

M.Sc. (Micro) Semester - 4 (CBCS) Examination
August/September -2020 [OLD COURSE]
ENVIRONMENTAL BIOTECHNOLOGY -2 (ELECTIVE-1)

Time: 2:00 Hours**Marks: 56****Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any four of the following questions.

Q.1 Answer the following (Any Seven Questions) (14)

- A. Define the biodegradation.
- B. Why the degradation of lignin is slow process? Which fungi are well-known for lignin degradation?
- C. Which are the key enzymes are responsible for the cellulose degradation?
- D. Give the examples of any two PAHs compounds abundantly found in environment.
- E. Why the pesticides are categorized as persistent and recalcitrant compounds?
- F. What is Acid mine drainage?
- G. Define the inorganic pollutants and their sources.
- H. Differentiate the ex-situ and in-situ bioremediation approach.
- I. Enlist the advantageous of on-field bioremediation methods.
- J. Why the microorganisms are genetically modified for the bioremediation?

Q.2 Answer any Two (14)

- A. Explain the degradation pathways and enzymes responsible for the pectin degradation?
- B. Discuss the key enzymes involve in lignin degradation process.
- C. Describe the biodegradation of cellulose.

Q.3 Attempt the following (14)

- A. Explain the mechanisms of pesticide degradation (5 Marks)
- B. Mention in brief: Commonly founds PAHs(5 Marks)
- C. Define PAHs compounds? What are the sources of PAHs compounds? (4 Marks)

OR

Q.3 Attempt the following (14)

- A. Explain the degradation process of nitroaromatics compounds by microorganisms.
- B. Discuss the biodegradation of chloroaromatic pollutants by bacterial consortium

Q.4 Answer any Two (14)

A. Attempt any Two (5 marks for each)

- (i) Discuss the process of arsenic methylation.
- (ii) Explain the major inorganic pollinates
- (iii) Microbial diversity of Acid mine drainage

B. Attempt any One (4 Marks)

- (i) Discuss any two metals causing the environmental pollutants
- (ii) Write in short: Microbial mediated methylation of mercury

Q.5 Answer any Two (14)

- A. Explain on-site methods of bioremediation.
- B. Why the genetically modified microorganisms are valuable for the bioremediation processes?
- C. How the bacterial species are used for the bioremediation of pollutants?
- D. Explain the phytoremediation in details.
