

Exam.Code:0910

Sub. Code: 6715

2062

B.E. (Biotechnology) Sixth Semester
BIO-612: Bio-Informatics

Time allowed: 3 Hours

Max. Marks: 50

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

x-x-x

I. Answer the following:-

- a) Define an ORF in a nucleotide sequence.
- b) What information is provided by T-Coffee program?
- c) What is star decomposition?
- d) What type of information can be submitted at Bankit?
- e) What is the application of Cn3D program?
- f) What is the function of CASP program?
- g) What is force field in molecular dynamics?
- h) What are nodes in a tree and how are these different from a clade.
- i) How do you describe identity in a protein sequence?
- j) When was Human Genome project started and finished? (10x1)

UNIT - I

II. a) What are the differences in Primary and Secondary nucleotide database? Discuss the features of PROSITE and Gen Bank databases.

b) Write a note on MEDLINE database. (8+2)

III. Discuss the following databases in respect of features and applications.

- a) DDBJ
- b) UNIPROT
- c) PDB
- d) Maize GDB (4x2½)

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6th Rev

Sub. Code: 6715

(2)

- IV. a) Briefly describe the phylogenetic tree construction by distance-based methods.
b) Discuss the salient features of Human Genome project and its applications in terms of benefit in the field of biotechnology. (6+4)

UNIT - II

- V. Briefly describe the features of following Gene Prediction software's,
a) Gen Scan
b) Grail
c) Glimmer (4+3+3)
- VI. a) Discuss how is the protein secondary structure prediction performed using Chou-Fasman Method.
b) Briefly discuss the features used for defining exon -intron boundaries. (8+2)
- VII. a) Briefly describe the drug discovery process and role of bioinformatics in this process.
b) Write a short note on Rasmol graphics package. (7+3)

x-x-x