



CBCS SCHEME

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

Bioinformatics

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Discuss the need informatics tools and exercises in analysis of biological science data. (08 Marks)
- b. Write note on: i) EMBL ii) EXPASY. (08 Marks)
- c. Write a note on GENE BANK FILE FORMAT. (04 Marks)

OR

- 2 a. Substantiate on the use of bioinformatic tools and exercises for biological data analysis. (08 Marks)
- b. Write in brief on i) NCBI ii) SWISS-PROT. (08 Marks)
- c. Describe on the PDB file format. (04 Marks)

Module-2

- 3 a. Discuss on the importance of phylogenetic analysis and its tree forms. (10 Marks)
- b. Distinguish between character based and distance based method of phylogenetic tree building methods. (10 Marks)

OR

- 4 a. Describe with steps the working flow of CLUSTAL-Omega for phylogenetic construction. (10 Marks)
- b. Explain with example tools VISTA and MUMmer for comparative genomics working. (10 Marks)

Module-3

- 5 a. Discuss on the different kinds of parameters used for prediction of gene from Eukaryotic genome. (10 Marks)
- b. Describe the working steps of: i) GENSCAN ii) GENEFINDER. (10 Marks)

OR

- 6 a. Discuss on different kinds of secondary structure and folding classes of proteins. (10 Marks)
- b. Describe the working steps of i) SOPMA ii) NNPREPREDIT. (10 Marks)

Module-4

- 7 a. Write note on: i) Energy minimization ii) Force fields of interactions. (10 Marks)
- b. What are molecular visualizers? Explain on the working patterns of Rasmol and Spdb viewer. (10 Marks)

OR

- 8 a. Discuss on various types of small and macro molecular interactions with examples. (10 Marks)
- b. What is homology protein modeling? Explain its steps. (10 Marks)

Module-5

- 9 a. What is a Restriction mapping? Explain the bioinformatics tools assisted for the same. (10 Marks)
- b. What is a PRIMER? Explain the bioinformatics tools used to design a good primer. (10 Marks)

OR

- 10 a. Write a short note on: i) QSAR ii) DOCKING. (10 Marks)
- b. Describe the application and importance of molecular modeling and drug discovery in the pharmacology field. (10 Marks)
