

CBCS SCHEME

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18BT54

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Genomics and Proteomics

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define polymorphisms. Explain different types of polymorphisms seen in human genome. (10 Marks)
b. Explain the process and principle behind the first generation Maxam and Gilbert sequencing using an example of a DNA template. (10 Marks)

OR

- 2 a. Elaborate the steps involved in Sanger's di-deoxy sequencing method. (10 Marks)
b. Briefly discuss the relevance of genomic databases and their utilities in genome annotation efforts with suitable examples. (10 Marks)

Module-2

- 3 a. Justify the relevance of SNP database in disease association and drug development studies. (10 Marks)
b. What are mutations? Explain the different types of chromosomal and gene mutation with examples. (10 Marks)

OR

- 4 a. Discuss the importance of functional genomic studies with drosophila as the model organism. (10 Marks)
b. Write short notes on: i) ETS ii) DNA chips. (10 Marks)

Module-3

- 5 a. With a neat diagram, explain the architecture of prokaryotic genome. (10 Marks)
b. Differentiate the organization of genomics within mitochondria and chloroplast. (10 Marks)

OR

- 6 a. Give an account on transcriptional factors and their role in gene expression. (10 Marks)
b. Write short notes on:
i) Interference RNA ii) Gene editing. (10 Marks)

Module-4

- 7 a. With a neat flow diagram, explain the AFLP technique. (10 Marks)
b. What is gene tagging? Highlight the process and importance of gene tagging. Add a note on transposon tagging. (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.

OR

- 8 a. What is marker assisted selection? Discuss the process and importance of marker assisted selection. (10 Marks)
- b. Write short notes on:
- Micro-array in functional genomics
 - Principle of FISH. (10 Marks)

Module-5

- 9 a. Evaluate the strategies involved in Merrifield synthesis of peptides. Add a note on its merits and demerits. (10 Marks)
- b. Using a flow chart, discuss the production of therapeutic proteins in large scale. (10 Marks)

OR

- 10 a. Briefly discuss the role of genomics in drug development and toxicology. (10 Marks)
- b. Discuss the role of mass spectroscopy in the analysis of protein expression and sequencing. (10 Marks)
