

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT**

**TEST -2 EXAMINATION- 2023**

**M.Sc.-I Semester (Microbiology)**

COURSE CODE (CREDITS): 20MS1MB311 (03)

MAX. MARKS: 25

COURSE NAME: Environmental Microbiology

COURSE INSTRUCTORS: Ashok Kumar Nadda

MAX. TIME: 1.5 Hours

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

*(b) Marks are indicated against each question in square brackets.*

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

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**Section I**

**Q 1 Very short answer type questions**

- a) What are the major families of the insects that are susceptible for the attack of *Bacillus thuringiensis*? (Mark 1)
- b) Give an example of bacterium that has potential to degrade the radioactive pollutants. (Mark 1)
- c) What are mycorrhize and its types? Which mycorrhiza is found in the rootlets of pinus (Mark 1)
- d) What is Phytoremediation? Give the examples of plant that is useful in the remediation of lead? (Mark 1)
- e) What are biopumps? Why these are known as biopumps? (Mark 1)

**Section II**

**Q 2** Discuss the various mechanisms of microbial interaction with metals. Give the examples of microbes used to remediate the heavy metal pollutants (Marks 3)

**Q 3** How the viruses are being used as potent bioinsecticides? Give suitable examples of target organism and sources of bioinsecticide. (Marks 3)

**Q 4** What are the common sources available for biofuels production? Discuss the role of fermentation/microbes in the synthesis of various biofuels. (Marks 4)

### Section III

**Q 5** Give a detailed account of role of white rot fungi (WRF) in bioremediation of various recalcitrants. Describe the various mechanisms of actions used by WRF. **(Marks 3)**

**Q 6** Describe the mechanism of action of *Bacillus thuringiensis*. Why Bt toxin protein is not harmful to the animals or plants? **(Marks 3)**

**Q 7** What are the various microbes associated with gastrointestinal tract and skin of human beings. Enlist the functions and products of microflora of intestine. **(Marks 4)**

JUT TEST-2 EXAMINATION- JUN 2023