

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-V • EXAMINATION – SUMMER • 2015

Subject Code: 2650015

Date: 11-05-2015

Subject Name: Bioinformatics (Bio-I)

Time: 02:30 pm to 05:00 pm

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) What is Bioinformatics? Explain the skills required for a Bioinformatician and explain challenges in information processing. **07**
(b) Explain the steps involved in an experiment in computational biology. **07**
- Q.2** (a) Explain Watson and Crick's structure of DNA. **07**
(b) Explain central dogma of molecular biology in detail. **07**
- OR**
- (b) Explain the Public Biological Databases in detail. **07**
- Q.3** (a) What is structure visualization? Explain in detail. **07**
(b) Attempt following
1. Protein resource databases **03**
2. SWISS-MODEL server **04**
- OR**
- Q.3** (a) Explain motif databases in detail. **07**
(b) Explain multiple sequence alignment techniques in detail. **07**
- Q.4** (a) Explain protein structure classification in detail. **07**
(b) Explain X-ray Crystallography in detail. **07**
- OR**
- Q.4** (a) Explain SCOP, CATH and UPSDS in detail. **07**
(b) Explain BLAST algorithm in detail. **07**
- Q.5** (a) Explain decision trees and neural networks in detail. **07**
(b) Attempt following.
1. What is SQL? Explain the datatypes used in SQL. **03**
2. Write short note on CGI. **04**
- OR**
- Q.5** (a) Explain flat files databases and relational databases in detail. **07**
(b) Explain different DBMS software in detail. **07**
