

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – SUMMER • 2015

Subject Code: 170406**Date: 06/05/2015****Subject Name: Bioinformatics****Time: 02.30pm-05.00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Elucidate on various biological database retrieval systems. **07**
(b) What is comparative protein modeling? State its applications. **07**
- Q.2** (a) Discuss protein microarrays. **07**
(b) What do you mean by 'gap' in sequencing? Introduce the equation for calculating gap penalty. **07**
- OR**
- (b) Explain in brief the following terms: 1) Indel events. 2) Homologs. **07**
- Q.3** (a) Compare Global Alignment and local alignment for pairs of sequences. **07**
(b) State your approach for Protein function prediction task. **07**
- OR**
- Q.3** (a) Write a note on: Dynamic Programming. **07**
(b) Elucidate on biochemical networks. **07**
- Q.4** (a) Discuss the various branches of Bioinformatics. **07**
(b) State the potential applications of proteomics research. **07**
- OR**
- Q.4** (a) Highlight on the fundamentals of Multiple Sequence Alignment. **07**
(b) Explain the role of tertiary structure prediction in genomics. **07**
- Q.5** (a) Describe DOT plot technique. (Aim, Steps, Disadvantage). **07**
(b) State the applications of bioinformatics' tools in novel drug discovery. **07**
- OR**
- Q.5** (a) Discuss BLOSSUM matrix in detail **07**
(b) How sequence similarity search is attained by FASTA. **07**
