

M.Sc. (Micro) Semester - 1 (CBCS) Examination**Nov/Dec - 2022 [NEW COURSE]****BIostatISTICS AND BIOINFORMATICS(MULTI/INTER DESCIPINARY)****Time: 2:30 Hours****Marks: 70****Instructions:**

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

Que.1 Answer the following (Any seven out of Ten, each of 02 marks) (14)

- (1) Calculate Mean, Mode, Median and Range from 3,5,7,7,9,11 data
- (2) Define the Needleman-wunch algorithm in brief.
- (3) What is difference between paired and unpaired student's t test?
- (4) What is OMIM and PubMed? Explain in brief.
- (5) What is range? what is uses in biostatistics
- (6) What is difference between null hypothesis and alternative hypothesis?
- (7) Explain drug discovery in brief.
- (8) Mention the uses of bioinformatics in medical sciences.
- (9) Define the term Bioinformatics.
- (10) Write any two merits and demerits of the median

Que.2 Answer the following (Any two out of three, each of 07 marks) (14)

- (1) Write a note on central tendency.
- (2) Calculate the Coefficient of Variation (CV) for the following two sample data sets and give your interpretation from results.
 Group A 13, 21, 27, 31, 35, 24, 28, 32, 17, 20.
 Group B. 77, 87, 97, 107, 95, 87, 90, 104, 107, 98.
- (3) Find the variance and standard deviation for the following test score and discuss your results.
 85, 100, 92, 96, 87, 94, 75, 56, 60, 69

Que.3 Answer the following (14)

- (1) Write a detail note on Regression 05
- (2) What is the Chi-square test? Discuss in detail. 05
- (3) Write a detail note on the analysis of variance. 04

OR**Que.3 Answer the following (a & b – Both are compulsory, each of 07 marks) (14)**

- (1) Calculate un paired student's T-test with below two different soil sample sites pH data (use 1.734 t critical/table value)
Soil sample:
 Sample area 1 : 4.1 5.1 2.9 3.2 2.9 3.4 8.2 9.2 10.1
 Sample area 2: 2.5 3.5 3.0 3.4 6.2 9.3 8.7 9.9 7.4 11.1 and 6.9
- (2) Write a note on Student's T-test? Discuss paired student's T-test with below data (use 1.833 t critical/table value)
 Student: 1 2 3 4 5 6 7 8 9 10
 Pre module score: 18 21 16 22 19 24 17 21 23 18
 Post module score: 22 25 17 24 16 29 20 23 19 20

Que.4 A. Answer the following (Any two out of three – Each of 05 marks) (14)

- (1) What is alignment? Explain multiple sequence alignment.
- (2) Explain pairwise alignment
- (3) Write a note on BLAST.

Que.4 B. Answer the following (Any one out of two –04 marks)

- (1) Write a note on Drug discovery.
- (2) Write a note on Phylogenetic tree.

Que.5 Answer the following (Any two out of four, each of 07 marks) (14)

- (1) Write a note on PDB and its file format used for study.
- (2) Describe the secondary database in detail
- (3) How bioinformatics useful in Agricultural and medicinal sciences.
- (4) Describe the nucleotide database in detail.
