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18BT63

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) NNPREDIT. **(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)**

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