M. Sc. Bioinformatics Sem.-III (2013 Course) (Choice Based Credit Systems) : SUMMER - 2019
SUBJECT : BIOLOGICAL DATA MINING

Day	:	Thursday	Time :	02.00 PM TO 05.00 PM
Date	:	04/04/2019	**S-2019-1470**	Max. Marks : 60

N.B.:

1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of the remaining attempt **ANY TWO** questions from each section.

2) Answers to both the sections should be written in _S A M E_ ⌐ answer books.

3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 Explain the principle of: [10]
   a) Steepest Descent
   b) Conjugate Gradient
   c) Newton-Raphson
   d) Simulated annealing
   e) Data accuracy

Q.2 Write short notes on: [10]
   a) Biological databases quality check points
   b) Microarray data quality check points

Q.3 Answer the following: [10]
   a) What are the _Ab-initio_ methods for structure prediction?
   b) Explain MD trajectories.

Q.4 Explain in detail genetic algorithm and its applications. [10]

OR

Differentiate between supervised and unsupervised genetic algorithm with example.

SECTION – II

Q.5 Explain the principle of: [10]
   a) HMM   c) Bayesian Modeling   e) Machine learning techniques
   b) NN   d) Cox-Jaynes Axiome

Q.6 Write short notes on: [10]
   a) Global and local alignment algorithm
   b) Structure alignment method

Q.7 Answer the following: [10]
   a) How dot plot works? Explain with example.
   b) Explain any one protein structure prediction method.

Q.8 Explain in detail Ant Colony Optimization. [10]

OR

How to use fuzzy logic in micro array data analysis?

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