



CBCS SCHEME

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21BT54

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

Genomics, Proteomics and Bioinformatics

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 method of preparing DNA for sequencing. (10 Marks)
- b. Illustrate on the principle and process of Sanger dideoxy method of sequencing. Add a note on its advantages and disadvantages. (10 Marks)

OR

- 2 a. Explain the work flow of NGS Technology. Add a note on its clinical applications. (10 Marks)
- b. Define polymorphism. Explain different type of DNA polymorphism with suitable example. (10 Marks)

Module-2

- 3 a. Elaborate on principle and procedure involved in DNA chip technology. Add a note on its application. (10 Marks)
- b. Explain in detail on E.coli genome sequencing project. Add a note on its Annotation tools for E.coli genome project. (10 Marks)

OR

- 4 a. What are molecular markers? Give an explanatory note on RFLP and RAPD as a molecular marker in gene mapping. (10 Marks)
- b. Summarize on any two tools for comparative genomics. (10 Marks)

Module-3

- 5 a. Examine on two hybrid interaction screening in yeast as a host organism. (10 Marks)
- b. Experiment with Mass Spec based technology for study of protein expressions. (10 Marks)

OR

- 6 a. Explain the method of Edman protein micro sequencing in detail. (10 Marks)
- b. Discuss on different type of protein chip used to track the interaction and activities of protein. (10 Marks)

Module-4

- 7 a. Give a detailed description on Record type of PDB flat file format. (10 Marks)
- b. Explain in detail on Distance Based method of Building phylogenetic tree. (10 Marks)

OR

- 8 a. Describe Bootstrapping as a method for assessing confidence in phylogenetic analysis. (10 Marks)
- b. Write an explanatory note on :
 - i) PROSITE
 - ii) CLUSTAL - Omega(10 Marks)

Module-5

- 9 a. Illustrate on approaches, Types and Application of molecular docking in drug discovery. (10 Marks)
b. Outline on web based tools for predicting the genes. (10 Marks)

OR

- 10 a. Illustrate on method of constructing a Restriction Map. Add a note on web based tools used for Restriction Mapping. (10 Marks)
b. Write a explanatory note on:
i) SOPMA ii) PRIME 3 (10 Marks)
