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Roll No.

BTECH
(SEM VI) THEORY EXAMINATION 2018-19
BIOINFORMATICS-II

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2x7=14

a. Define bioinformatics.
b. What is machine learning?
c. Define natural language processing.
d. Define Open reading frame.
e. Give the basic definition of RNA structure prediction.
f. Define protein-ligand docking.
g. Write a short note on multiple sequence alignment.

SECTION B

2. Attempt any *three* of the following. 3x7=21

a. Briefly explain the Homology identification for a protein function.
b. Enlight the basics of RNA structure prediction and its limitations in detail.
c. Explain machine learning process in detail. Also discuss Artificial Neural network as a part of machine learning.
d. Show the basic concept of force field in molecular modeling in bioinformatics.
e. What is NLP? Explain in details.

SECTION C

3. Attempt any *one* part of the following. 7x1=7

a. Explain protein structure prediction with its specific 3d diagram in detail.
b. Explain Hidden markov model as a part of machine learning.

4. Attempt any *one* part of the following. 7x1=7

a. Explain Insilico drug designing in detail. Also gives major steps used in drug designing process.
b. Briefly explain computer simulation techniques in detail.

5. Attempt any *one* part of the following. 7x1=7

a. What is protein function prediction? Enlight it with specific tools and databases.
b. Explain the RNA structure prediction method in detail.

6. Attempt any *one* part of the following. 7x1=7

a. Explain Support Vector Machine as a part of machine learning.
b. What is QSAR Modeling? Explain in detail.

7. Attempt any *one* part of the following. 7x1=7

a. Discuss Pharmacodynamics (Efficacy & Potency) in detail.
b. Explain Lipinski's rule of five in detail.