Date: 21-11-2024   Dept. No.   Max. : 100 Marks
Time: 01:00 pm-04:00 pm

SECTION A

Answer ANY FOUR of the following, each within 500 words.

Draw diagrams / flowcharts wherever necessary.   **4 x 10 = 40 Marks**

1. Give a brief account on the use of internet in bioinformatics.
2. Discuss briefly on the search tools BLAST and FASTA.
3. Describe the structure of a gene.
4. Write a brief note on Homology modelling.
5. Give an account on Hidden Markov Model.
6. Write notes on substitution matrices.
7. Describe the different modes of diagrammatic representation of data.
8. Calculate the correlation coefficient and the significance test for the following data:
   (Table t value at 5% = 2.31; 1% = 3.36 at 8 d.f.)

No. of fertile branches	8	10	15	11	12	9	13	14	10	9
Productivity (metric tonnes)	45	55	70	80	65	70	90	90	76	67

SECTION B

ANY THREE of the following, each within 1000 words.

Draw diagrams / flowcharts wherever necessary.   **3 x 20 = 60 Marks**

9. Discuss in detail on the structural organisation of proteins.
10. Give an account on the different types of biological databases.
11. Write in detail on the phylogenetic tree construction and analysis.
12. Give an account on the methods employed for genome annotation.
13. Discuss the different types of sampling methods.
14. Calculate the mean, variance, standard deviation and the coefficient of variation of the following data:

x	2	4	6	8	5	3	1
f	8	10	12	15	11	9	4

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1