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Fourth Semester B.E. Degree Examination, Jan./Feb. 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. Explain the structure and forms of DNA with neat diagram. (10 Marks)
- b. Discuss the difference between central Dogma and dogma of molecular biology. (10 Marks)

OR

- 2 a. Explain the mechanism of DNA replication in eukaryotes. (10 Marks)
- b. Write a note on reversible denaturation and hyperchromic effect of DNA. (10 Marks)

Module-2

- 3 a. Explain the structure and function of RNA polymerases in prokaryotes. (10 Marks)
- b. Write short note on post transcriptional processing of mRNA. (10 Marks)

OR

- 4 a. Explain the steps of transcription in prokaryotes. (12 Marks)
- b. Write short note on transcription inhibitors. (08 Marks)

Module-3

- 5 a. Explain the mechanism of translation in eukaryotes. (10 Marks)
- b. Describe the enzyme involved in translation in prokaryotes. (10 Marks)

OR

- 6 a. Highlight the difference between prokaryotic and eukaryotic protein synthesis. (10 Marks)
- b. Write short note on inhibitors of translation. (10 Marks)

Module-4

- 7 a. Explain lac operation in detail. (10 Marks)
- b. Explain various levels of gene expression. (10 Marks)

OR

- 8 a. Give a complete note on homeobox and hox genes. (10 Marks)
- b. Explain the negative regulation of trp Operon. (10 Marks)

Module-5

- 9 a. Explain the three mechanism of recombination in prokaryotes in detail. (10 Marks)
- b. Write short note on retroviruses. (10 Marks)

OR

- 10 a. What are transposons explain their importance? (10 Marks)
- b. Explain the major five basic mechanism of DNA repair. (10 Marks)