Exam.Code:5011
Sub. Code: 11744

2125

Bachelor of Science (FYUP) First Semester

BIFM-1: Bioinformatics - I

Time allowed: 3 Hours Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) What is a dihedral angle?

b) Name two acidic amino acids.

c) Draw a well labelled diagram of tRNA.

d) What are the disadvantages of flat file format?

e) Differentiate between general and affine gap penalty.

f) Give full forms of IBDC and EMBL. (6x2)

UNIT - I

II. a) Discuss the conformations of DNA.

b) How is a disulphide bond formed and what is its importance? (8,4)

III. a) Discuss the hierarchical classification of protein structures.

b) Distinguish between snRNA and snoRNA. (8,4)

IV. a) Draw a well labelled diagram of the secondary structure of tRNA and give its function. (6)

b) Distinguish between:-

i) nucleotide and nucleoside

ii) Alpha helix and beta sheet (2x3)

UNIT - II

V. a) Compare and contrast sequence homology similarity and identity using suitable examples.

b) What are the applications of sequence alignments? (8,4)

P.T.O.

VI. a) Discuss the Smith-Waterman algorithm using any pair of nucleic acid sequence having atleast 6 bases each.

b) What are the applications of local and global alignments? (8,4)

VII. a) Write a note on Genbank flat file format.

b) Distinguish between primary and secondary databases. (6,6)

x-x-x