

2053  
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 Section.

x-x-x

**1. Answer the following:-**

- i.) Briefly describe the applications of Rasmol bioinformatics program.
- ii.) Why is energy minimization required in molecular modelling approaches.
- iii.) What is application of CLUSTAL W program.
- iv.) Write a short note on PSIPRED program.
- v.) What type of information's are stored in PDB database.
- vi.) What is the difference in PSI-BLAST and PHI-BLAST.
- vii.) Briefly describe the difference in rooted and unrooted trees.
- viii.) What is BLOSSUM program used for?
- ix.) Briefly describe the applications of Maize GDB database.
- x.) Briefly write applications of Bankit system in bioinformatics data collections. (1x10)

**Section-A**

- 2a) What are literature databases, discuss the feature and applications of these databases.  
b) Write a note on applications of bioinformatics in the biotechnology field. (5+5)
- 3 Discuss the following methods in phylogenetic tree construction. (5+5)  
(a) Distance based methods (b) Character based methods
- 4a) Briefly describe the primary sequence databases, add a note on at least two such databases holding such information.  
b) Discuss the Amino acid Scoring matrices and their application. (6+4)

**Section-B**

- 5 Briefly discuss the following Gene prediction software's for features and applications. (4+3+3)  
a) GenScan b) Grail c) Glimmer
- 6a) Discuss the basics of Chou-Fasman/GOR method for predicting the structure of an amino acid sequence.  
b) Write a short note on ORF finder program for its applications. (6+4)
- 7a) Briefly describe the Drug Discovery process by computer aided drug designing.  
b) Write a short note on concept of force field in molecular dynamics. (7+3)

x-x-x

