

Please check whether you have got the right question paper.

- N.B:
1. **All Questions are compulsory.**
  2. **Figures to the right indicate full marks.**
  3. Draw **neat** and labeled **diagrams** wherever **necessary**.

1. Discuss the following:
  - a) Regression analysis 06
  - b) Analysis of Variance 06

**OR**

1. The percentage water content in two varieties of watermelon were measured and results are as follows: 12

Average water content										
No. of plants	1	2	3	4	5	6	7	8	9	10
Variety A	90	92	94	85	89	93	96	87	86	90
Variety B	84	87	82	79	80	94	86	83	79	76

Apply a statistical test to find out whether there is any significant difference in water content of two varieties. Given  $|t|_{0.05} = 2.10$ .

2. What is BLAST? Describe the different types of BLAST along with their utility. 12

**OR**

2.
  - a) What is Pattern recognition? Explain its significance in understanding the structural and functional aspect of biomolecules. 06
  - b) Define secondary databases. Describe some secondary databases. 06
3. Define electrophoresis. Explain the principle of electrophoretic separation. Add a note on the importance of buffer in electrophoresis. 12

**OR**

3. Discuss the following:
  - a) Electrodes of pH meter. 06
  - b) Physiological buffers of the body. 06
4. Explain the working of a colorimeter. Add a note on its applications. 12

OR

4. Briefly describe:
- a) Monochromators 06
  - b) Applications of UV - Visible spectrophotometer. 06
5. Write short notes on **any three** of the following: 12
- a) P -values
  - b) Query sequence
  - c) Data base construction
  - d) Titration curve
  - e) Radiation sources in spectrophotometer
  - f) pH indicators