
Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Section I

Q 1 Very short answers type questions. Each question carrying one marks each.

- a) What are the electrogens/electrogenic bacteria? Give two examples. (Mark 1)
- b) What is the most prevalent radioactive element in the food we eat such as packed bananas? (Mark 1)
- c) Give the examples of microbes used to remove the radionuclides? (Mark 1)
- d) What are Metallothioneins and their role in environmental protection? (Mark 1)
- e) What is biomineralization/ Give the examples of sulphate reducing bacteria. (Mark 1)

Section II

Q 2 What are the major criteria necessary to occur the bioremediation in nature? Despite of all effort still pollutants are accumulated, why? (Mark 2)

Q 3 Write the major principles of in situ bioremediation. Give the examples of microbes used in the removal of treatment of common organic waste of household origin. (Mark 2)

Q 4 Which process is commonly used in municipal wastewater treatment to restart activated sludge bioreactors. Give examples of major microbial genera used in waste water treatment plants. (Mark 2)

Q 5 Some plants have evolved the capacity to take up and accumulate selected metals in their shoots in levels that are toxic to ordinary plants. Give the examples of some plants used to remove the heavy metals and hydrocarbons in the terrestrial ecosystem. (Mark 2)

Q 6 Give the examples of microbes used to treat crude oil and PCB (poly chlorinated biphenyl) in the polluted environment. (Mark 2)

Section III

Q 7 Give a detailed account of White rot fungi (WRF) as an effective tool for the removal of wide range of contaminants in the environment. Why WRF is comparatively effective than the bacteria to remove the recalcitrants. (Marks 4)

Q 8 How does the biofilters are used in the treatment of wastewater and micropollutants in the air? (Marks 3)

Q 9 Give a brief account of superbugs used to treat the hydrocarbons. Discuss the major steps used to construct the superbugs. (Marks 3)