D3AZL2403 **(1 Page)** **Name.....**
Reg.No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2025
(Regular/Improvement/Supplementary)

ZOOLOGY
FZOL3C09 - MICROBIOLOGY & BIOTECHNOLOGY

Time: 3 Hours **Maximum Weightage: 30**

Part A: Answer any *four* questions. Each carries *two* weightage.

1. What is continuous culture?
2. Explain microbial bioremediation.
3. Write the advantages and disadvantages of cloning.
4. Describe the different types of viruses.
5. What are the steps involved in basic PCR?
6. What are shuttle vectors and expression vectors?
7. Explain different types of culture media.

(4 × 2 = 8 weightage)

Part B: Answer any *four* questions. Each carries *three* weightage.

8. Describe in detail the structure of bacterial cell wall.
9. Differentiate between homolactic and heterolactic fermenters.
10. Explain the social and ethical implications of genetic engineering.
11. Describe Maxam & Gilbert chemical degradation method of DNA sequencing.
12. Explain different types of blotting techniques.
13. Describe microbial growth curve. Add a note on factors influencing microbial growth.
14. What are molecular markers? Explain the different types of molecular markers.

(4 × 3 = 12 weightage)

Part C: Answer any *two* questions. Each carries *five* weightage.

15. Describe in detail various techniques to control microorganisms.
16. What are the good qualities of cloning vectors? Explain the different types of cloning vectors.
17. Describe the various human diseases caused by bacteria.
18. Explain the different methods of transfection.

(2 × 5 = 10 weightage)