Paper Code: EIT 073 **Roll No.** | | | | | | | | | | |

B. TECH.
(SEM VII) ODD SEMESTER EXAMINATION 2015-16
BIOINFORMATICS

Time: 3 Hrs. **MM: 100**

Note: Attempt ALL questions.

Q1: Answer **any TWO** parts: **(10X2=20)**

(a) "Bioinformatics is an interdisciplinary area." Justify it. Discuss various issues regarding the data integration in bioinformatics.

(b) What do you understand by central dogma of molecular biology? Discuss it in detail.

(c) Write short note on the following:
   (i) Various major bioinformatics databases.
   (ii) Biological data analysis.

Q2: Answer **any TWO** parts: **(10X2=20)**

(a) What are various nucleotides in DNA? Why the forward strand in DNA is denoted by 5' to 3' and reverse strand by 3' to 5'? Explain it with the structure of nucleotide.

(b) (i) What is RNA? Discuss its role in molecular biology.
(ii) What do understand by DNA replication? Explain.

(c) What do you mean the primary, secondary and tertiary structure of protein? Also explain the protein folding problem.

Q3: Answer **any TWO** parts: **(10X2=20)**

(a) What are the merits and demerits of scripting languages? Write a program to read a short sequence of nucleotides (approximately 100) and then convert it into RNA.

(b) Write short on the following: (i) XML. (ii) CORBA.

(c) (i) Discuss the main issues in web deployment.
(ii) Pros and cons of Linux over MS Windows operating system.

Q4: Answer **any TWO** parts: **(10X2=20)**

(a) Define sequence alignment. What are various algorithms used in sequence alignment? Discuss any one method in detail.

(b) (i) Write a short note on expressed sequence tags.
(ii) What are various data retrieval techniques? Explain.

(c) Discuss the various computational representations for storing the molecular biological data.

Q5: Answer **any TWO** parts: **(10X2=20)**

(a) What do understand by the term biological patterns? Give any example of biological pattern. How these patterns are represented? Explain.

(b) Write a note on BLAST.

(c) Explain the following:
   (i) Generic variability.

(ii) Macromolecules.