Reg. No ..... Name **25P337**

M. Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2025

SEMESTER 3 : ZOOLOGY

COURSE : **24P3ZOOT11 : MICROBIOLOGY AND BIOTECHNOLOGY**

(For Regular - 2024 Admission)

Time : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	Differentiate between adapters and linkers.	(An)
2.	Differentiate between morbidity and mortality.	(An)
3.	What is Chemosynthesis?	(R)
4.	What is competitive exclusion principle?	(R)
5.	Classify microorganisms based on temperature tolerance.	(A)
6.	What is white biotechnology?	(U)
7.	Comment on the passive processes of material transport across bacterial cell membrane	(U)
8.	Differentiate between DNA viruses and RNA viruses with examples.	(U)
9.	What is Cryogenics?	(R)
10.	What is the role of the S-layer in prokaryotic cells?	(U, CO 1, CO 2, CO 3, CO 4)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weight: 2**

11.	Describe the various routes of transmission of disease pathogens citing suitable examples.	(U)
12.	Explain anaerobic oxidation of methane.	(U)
13.	Describe the major physical factors affecting microbial growth with examples.	(U)
14.	What are oncogenic viruses? Explain the mechanism of oncogenesis. Give examples.	(U)
15.	Explain the mechanism of nitrogen fixation in root nodules.	(U)
16.	Discuss the biosafety concepts and issues in recombinant DNA technology.	(An)
17.	Give an account on therapeutic cloning.	(R)
18.	Explain the differences between Gram-positive and Gram-negative cell walls with diagrams.	(E, CO 1, CO 2, CO 3, CO 4)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Discuss bacterial growth and reproduction.	(U)
20.	Discuss the different approaches to microbial classification with suitable examples.	(An, CO 3, CO 4, CO 5)
21.	Write an essay on the vectors in gene therapy.	(U)
22.	Write an essay on sewage treatment.	(U)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Perceive the basic concepts of microbiology ,Methods, classification, functional anatomy of prokaryotic cells.	U	10, 18	2
CO 2	Discuss the advanced concepts of microbial metabolism, nutrition, growth, interactions and ecology	U	10, 18	2
CO 3	Discuss the advanced concepts of virology	U	10, 18, 20	7
CO 4	Explain the concepts of applied microbiology – Bacteriology of air, water and soil; food microbiology, medical microbiology, bioweapons and bioterrorism	A	10, 18, 20	7
CO 5	Perceive the basic definitions and scope of biotechnology, intellectual property rights, biosafety and bioethics	A	20	5

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;