Exam.Code:5141
Sub. Code: 14302

2125

B.Sc. (Hons.) Bioinformatics (FYUP)

First Semester

BINF-1002: Fundamentals of Bioinformatics - I

(Common with B.Sc. Biotechnology 1st Semester NEP)

Time allowed: 3 Hours Max. Marks: 60

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

1. Answer the following:-
   a) Differentiate between affine and general gap penalty.
   b) Define bioinformatics.
   c) Give the disadvantages of flat file format.
   d) What are the applications of DOT matrix alignment?
   e) Differentiate between BLAST N and BLAST X.
   f) What is the full forms of PAM & BLOSUM? (6x2)

UNIT - I

2. Write notes on the following:-
   (a) Nucleotide sequence databases
   (b) Specialized databases (6,6)

3. (a) Discuss the UNIPROT consortium and give its applications.
   (b) What are the applications of EMBL and Pubmed? (6,6)

4. (a) What are the goals of bioinformatics and its applications?
   (b) Discuss information retrieval from biological databases. (6,6)

UNIT - II

5. (a) Compare and contrast sequence homology, similarity and identity using suitable examples.
   (b) Give the applications of sequence alignments. (6,6)

6. (a) Discuss the BLAST algorithm.
   (b) What are the applications of global and local alignments? (6,6)

7. (a) Taking a suitable example discuss sequence alignments using Smith-Waterman algorithm.
   (b) Differentiate between BLAST and FASTA. (6,6)

x-x-x