



QP CODE: 25050599



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc MICROBIOLOGY

Core Courses - MG030103 - ANALYTICAL TECHNIQUES, BIOSTATISTICS & BIOINFORMATICS

2019 Admission Onwards

5596C6F0

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Explain the principle of TEM.
2. Discuss the principle of ESR.
3. TLC can be performed as partition or adsorption chromatography. Comment on this.
4. Describe about ratezonal centrifugation.
5. What is hybridisation and give examples?
6. How do experimental methods differ from statistical methods?
7. Explain measurers of dispersion.
8. What is the concept of ANOVA?
9. What is the principle of phylogenetic analysis?
10. Write a note on the scope of bioinformatics.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Demonstrate the nature of image formation in compound microscope.
12. Describe the principle and methods of UV-Visible spectroscopy.
13. Describe the instrumentation of HPLC. List out the different pump systems used.
14. Illustrate with diagram the working of an ultracentrifuge.





15. Describe the various factors affecting electrophoretic mobility.
16. Discuss various stages in the procedure of testing the hypothesis.
17. Mention the merits of computer oriented data analysis.
18. What are the various sources of data collection? Explain with examples.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain in detail the procedure of MALDI-TOF and its uses.
20. Illustrate the working principle of molecular sieve chromatography. Explain the process in detail.
21. Give a detailed note on Western and Northern blotting techniques.
22. Discuss briefly the graphical methods of representing a frequency distribution.

(2×5=10 weightage)

