

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

**Term-End Examination**

00176

**June, 2016**

**BICSE-008 : BIO-INFORMATICS**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any **seven** questions. Each question carries equal marks.

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1. (a) What are the main objectives of bio-informatics ? 5
- (b) Explain the bio-informatics applications related to structure prediction and proteomics. 5
2. (a) Define biological database and list its applications. 5
- (b) How can you classify sequence database ? 5
3. (a) What are the challenges in Moore's law ? 4

- (b) Explain FASTA algorithm in detail with recommended steps for similarity searching. 6
4. (a) Explain the relaxation and dynamic processes of Nuclear Magnetic Resonance (NMR). 5
- (b) Differentiate between DNA and RNA. 5
5. What is gene ? Write the fine structure of gene and compare the structural difference of gene between prokaryotes and eukaryotes. 10
6. (a) What are the methods of 3-D structure prediction ? 5
- (b) Explain 3-D structure of macro molecules using DSSP and STRIDE methods. 5
7. (a) Explain integrated genomic maps in detail. 5
- (b) Classify and explain the major databases in bio-informatics giving examples of each. 5
8. (a) Explain the natural language processing and its limitations. 5
- (b) Describe the micro array clustering and its classification. 5

9. (a) Write the MUSTA algorithm for geometric hashing. 5
- (b) Describe the dynamic programming for sequence alignment. 5
10. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) Bio-Informatics Tools
- (b) Microarray Clustering
- (c) RNA Secondary Structure
- (d) 3-D Motifs and Final Thoughts
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