

APRIL 2025

57151/416C1A

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer any TEN questions each in 50 words.

1. What are the key features of a fluorescence microscope?
2. What is the primary use of TEM?
3. Define active transport mechanisms in bacteria.
4. Define group translocation.
5. Define acidophiles.
6. How do halophiles obtain nutrients?
7. What is the significance of pure culture techniques?
8. Name one culture collection centre and its role.
9. What is the electron transport chain?

10. What is β -oxidation?
11. What is a specific transport system?
12. What is aerobic metabolism?

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions each in 200 words.

13. Discuss the principles and applications of confocal microscopy.
14. Discuss briefly about the growth curve of bacteria.
15. Explain the significance of acidophiles in microbial biodiversity.
16. Explain the principles and applications of AFB staining.
17. Discuss the economics importance of Algae.
18. Write briefly about the process and applications of bioluminescence.
19. Explain the steps involved in Calvin-Benson cycle.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions each in 500 words.

20. Describe the structure and application of Scanning Electron Microscope (SEM).
 21. Explain in detail about the nutrient transport mechanism in bacteria.
 22. Discuss in detail about the cultivation methods used for aerobic and anaerobic bacteria.
 23. Describe the principle and applications of autoclave. .
 24. Discuss the high level bacteriocidal disinfectants used in microbiology laboratory.
 25. Write in detail about the electron transport chain in bacteria.
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