS SCHEME

18BT42

Fourth Semester B.E. Degree Examination, June/July 2023 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. Discuss briefly the chromosomal theory of inheritance. (10 Marks)
b. With a neat diagram, explain the rolling circle model of DNA replication. (10 Marks)

OR

- 2 a. Comment on the salient features of central dogma of life. Add a note on the updated central dogma. (10 Marks)
b. Write short notes on :
i) DNA Supercoiling ii) Klenow fragment. (10 Marks)

Module-2

- 3 a. Briefly discuss the various types of RNA polymerases in eukaryotes. (10 Marks)
b. Outline the mechanism involved in the transcription of prokaryotic genes. (10 Marks)

OR

- 4 a. Highlighting the significance of post-transcriptional processing, explain any two mechanisms involved in post transcriptional processing. (10 Marks)
b. Write short notes on :
i) Ribozymes ii) Transcriptional inhibitors (10 Marks)

Module-3

- 5 a. Discuss the process of translation in eukaryotes with the help of a neat diagram. (10 Marks)
b. What is protein targeting? Explain any one co-translational targeting mechanism. (10 Marks)

OR

- 6 a. Describe the elongation process in prokaryotic protein synthesis. (10 Marks)
b. Differentiate prokaryotic and eukaryotic protein synthesis. (05 Marks)
c. Write a short note on protein splicing. (05 Marks)

Module-4

- 7 a. Tryptophan operon is a negative gene regulator. Justify. (10 Marks)
b. What is segmentation gene? Briefly explain the types of segmentation gene. (10 Marks)

OR

- 8 a. Briefly explain any two mechanisms involved in eukaryotic gene expression regulation. (10 Marks)
b. Describe the role of homeobox in the control of developments in insects. (10 Marks)

Module-5

- 9 a. What are transposons? Explain the two classes of transposons. (10 Marks)
b. Retroviruses mutate at a very high rates. Justify the statement, highlighting the various mechanisms of mutation. (10 Marks)

OR

- 10 a. Illustrate the various types of point mutations. (10 Marks)
b. What is gene mapping? Briefly explain any two methods of gene mapping. (10 Marks)

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.