JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

M.Tech.-1st Semester (BT)

COURSE CODE (CREDITS): 18M1WBT134 MAX. MARKS: 15

COURSE NAME: Microbial Ecology

COURSE INSTRUCTOR:Dr. Ashok Kumar Nadda MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question		Marks
	Section I		
Q 1	A) What are extremozymes? Why are archaeal organisms commonly associated with extreme environments?		1
	B) Name the microorganisms that can survive at very high temperatures and one that thrives in highly saline environments.		1
	C) Write the various cellular features of the member of phylum Crenarcheota in archebacteria.		1
	D) What is Neuston layer in aquatic ecosystem? Write the various types of microbes found in Neuston layer.		1
	E) What are annamox bacteria? How do these microbes are helpful in environmental remediation		1
	Section II		
Q2	Compare the microbial roles in the carbon and sulfur cycles. Explain how human activities can disturb microbial processes involved in biogeochemical cycles.		1.5
Q3	Differentiate between primary and secondary succession. What is meant by seral stages and resilience?		1.5
	Discuss the role of microorganisms in eutrophication and explain how		2.0

Q4	microbial processes can both contribute to and alleviate nutrient pollution.		
	Section III		
Q5	Explain how extremophiles maintain the stability of their proteins and cell membranes under extreme conditions. Explain the concept of microbial niche and its importance in microbial ecology.		**2.5**
Q6	In the nitrogen cycle various microbes play their important roles. Differentiate between nitrification, denitrification, ammonification along with the role of microbes in each of these processes.		**2.5**

UNIVERSITY EXAMINATION-AUG 2025