

B.Tech Degree VIII Semester (Supplementary) Examination September 2011

CS/EB/EC/IT 804 (B) BIOINFORMATICS (2006 Scheme)

Time: 3 Hours

Maximum Marks: 100

PART A (Answer ALL questions)

(8 x 5 = 40)

- I. (a) How is the information required for the structure and function of an organism organized?
(b) Name one proteomic data base. How is the information organized and accessed from it?
(c) Write a note on the Smith-Waterman algorithm and its application.
(d) What is BLOSUM? What is it used for?
(e) What is a DNA microarray? What is it used for?
(f) How is signal processing for genomic sequences performed?
(g) How is protein threading different from homology modeling?
(h) What is phylip? What are the kinds of programs available in the phylip package?

PART B

(4 x 15 = 60)

- II. (a) What is genetic code? How and why do organisms use a genetic code? (8)
(b) What is transcriptomics? What are its applications? (7)
OR
- III. (a) What are the steps in protein synthesis? (7)
(b) Write a note on the NCBI. (8)
- IV. (a) Discuss the role of star and tree alignments in phylogenetic analysis. (7)
(b) How is a star or tree alignment done? (8)
OR
- V. (a) What is the SP measure? What is it used for? (7)
(b) Write a note on computer programs for multiple sequence alignment. (8)
- VI. (a) What is meant by "gene expression"? (5)
(b) Write a note on software tools available for identification of protein coding regions. (10)
OR
- VII. (a) What are DNA spectrograms? What is the use of spectrogram analysis? (10)
(b) What is GRAIL? (5)
- VIII. (a) Differentiate between gene organization in prokaryotes and eukaryotes. (8)
(b) Write a note on Ras Mol. (7)
OR
- IX. (a) Elucidate the role of bioinformatics in drug discovery. (10)
(b) Write a note on software packages used for molecular visualization. (5)