

Seat No.: \_\_\_\_\_

Enrolment

No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014**

**Subject code: 1723109**

**Date: 08-12-2014**

**Subject Name: Introduction to Bioinformatics**

**Time: 02:30 pm - 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) Describe Central Dogma of molecular biology in detail. **07**  
(b) What is database? Why does one need a biological database? **07**
- Q.2** (a) What is bioinformatics? Enlist the objectives of Bioinformatics. **07**  
(b) Describe the process of polymer chain reaction (PCR). **07**
- OR**
- (b) Explain in detail with figure: Structure and function of RNA. **07**
- Q.3** (a) Give steps of cloning method. **07**  
(b) Explain the four level of protein structure in detail. **07**
- OR**
- Q.3** (a) Write Short Note: Watson and Crick's structure of DNA. **07**  
(b) What is Bio-Perl? Explain tasks performed by Bio-Perl for bio informatics. **07**
- Q.4** (a) What is sequence alignment? Explain models for sequence analysis. **07**  
(b) What is gene? Write a short note on GeneBank. **07**
- OR**
- Q.4** (a) What is an associative array explain with example and also explain push pop, shift and unshift function with example. **07**  
(b) Write a short note on FASTA. **07**
- Q.5** (a) Write a Perl program to store a DNA sequence in a variable and print it. **07**  
(b) Explain following functions with example: join and split **07**
- OR**
- Q.5** (a) Write a Perl program to reverse complement strand of DNA. **07**  
(b) Explain with example : grep **07**

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