



DCW-003-1191004 Seat No. _____

M. Sc. (Sem. I) (CBCS) Examination

August - 2022

MICRO-104 : Microbiology

(Biostatistics and Bioinformatics)

Faculty Code : 003

Subject Code : 1191004

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instructions : Answer any five from the following.

1 Answer the following : **2×7=14**

- (a) Distinguish the term variable and parameter.
- (b) What is standard deviation?
- (c) Briefly describe types of data.
- (d) What are Ogives?
- (e) Define the term Sample & Population.
- (f) What is the difference paired t-test and unpaired t-test?
- (g) Enlist and briefly describe the types of measures of central tendencies.

2 Answer the following : **2×7=14**

- (a) What is consensus sequence?
- (b) Define the term exons and introns.
- (c) What is the difference between alignment and annotation?
- (d) Distinguish the terms analogues and paralogous genes.
- (e) What is annotation?
- (f) Briefly discuss the types of alignment.
- (g) What is accession number?

- 3** Answer the following : **2×7=14**
(a) Give a brief account on paired t-test.
(b) Describe nonparametric test in detail.
- 4** Answer the following : **2×7=14**
(a) Discuss the procedure of pairwise and multiple sequence alignment and tools.
(b) Give a detailed account on metabolomics.
- 5** Answer the following : **2×7=14**
(a) Write a short note on unpaired t-test.
(b) Give a detailed account on Standard deviation, variance and coefficient of variation.
- 6** Answer the following : **2×7=14**
(a) Write a short note on transcriptomics.
(b) Describe the gene prediction in eukaryotes & tools.
- 7** Answer the following : **2×7=14**
(a) Give a brief account on regression and correlation.
(b) Write a short note on ANOVA test.
- 8** Answer the following : **2×7=14**
(a) Discuss the importance of bioinformatics in agricultural and clinical biology.
(b) Write a detailed note on genomics.
- 9** Answer the following : **2×7=14**
(a) Exemplify confidence limit and confidence interval.
(b) Give a detailed account on Hypothesis, types of hypothesis and level of significance.
- 10** Answer the following : **2×7=14**
(a) Briefly describe proteomics.
(b) Write a detailed account on secondary database.
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