

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

M.Sc. – 3rd Semester (Microbiology)

COURSE CODE (CREDITS): 21MS1MB311 (3)

MAX. MARKS: 25

COURSE NAME: ENVIRONMENTAL MICROBIOLOGY

COURSE INSTRUCTORS: AKN

MAX. TIME: 1.5 Hour

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
Section I		
Q1	a) Name two bacteria capable of degrading hydrocarbons.	1
	b) Name a bacterial biopesticide commonly used against insect pests.	1
	c) What are radionuclides? And how these can be remediated using microorganisms?	1
	d) What is the function of <i>Azospirillum</i> in agriculture?	1
	e) What is the function of <i>Phanerochaete chrysosporium</i> in bioremediation?	1
Section II		
Q 2	Explain why white rot fungi are considered effective for the breakdown of lignin-like pollutants.	2.5
Q 3	Describe how biocontrol agents can be integrated into an integrated pest management (IPM) strategy.	2.5
Q 4	How do phosphate-solubilizing microorganisms improve soil fertility?	2.5
Q5	Explain the difference between symbiotic and free-living nitrogen-fixing biofertilizers.	2.5

	Section III	
Q 6	Discuss how the non-specificity of ligninolytic enzymes contributes to the effectiveness of white rot fungi in bioremediation. What are the advantages and limitations of fungi in environmental cleanup?	5
Q 7	Compare bacterial, fungal, and viral biopesticides in terms of mechanism and target pests. Discuss the advantages and limitations of biopesticides in modern integrated pest management programs.	5
	Total	15