

Reg. No .....

Name .....

**M. Sc DEGREE END SEMESTER EXAMINATION - OCTOBER 2019**  
**SEMESTER 3 : ZOOLOGY**  
**COURSE : 16P3ZOOT11 : MICROBIOLOGY AND BIOTECHNOLOGY**  
*(For Regular - 2018 Admission and Supplementary - 2016/2017 Admissions)*

Time : Three Hours

Max. Marks: 75

**Section A**  
**Answer any 8 (2 marks each)**

1. What is Scanning tunneling microscopy?
2. Comment on the functions of prokaryotic cell envelope.
3. Classify bacteria based on pH tolerance.
4. Comment on 'Antagonism among microbes'.
5. Write a note on the genetic composition of viruses.
6. Comment on the bacterial flora in water.
7. What is virulence? Add a note on bacterial virulence factors.
8. Explain the 'shot gun' method of cloning.
9. What is Cryogenics?
10. How are probes used in disease diagnosis?
11. Note down the mechanism of action of probiotics.
12. Comment on Biosafety Protocol 2000

(2 x 8 = 16)

**Section B**  
**Answer any 7 (5 marks each)**

13. Explain Calvin cycle.
14. Describe the role of active transport in the uptake of nutrients by a bacterial cell.
15. Differentiate between sulfide-based mutualism and methane-based mutualism.
16. Explain viral replication.
17. Write a note on the normal microbial population in the human body.
18. Discuss the epidemiologic clues of a biological warfare.
19. Explain the process of Blue white screening.
20. Comment on the chemical methods of gene transfer.
21. Briefly explain the applications of 'Biochips' in modern science.
22. Elaborate the techniques adopted for large scale production of microbial enzymes.

(5 x 7 = 35)

**Section C****Answer any 2 (12 marks each)**

23. Write an essay on biological weapons and bioterrorism.
24. How are genome libraries created?
25. Write an essay on 'Gene knockout' technique.
26. Elaborate the process of Bioleaching.

**(12 x 2 = 24)**