

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

M. Tech-I Semester (BT/BI)

COURSE CODE (CREDITS): 18M1WBT134 (03)

MAX. MARKS: 25

COURSE NAME: Microbial Ecology

COURSE INSTRUCTORS: Dr. Ashok Kumar Nadda

MAX. TIME: 1 Hour 30 Minutes

Note: (a) All questions are compulsory.

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

Q.No	Question	Marks
Q1	a) What role do biofilms play in microbial interactions? b) How do microorganisms facilitate the degradation of hydrocarbons? c) What is the difference between PCR and rtPCR (real-time PCR)? d) Differentiate between microbial niche and microbial mats. e) Explain briefly about bioaugmentation and bioventing techniques?	1×5=5
Q2	What is quorum sensing? How do microorganisms influence each other's metabolism?	2.5
Q3	What does FISH (Fluorescence In Situ Hybridization) detect, and how is it used in microbial ecology? What is pyrosequencing, and why is it important for microbial diversity studies?	2.5
Q4	What is antagonism in microbial interactions? Give an example of a parasitic relationship among microbes.	2.5
Q5	How do nitrogen-fixing bacteria benefit plants? Discuss the mechanism of root nodule development in the leguminous plants.	2.5
Q6	Discuss the various types of microbial interactions with animals, highlighting mutualistic, commensal, and parasitic relationships. Provide examples for each type.	3
Q7	How do microbial guilds contribute to ecosystem functioning? Give an example of a microbial guild. What factors can influence the composition of microbial guilds?	3
Q8	Describe the role of microorganisms to maintain the soil ecosystem,	4

	particularly focusing on symbiotic relationships. Highlight the examples of specific nematodes and their association with the fungi. What is the mechanism of action of nematophagous fungi? Explain briefly.	

JUN TEST-2 EXAMINATION- OCT-2024