

M.Sc. (Micro) Semester - 1 (CBCS) Examination**Oct/Nov. -2019 - [OLD COURSE]****BIostatistics and Bioinformatics (Multi/Inter Disciplinary)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer the following (any seven out of ten, each of **two** marks)**14**

1. What is mode? explain its importance in biostatistics.
2. Explain importance of confidence limit.
3. What is PubMed?
4. Describe FASTA.
5. Describe the Needleman-Wunsch algorithm.
6. Give the full form of NCBI, BLASTx, DDBJ, and EMBL.
7. Explain Regression.
8. Describe bar diagram.
9. What is GeneBank?
10. Explain t-test.

Q.2 Answer the following (any two out of three, each of **seven** marks)**14**

1. Discuss the mean median and mode with equations.
2. How to measure a central tendency? Explain the basic measures of central tendency.
3. Calculate the standard deviation from the following data.

x	11	12	17	15	13	14	19	20
f	51	55	60	62	64	55	70	80

Q.3 Answer the following**14**

1. What is drug discovery? Explain in details. [5]
2. Explain BLAST. [5]
3. Explain gene prediction tool in detail. [4]

OR**Q.3 Answer the following** (each of **seven** marks)**14**

1. Explain Phylogenetic tree.
2. Explain multiple sequence alignment.

Q.4 (A) answer the following (any two out of three, each of **five** marks)**10**

1. Write application of bioinformatics in various field of biology.
2. Describe secondary database.
3. Write about sequence format.

Q.4 (B) Answer the following (any one out of two, each of **four** marks)**04**

1. Describe protein database.
2. Discuss primary database.

Q.5 Answer the following (Any two out of four, each of **seven** marks)**14**

1. The yield of varieties (V1 and V2) of red gram in pound per acre at 6 replications are given below. Calculate the t-value and comment on the difference in the mean yield. (Tabulated 't' value at 0.05 is 2.28)

Replications	1	2	3	4	5	6
V1 Yield	20.50	24.60	23.06	29.98	30.37	23.83
V2 Yield	24.86	26.39	28.19	30.75	29.97	22.04

- Discuss the chi-square test with equation.
- Height and weights are recorded for 10 students. The data given below. Calculate the correlation coefficient (r).

height (Inches)	62	72	78	58	65	70	66	63	60	72
weight (gm)	50	65	63	50	54	60	61	55	54	65

- Data recorded on seed height (cm) of pulse crop in gamma irradiated frequency are given below. Calculate the 'F' value of given data.

Replicates	10kR	20kR	30kR
1	15	13	12
2	17	12	14
3	20	17	16
4	14	20	11
5	12	11	10

For between the varieties: Tabulated 'F' value at 1% is 8.7

For between Fertilizers: Tabulated 'F' value at 5 % is 3.8
