

Register Number:.....

B.TECH., DEGREE EXAMINATIONS MAY/JUNE 2013

Seventh Semester

BIO TECHNOLOGY

BTY121: BIO INFORMATICS

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10x1=10 Marks)

1. To create a directoryUNIX command is used
A. PWD B. CD C. MKDIR D. CAL
2. TELNET protocol TCP provide thecommunication facility
A. Terminal B. Terminal-Terminal C. process-Process D. Both B&C
3. Which of the following annotation is not provided by SWISS-PROT
A. Protein function B. Domain structure
C. Post translation modification D. Crystal formations
4. What is PROSITE?
A. A database of protein structures B. A database of interacting proteins
C. A database of protein motifs D. A search tool
5. You have two distantly related proteins. Which BLOSUM or PAM matrix would you choose to compare them?
A. BLOSUM45 or PAM250 B. BLOSUM60 or PAM1
C. BLOSUM80 or PAM120 D. BLOSUM80 or PAM1
6. Which of the methods will provide a multiple sequence alignment?
A. PSIBLAST B. Web Logo C. Pfam D. Clustal W
7. The two main features of any phylogenetic tree are the
A. Clades and the nodes B. topology and the branch lengths
C. clades and the root D. alignment and the bootstrap
8. Ultrametric trees are having the character of.....
A. Every leaf encodes a certain specie B. Distances are placed on edges
C. Rooted D. Unrooted
9. Polycistronic mRNA refers to.....

- A. mRNA which is transcribed by multiple RNA polymerases
 - B. mRNAs that are simultaneously translated
 - C. mRNA that is translated by many ribosomes simultaneously
 - D. mRNA with multiple open reading frames
10. The core principle behind microarray is.....
- A. Complications
 - B. Hybridization
 - C. Replication
 - D. Multiplication

PART B (10 x 2 =20 Marks)

11. Write a short note on Telnet.
12. What are the basic categories of network topology?
13. Expand NCBI, EMBJ, DDBJ, and PIR.
14. What is gap penalty?
15. Differentiate PAM and BLOSUM Matrices.
16. Define the heuristics methods for biological sequence analysis.
17. Define molecular clock theory.
18. What is Bootstrap value?
19. Write the role of microarray in gene expression analysis
20. What do you understand by the term system biology?

PART C (5 x 14 =70 Marks)

21. a) (i) Define Elementary commands and Protocols used in biological networks? (7)
- (ii) Draw and describe the basic network topologies view of internetworking devices and interconnecting media. (7)
- (OR)**
- b) Explain any five search engines known to you in detail.

22. a) (i) Give an account on nucleotide sequence database and its practical utility. How is DNA sequence submitted to the database? (7)
- (ii) Write the Recursive equations for global alignment. (7)
- (OR)**
- b) Compare and contrast Needleman – Wunsch and Smith – Waterman algorithms in detail.

23. a) (i) Define and differentiate the following

- I. PAM and BLOSUM (4)
- II. BLAST and FASTA I (3)

(ii) Describe a bioinformatics application of hidden Markov models. (7)

(OR)

b) Explain the applications of machine learning techniques in bioinformatics.

24. a) Briefly explain about the phylogenetic tree construction method and analysis.

(OR)

b) Describe bootstrapping technique of phylogeny analysis in detail.

25. a) (i) Define clustering? Elaborate any two clustering method to analyze the gene expression. (8)

(ii) Write a note on Chow-Fasman method of protein secondary structure prediction. (6)

(OR)

b) Write a detailed account on

(i) Systems biology. (7)

(ii) Computer aided drug design. (7)
