

**Advanced Diploma in Bioinformatics Sem.-II (C.B.C.S.) (2013 Course)**  
**: WINTER - 2018**

**SUBJECT : ADVANCED BIOINFORMATICS**

Day : Saturday  
Date : 20/10/2018

**W-2018-1265**

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 remaining attempt **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION – I**

**Q. 1** Explain in detail about any two machine learning techniques. **(10)**

**OR**

Explain any two Dynamic Programming methods.

**Q. 2** Write short notes on: **(10)**

- a) HMM/NN simulator
- b) Probabilistic framework

**Q. 3** Answer the following: **(10)**

- a) How HMM could be utilized for classification of proteins?
- b) State with example utilization of NN in bioinformatics.

**Q. 4** Differentiate between the following: **(10)**

- a) Supervised and unsupervised genetic algorithm.
- b) Bayesian modeling and probabilistic modeling

**SECTION – II**

**Q. 5** Enlist and explain any two gene prediction algorithms. **(10)**

**OR**

Enlist and explain any two Operon prediction algorithm.

**Q. 6** Write short notes on: **(10)**

- a) Genome alignment methods
- b) Gene order comparison tools

**Q. 7** Answer the following: **(10)**

- a) What are the criteria for gene annotations? Explain.
- b) Describe any one protein structure prediction method.

**Q. 8** Write in detail on microarray data analysis pipeline. **(10)**

**OR**

What is metabolic pathway engineering? How it is useful in genetic engineering? Explain with example.

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