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Printed Pages – 3

CS – 024 / IT – 704

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1014 Roll No. | | | | | | | | | | |

B.Tech

SEVENTH SEMESTER EXAMINATION, 2005-2006

BIO-INFORMATICS

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt ALL questions.*

(ii) All questions carry equal marks.

(iii) This paper contains five questions.

(iv) Be precise in your answer.

1. Attempt ***any four*** of the following : **(5x4=20)**

(a) Explain the term "Bioinformatics".

(b) Why do we use Metadata ?

(c) What are the uses of Bioinformatics ?

(d) Describe the use of Artificial Intelligence in molecular biology.

(e) Explain how compter skills can be used to enrich the bioinformatics.

(f) What is Metadata ? Explain it.

2. Attempt ***any four*** of the following : **(5x4=20)**

(a) What is the primary structure of protein ?

(b) What are the various functions of protein ?

(c) What is replication ? How does it take place ?

(d) What is the role of mRNA, rRNA, tRNA in protein synthesis ?

(e) What is translation and transcription ?

(f) What is Biochemical reaction chain ?

3. Attempt ***any two*** of the following : **(10x2=20)**

(a) (i) Describe the hydrophobic effect.

(ii) Define the tertiary structure of proteins. Why is it so critical to function ?

(b) Describe three methods of determining the molecular mass of proteins. You should discuss how each method works and the relative advantages and limitation of each method.

(c) What are the rules of protein structure ? Describe the agents that can denature the protein.

4. Attempt ***any two*** of the following : **(10x2=20)**

(a) How is the following information obtained from DNA sequence data and how is it useful ?

(i) Gene expressions

(ii) Transcription factor binding sites

(b) What is a genome ? Discuss the methods of sequencing of genome with relative merits and demerits.

(c) Explain the different data retrieval techniques in bioinformatics.

5. Attempt ***any two*** of the following : **(10x2=20)**

(a) What are biological data types ? Describe general properties of biological data.

(b) How will you represent the patterns ? Discuss about alignment , regular expression and graphical models.

(c) Explain the special requirements of Biological data types.

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