2016
(January)

Time : 2 hours

Full Marks : 40

The questions are of equal value.

Answer any **five** questions.

(BIOINFORMATICS AND BIOSTATISTICS)

1. How input / output / storage devices work together in a computer system ? Explain with suitable block diagrams.

2. Write short notes on the following :

   (a) KEGG

   (b) Biological sequence search tools

3. Explain, in detail, "Databases are essential for bioinformatics research and applications".

(Turn over)

4. Briefly describe Needleman-Wunch and Smith-Waterman algorithms used in sequence alignment and mention major differences between them.

5. Write short notes of the following :

   (a) Protein sequence database

   (b) Molecular docking

6. Briefly explain the process of homology modelling of protein 3D structures.

7. Write short notes of the following :

   (a) Hidden-Markov Model

   (b) Students 't'-test

8. Define ANOVA. How this can be used for Duncan's multiple range test during interpretation of biological data.

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