

M.Sc. (Micro) Semester - 4 (CBCS) Examination
Oct/Nov -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 out of ten, each of **two** marks) 14

1. What is the pectinase? define its role.
2. Mention least two examples of cellulose degrading microorganism.
3. Mention at least four surfactants used in biodegradation.
4. Discuss the role of GMO in bioremediation.
5. What is bioaugmentation?
6. Give an example of pesticide degrading microorganisms.
7. Define: acid mine drainage.
8. What is phytoremediation? Describe in brief.
9. Define *ex-situ* bioremediation.
10. Mention the role manganese peroxidase.

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

1. Explain hemicellulose biodegradation.
2. Describe cellulose biodegradation with enzymatic reaction.
3. What is lignin biodegradation? Explain its metabolic pathway.

Q.3 (A) Answer the following 14

1. Write a note on pesticide biodegradation with enzymatic mechanism. [5]
2. Explain *in situ* bioremediation of PAHs. [5]
3. Explain the role of microbes in biodegradation of pesticides. [4]

OR

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

1. Explain nitroaromatics.
2. Discuss the biodegradation PAHs.

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

1. Explain microbial methylation of mercury and its health hazards.
2. Explain the importance of microbes in acid mine drainage.
3. Describe microbial methylation of arsenic.

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. What is Genetic modified organism? Explain their role in bioremediation organic pollutants.
4. Explain strategies involved bioremediation.
