647510 **MSC4eb2E0113** **Seat No :_____**

M.Sc. (Micro) Semester - 4 (*CBCS*) Examination
April/May-2022 (OLD COURSE)
ENVIRONMENTAL BIOTECHNOLOGY -2 (ELECTIVE-1)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q. 1 Answer the following (any seven out of ten, each of **two** marks) 14

1. What is the difference between biostimulation and bioremediation?
2. What is acid mine drainage treatments?
3. What is methylation and why is it important?
4. Give the examples of organic pollutants.
5. Why is important Bioaugmantation important environmental biotechnology?
6. Define the function of surfactants in the bioremediation processes.
7. Describe the importance of GMO in bioremediation.
8. Enlist the types of bioremediation process.
9. Give an example of pesticide degrading microorganisms.
10. Define the role of manganese peroxidase?

Q. 2 Answer the following (any two out of three, each of **seven** marks) 14

1. Discuss biodegradation of pectin
2. Describe the lignin degrading enzymes and its metabolic pathway.
3. Explain types of organisms responsible for biodegradation of hemicellulose.

Q.3 (A) Answer the following

1. Write a note on pesticide biodegradation. [5]
2. Discuss the bioremediation of PAHs with metabolic process. [5]
3. Biodegradation of nitroaromatics. [4]

OR

Q.3 (B) Answer the following (each of **seven** marks) 14

1. Discuss the Chloroaromatics biodegradation PAHs.
2. Write a detailed note on ex situ bioremediation.

Q.4 (A) Answer the following (any two out of three, each of **seven** marks) 14

1. Write a note microbial methylation of heavy metals.
2. Discuss the PCB biodegradation.
3. Discuss in detail microbial methylation of arsenic and its health hazards

Q.5 Answer the following (any two out of four, each of **seven** marks) 14

1. Discuss *in situ* bioremediation of organic pollutants.
2. Describe the bioremediation potential of fungi.
3. Discuss the mixed culture concept in bioremediation of pollutants.
4. Describe the bioremediation potential of plants.

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