

M.Sc. (Micro) Semester - 1 (CBCS) Examination
OCT/NOV-2025 (AS PER SYLLABUS YEAR JUNE-2018)
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.

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- Que.1 Answer the following (Any seven out of Ten, each of 02 marks) (14)
- 1) Calculate Mean, Mode, Median and Range from **71,72,0,73,81,97** data
 - 2) Write the full form of DDBJ and OMIM
 - 3) What is difference between paired and unpaired student's t test?
 - 4) Give the examples of tools use for Gene prediction.
 - 5) Write any two merits and demerits of the median
 - 6) Write note on Column graph with suitable example
 - 7) What is difference between null hypothesis and alternative hypothesis?
 - 8) Explain the uses of Bioinformatics in agriculture science.
 - 9) Give the example of pairwise alignment.
 - 10) Explain types of sequencing approach
- Que.2 Answer the following. (Any two out of three, each of 07 marks) (14)
- 1) Describe types of Graphs with suitable example.
 - 2) Calculate the Coefficient of Variation (CV) for the following two sample data sets and give your interpretation from results.
 Observation 1: 33, 31, 37, 33, 45, 34, 38, 22, 37, 30, 33.
 Observation 2: 67, 56, 87, 47, 95, 88, 93, 84, 82, 98, 69.
 - 3) Find the variance and standard deviation for the following experiment result.
 75, 91, 72, 86, 77, 99, 75, 65, 80, 96, 11.
- Que.3 Answer the following.
- 1) Write a detail note on Regression (05)
 - 2) What is the Chi-square test? Discuss in detail. (04)
 - 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 water sample sites pH
 data (use 1.746 t critical/table value), set hypothesis and evaluate after result.
 Water sample:
 Forest area 1: 5.1, 6.1, 2.9, 4.2, 3.9, 4.4, 8.2, 9.7 and 11.1
 Forest area 2: 3.7, 4.0, 7.2, 9.3, 9.7, 9.9, 7.4, 12.2 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
 Test mark: 48, 41, 16, 42, 59, 64, 77, 81, 23, 58
 Test marks after remedial classes: 52, 45, 11, 44, 56, 64, 70, 83, 39, 60
- Que.4 (A) Answer the following (Any two out of three – Each of 05 marks) (14)
- 1) Write short note on PubMed. What is secondary data base? Explain any two data base in details.
 - 2) Application of Bioinformatics in biological sciences with appropriate examples.

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

- 1) Explain Gene Bank in details
- 2) Explain nucleotide data base

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

(14)

- 1) What is drug discovery? explain in details
- 2) Describe Smith – Waterman algorithm
- 3) Explain the phylogenetic tree and mentioned its applications.
- 4) Write note on multiple alignment.
