

ADVANCED DIPLOMA IN BIOINFORMATICS SEM.-II
(C.B.C.S.) (2013 COURSE) : SUMMER - 2018
SUBJECT: ADVANCED BIOINFORMATICS

Day: Wednesday

Time: 02.00 PM TO 05.00 PM

Date: 04/04/2018

S-2018-1136

Max. Marks: 60

N.B:

- 1) **Q. No. 1 and Q. NO. 5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** from each sections.
- 2) Answer to both the sections should be solved in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION-I

- Q.1** Define: **(10)**
- a) Bayesian modeling
 - b) Supervised Genetic algorithm
 - c) HMM for classification of proteins
 - d) Neural Network
 - e) Probabilistic framework
- Q.2** Write short notes on: **(10)**
- a) Dynamic programming
 - b) Machine learning algorithms
- Q.3** Answer the following: **(10)**
- a) How do you analyze the data by using microarray technology? State the recent advancement in this field?
 - b) Explain the different approaches used for operon prediction. Enlist two online tools for it with their applications.
- Q.4** Explain any two protein structure prediction algorithms in detail. **(10)**

OR

Explain the methodology, principal, applications and drawbacks of metabolic pathway engineering.

SECTION-II

- Q.5** Explain the following terms: **(10)**
- | | |
|-------------------------------------|-------------------------------------|
| a) Sensitivity and specificity | b) Local and global alignment |
| c) Identify and similarity | d) Paralogous and orthologous genes |
| e) True positive and false negative | |
- Q.6** Write short note on: **(10)**
- | | |
|-------------|---------------------|
| a) Dot plot | b) Scoring matrices |
|-------------|---------------------|
- Q.7** Answer the following: **(10)**
- a) Explain in brief any one genome alignment method.
 - b) Explain the applications of gene prediction algorithms.
- Q.8** Explain in detail supervised and unsupervised genetic algorithms with example. **(10)**

OR

Describe gene prediction and operon prediction algorithm in brief. Enlist their applications respectively.

* * * * *