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BIELE-017

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

00153

Term-End Examination

June, 2018

BIELE-017 : BIO-INFORMATICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Missing data, if any, may be suitably assumed. Use of scientific calculator is allowed.*

1. (a) What are the challenges in bio-informatics in the post-genomic era ? *5*

(b) Write down the various steps used by the Basic Local Alignment Search Tool (BLAST) algorithm. *5*

2. (a) What do you mean by biological databases ?

(b) Explain the dynamic programming sequence alignment. *5+5*

3. (a) Discuss various features of RNA secondary structure with necessary diagrams. 5

(b) Give the classification of microarray clustering. 5

4. Define the term Xtallography and briefly explain the process of Xtallography. 10

5. (a) Explain how a MUSTA algorithm is used for geometric hashing and multiple alignment. 5

(b) Discuss the relationship of multiple sequence alignment with phylogenetic analysis. 5

6. Describe the 3D structure alignment process. Write down the various areas where 3D structure is used, with brief description. 10

7. (a) What do you understand by genetic algorithm ? Explain with suitable example. 5

(b) Explain the methods involved in the prediction of a protein structure. 5

8. Explain hidden Markov model with its various applications. 10

9. (a) Discuss natural language processing in bio-informatics. *5*

(b) Differentiate between 1D and 3D motifs. *5*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Phylogenetic algorithms

(b) Genome alignment

(c) FASTA