Total No. of Questions : 10]

SEAT No. :

**P3650**

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# [4959]-1141
# B.E. (Information Technology)
# BIOINFORMATICS
## (2012 Course) (Elective-IV) (414464 A) (Semester-II)

*Time : 2½ Hours]* *[Max. Marks : 70*

***Instructions to the candidates:***

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

***Q1)*** a) What is scope of Bioinformatics? Explain protein structure databases. **[6]**

b) Explain any two rendering tools used in visualization. **[4]**

OR

***Q2)*** a) Define Bioinformatics. Explain Bioinformatics application related to the following areas. **[6]**

i) Phylogenetic Analysis.

ii) Genome Annotation.

b) Explain sources of veriability in microarray preparation & reading. **[4]**

***Q3)*** a) Explain major steps in pattern recognition & discovery process with diagram. **[8]**

b) Difference between clustering & classification. **[2]**

OR

***Q4)*** a) What is meant by sensitivity & specificity of statistical analysis tool. **[2]**

b) Explain knowledge discovery process or datamining methods with neat diagram. **[8]**

***P.T.O.***

***Q5)*** a) Explain similarities & differences between BLAST & FASTA tools for sequence elignment. **[8]**

b) Write short note on: **[8]**

i) Heuristic methods for sequence alignment.

ii) Prediction algorithm for phylogenetic.

OR

***Q6)*** a) Explain FASTA algorithm with recommended steps for similarity searching in detail. **[8]**

b) Explain different prediction algorithm for genes. **[8]**

***Q7)*** a) Explain comparitive modeling process with neat diagram. **[8]**

b) Explain process of drug discovery in detail. **[8]**

OR

***Q8)*** a) Discuss the components of modeling & simulation system alongwith process. **[8]**

b) Write short note on: **[8]**

i) Methods for protein modeling.

ii) Model refinement & evaluation.

***Q9)*** a) Write short note on: **[12]**

i) Tools for modeling & simulation.

ii) Hidden Markov model.

b) Explain recent trends in Bioinformatics. **[6]**

OR

***Q10)***a) What are Future trends in Bioinformatics? **[6]**

b) Write short note on: **[12]**

i) Structural Bioinformatics in drug discovered.

ii) System Biology in human health & disease.

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