

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

Day : Thursday
Date : 04/04/2019

S-2019-1470

Time : 02.00 PM TO 05.00 PM
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 **SAME** 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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