PG Even Semester Exam, 2024

Biotechnology

2nd Semester

COURSE NO. BTYCC - 553

[Bioinformatics]

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer five questions, taking one from each Unit

UNIT-I

1. Define bioinformatics. Discuss the principles of bioinformatics. Write a note on the major developments of bioinformatics since its inception. 3+6+5=14
2. Discuss the tools used in bioinformatics. 14

UNIT-II

3. What are biological databases? Discuss the features of biological databases. Write a note on different biological databases with examples. 2+7+5=14
4. Explain the process of database browsing and data retrieval. Discuss the features of any two sequences or genome databases. 7+7=14

UNIT-III

5. What is phylogenetic tree? Describe the different types of phylogenetic trees. Discuss distance-based methods of preparation for phylogenetic tree. 3+5+3+3=14
6. Describe the difference between global and local alignments. Find out the alignments between the following sequences: 6+8=14

   A T G C T and A G C T by using the Needlleman-Wunsch Algorithm.

UNIT-IV

7. Explain gene prediction and its methods with the names of tools used to predict genes. 14
8. Draw the diagram of eukaryotic and prokaryotic gene structure. What are the challenges in the gene prediction of prokaryotic and eukaryotic organism? 7+7=14

UNIT-V

9. What are three different methods for protein structure prediction? Define Rosseta algorithm and its advantages. 5+9=14
10. What is protein-Ligand docking? Explain its advantages and limitations. 14

★★★

2024/SEM/EVEN/08/28/BTY-553/311

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