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Total No. of Questions : 08]

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## Paper ID [CS519]

(Please fill this Paper ID in OMR Sheet)

M.Tech. (Sem. - 3<sup>rd</sup>)

MAY 2008

### FUNDAMENTAL CONCEPTS OF BIOINFORMATICS (CS - 519)

Time : 03 Hours

Maximum Marks : 100

#### Instruction to Candidates:

- 1) Attempt any Five questions.
- 2) All questions carry equal marks.

Q1) What do you understand by genetic material? What is its importance? Write detailed note on the structure of DNA.

Q2) Define proteins. What are polypeptides? Write detailed account on the primary, secondary, tertiary structure and quaternary structure of proteins.

- Q3) (a) Differentiate between prokaryotic and eukaryotic system.  
(b) Write note on the role of molecular biology in bioinformatics.

Q4) Define Bioinformatics. Write in detail about the importance of bioinformatics in the modern era.

Q5) What do you understand by molecular phylogenetics? Discuss its history. Write its importance.

Q6) (a) What do you understand by translation? Write note on the process.

(b) What do you understand by protein folding?

- Q7)** (a) What do you understand by global alignment? Discuss the concept of the Needleman and Wunsch algorithm.
- (b) What do you understand by central dogma of molecular biology? What is its importance?

**Q8)** Write note on the following:

- (a) Open Reading Frame.
- (b) Molecular Biology tools.

