

2056
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. I which is compulsory and selecting two questions from each Section.

x-x-x

Q1. Answer the following:-

- i.) What is application of Chou-Fasman method.
- ii.) What is significance of polyA sites in gene prediction approaches.
- iii.) Write a short note on Glimmer program.
- iv.) Briefly describe the features of cladogram.
- v.) For divergent sequence analysis which type of PAM matrices will be most suitable.
- vi.) What is significance of CLUSTAL W program.
- vii.) Write a short note on Maize GDB database.
- viii.) Briefly write a note on ORF Finder.
- ix.) Write short note on application of Rasmol program.
- x.) How to deposit gene sequence data in NCBI by deposition system. (1x10)

Section-A

- Q.2a)** Briefly discuss the features and applications of literature databases in relevance to biological data
b) Write a note on BLOSUM scoring matrices and their application. (6+4)
- Q.3** Discuss the procedure for database searches for homologous sequences in following databases
a) BLAST **b)** PSI-BLAST (7+3)
- Q.4 a)** Briefly describe the Phylogenetic tree construction using distance-based methods.
b) Write short note on Human Genome project in terms of its applications. (6+4)

Section-B

- Q.5a)** Briefly discuss the prediction of secondary structures using Chou-Fasman method.
b) Write a short note on molecular graphics packages with a suitable example. (7+3)
- Q.6a)** Discuss the concept of Quantitative structure activity relationships in drug designing approach.
b) Write a short note on GenScan gene prediction software. (6+4)
- Q.7a)** Briefly describe the ab-initio method for prediction of three-dimensional structure of proteins.
b) Write a short on molecular dynamics simulations and its applications. (6+4)

x-x-x