JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2024

M.Sc. III Semester (Microbiology)

COURSE CODE (CREDITS): 20MS1MB311 (03) MAX. MARKS: 25

COURSE NAME: Environmental Microbiology

COURSE INSTRUCTORS: Dr. Ashok Kumar Nadda MAX. TIME: 1 Hour 30 Minutes

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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) How do the biopolymers can be utilized in the bioremediation of various pollutants? Give examples. b) Enlist the examples of microorganisms that involves in biodegradation of hydrocarbons. c) What are the electrogenic bacteria? Give examples. d) What are mycorrhize and its types? Which mycorrhiza is found in the rootlets of pinus tree? e) Define symbiosome. Name the various biomolecules secreted by plant roots and microorganisms to initiate the root nodule development.	1×5=5
Q2	Give a detailed account of role of white rot fungi (WRF) in bioremediation of various pollutants.	2.5
Q3	What role do microbes play in bioremediation of radionuclides? Explain the mechanism of degradation of Uranium using suitable example of microorganisms.	2.5
Q4	What types of microorganisms are commonly involved in pesticide degradation? What mechanisms do microbes use to degrade pesticides?	2.5
Q5	Can you explain the role of nitrogen-fixing bacteria in biofertilizers and how they benefit plant growth? What are the advantages and	2.5

	disadvantages of using biofertilizers in agriculture? How do the biofertilizers contribute to sustainable farming practices?	
Q6	How the viruses are being used as potent biocontrol agents? Give suitable examples of target organisms and sources of bioinsectecide.	3
Q7	Give an account of Plant Growth Promoting Rhizobacteria (PGPR). What are the multifarious activities shown by PGPRs. Explain with suitable examples?	3
Q8	What are biopesticides used against Botrytis fruit rot and Powdery mildew of banana? How do they differ from traditional chemical pesticides? Can you provide examples of organisms commonly used in the production of biopesticides? What are the advantages and limitations of using biopesticides in pest management?	4