

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

June, 2017

00504

BICSE-008 : BIO-INFORMATICS

Time : 3 hours

Maximum Marks : 70

Note : Answer any **seven** questions. All questions carry equal marks.

1. Define Bio-informatics. What are the different parts in biological databases ? Explain. 10

2. (a) Describe the algorithm issues in database search.

- (b) What is the difference between amino-acid substitution matrices PAM 250 and BLOSUM 62 ? 5+5

3. (a) Define structural classification of proteins.

- (b) Differentiate between BLAST and FASTA tools for sequence alignment. 5+5

4. Define microarray. How is it represented in clustering? 10
5. With a neat diagram, explain the protein structure prediction. 10
6. Explain the computational methods of identification of polypeptides from mass spectrometry. 10
7. (a) What is classical NMR spectroscopy?
(b) Explain integrated genomic maps in detail. 5+5
8. What is natural language processing? Explain with some examples. 10
9. What is a 'gene'? Write the fine structure of a gene and compare the structural difference of genes between prokaryotes and eukaryotes. 10
10. Write short notes on any *two* of the following: 5+5
- (a) Hidden Markov Models
 - (b) Protein and Ligand Binding
 - (c) Multiple-threading Algorithm
 - (d) Proteomics