



QP CODE: 25050440



25050440

Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc BIOINFORMATICS

**Core Courses - BT010103 - FUNDAMENTALS OF APPLIED MATHEMATICS AND
BIOSTATISTICS**

2019 Admission Onwards

37079D4A

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight **1** each.

1. Define union and intersection of a sets.
2. If $A = \{1, 2, 3, 4, 5, 6\}$ and $B = \{1, 5, 8\}$. Prove that $(A \cup B)' = A' \cap B'$.
3. State addition theorem in probability.
4. What is meant by conditional probability.
5. If vectors $p = (1, 0, 1)$ and $q = (2, 2, 1)$ then find $p \cdot q$.
6. Find determinant of a matrix
$$\begin{bmatrix} 4 & 5 \\ 1 & 7 \end{bmatrix}$$
7. Define walk and paths.
8. What is planar graphs.
9. What you meant by arithmetic mean.
10. What is scatter diagram.

(8×1=8 weightage)

Part B (Short Essay/Problems)

Answer any **six** questions.

Weight **2** each.

11. Define function and types of function.
12. In an examination paper on statistics 10 questions are set. In how many different ways can an examiner choose 7 questions.
13. Define random experiment and probability of an event.





14. Explain Normal distribution and standard normal distribution.
15. Find scalar triple product of vectors $a=(2,4,-7)$, $b= (3,4,5)$, $c=(1,0,2)$
16. Explain walk ,path and cycle for undirected graph.
17. Explain null hypothesis, alternative hypothesis, type I error, type II error, parameter, statistic.
18. Explain ANOVA.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain types of sampling.
20. Give an account on matrices.
21. State and prove the necessary and sufficient condition of a graph is Eulerian Graph.
22. A sample of 20 plants from population was measured in inches as follows: 18, 21 ,20, 23, 20, 21, 22, 20 ,26,19, 17,24. Calculate standard deviation and variance.

(2×5=10 weightage)

