

(Following Paper ID and Roll No. to be filled in your  
Answer Books)

Paper ID : 154613

Roll No. 

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**B. TECH.**

**Theory Examination (Semester-VI) 2015-16**

**BIOINFORMATICS-II**

***Time : 3 Hours***

***Max. Marks : 100***

**Section-A**

**1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2 × 10 = 20)**

- (a) What is genomic sequence annotation? Give some tools for Gene and ORF prediction.
- (b) What is Microarray? How bioinformatics is applied to analyse microarray data?
- (c) What is machine learning? Name some machine learning approaches.
- (d) What is a Decision Tree? Give example.
- (e) What is computer simulation?

- (f) Describe the relation between statistics and machine learning.
- (g) Explain the technique of Document clustering.
- (h) What is Lipinski's rule of five in insilico drug designing?
- (i) What is the difference between Parametric and Non-Parametric tests?
- (j) Explain Perl? What are Arrays, Hashes in Perl ?

### Section-B

2. Attempt any five parts. All parts carry equal marks :  
(10×5=50)

- (a) What is simulated annealing ?
- (b) How is Artificial Neural Network helpful in solving biological problems?
- (c) Discuss and describe the Genetic Algorithm.
- (d) Explain Natural Language Processing. Discuss its major areas.
- (e) Describe computer simulation techniques and its types.

(2)

- (f) Explain Pharmacodynamics (Efficacy & Potency) & Pharmacokinetics (ADME).
- (g) Explain the methods of clustering (Hierarchical and K-mean).
- (h) Describe Hidden Markov Model and one of its application.

### Section-C

**Note :** Attempt any two questions from this section.(15×2=30)

- 3. Describe and discuss some molecular biology techniques and their inference problems solved by the help of bioinformatics.
- 4. What is force field in molecular modeling? How is it helpful in study of molecular dynamic simulation?
- 5. What is in silico drug designing? Explain Ligand and Structure based drug designing.

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