2112
B.A./B.Sc. (General) First Semester
Bio-Informatics
BNE-1001: Introduction to Bio-Informatics

Time allowed: 3 Hours

Max. Marks: 67

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

x-x-x

I. Explain the following:-

   a) Denaturation of dsDNA.

   b) Role of Supercoiling.

   c) ORF

   d) Introns

   e) Wobble hypothesis.

   f) FASTA format.

   g) Pubmed.

   h) Boolean search.

   i) Primary databases.

   j) Roles of nucleic acids.   (10x1½)

UNIT - I

II. a) Describe the features of double helical DNA with diagrammatic representation.

   b) What are nucleic acids and its types?   (7,6)

III. a) Explain in brief quaternary structure of proteins.

   b) Write a note on open reading frame and its importance.   (7,6)

IV. a) Explain different protein secondary structures with diagrammatic representation.

   b) What is a codon and explain its universal feature and comma less feature? (7,6)

V.   a) What is homology of proteins sequences?

   b) Explain degeneracy of codon.   (7,6)

P.T.O.

UNIT - II

VI. a) Explain secondary databases with example for both nucleotide and proteins.

b) Write notes on PIR and Swiss Prot. (7,6)

VII. a) Explain NCBI and DDBJ.

b) What is NCBI bookshelf? (7,6)

VIII. a) If you are required to have some protein data for your research which databases would you prefer. Justify your answer.

b) Write a note on different types of sequence formats. (7,6)

IX. a) Write notes on the following:-

i) Entrez

ii) Medline.

b) What is flat file format and their disadvantages? (7,6)

x-x-x