

Total No. of Questions : 12]

SEAT No. :

**P807**

**[4659] - 220**

**[Total No. of Pages : 2**

**B.E. (Information Technology) (Semester - II)**

**BIO INFORMATICS**

**(2008 Pattern) (Elective - IV(a))**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answer 3 questions from Section I and 3 questions from Section II.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*

**SECTION - I**

- Q1)** a) Explain what is Bioinformatics. Mention it's objective and definition. [8]  
b) Explain central dogma of molecular biology. [10]

OR

- Q2)** a) Define Bioinformatics. Mention and explain it's various application. [10]  
b) Explain the Baye's Rule application in biological sequence analysis. [8]

- Q3)** a) Discuss and comment on resolution and accuracy of methodology and steps used to create sequence Maps. [8]  
b) What is clustering? Explain two methods of gene expression data. [8]

OR

- Q4)** a) Explain biology data visualization and sequence visualization. [8]  
b) Differentiate clustering and classification. [4]  
c) Describe advantages of clustering in molecular biology. [4]

- Q5)** a) Describe K-mean clustering method in detail with an example. [8]  
b) Enlist pattern matching techniques in bioinformatics explain any one in detail. [8]

OR

- Q6)** a) Write short notes: [9]  
i) Dot Matrix Analysis.  
ii) Dynamic Programming  
iii) Word Method  
b) How bioinformatics related with machine learning techniques. Explain any one machine learning methods with bioinformatic applications. [7]

**P.T.O.**

## **SECTION - II**

- Q7)** a) Write a short notes on: [10]  
i) Collaboration and communication model.  
ii) Synchronous and usynchronous model.  
b) Explain drug discovery in detail. How bioinformatics can help in novel drug discovery. [6]

OR

- Q8)** a) What are the component involved in modeling and simulation system? Explain the basic modeling and simulation process in regards to bioinformatics with neat diagram. [10]  
b) Explain the comparative modeling process of protein structure prediction. [6]

- Q9)** a) Explain BLAST Algorithm in detail. [8]  
b) Explain FASTA Algorithm. What FASTA programs are available for sequence alignment. [8]

OR

- Q10)** a) Enlist and explain different Bioinformatic tools. [8]  
b) Compare FASTA and BLAST tools for sequence Alignment. What are the recommended steps for FASTA search. [8]

- Q11)** a) Discuss Application of Genetic engg. [10]  
b) Define Bio-technology. Mention significance of biotechnology. [8]

OR

- Q12)** a) What is futurescope of bioinformatic in biotechnology. [8]  
b) Explain the process of interchange and transformation of pollutants in atmosphere, hydrosphere and lithosphere. [10]

