



NBW-003-019405 Seat No. _____

M. Sc. (Microbiology) (Sem. IV) (CBCS) Examination

April / May - 2017

Micro - 423 : Environmental Biotechnology - II

(Elective)

Faculty Code : 003

Subject Code : 019405

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

1 Answer the following : (any seven) 7×2=14

- (1) What is bioremediation? Explain what is microbial bioremediation?
- (2) What are different factors that influence biodegradation in nature?
- (3) Explain very briefly role of various microbes in biodegradation?
- (4) What are different plant polysaccharides? What problems do they pose in environment?
- (5) What are weedicides? Enlist a few weedicides and explain briefly the general mode of action for control of weeds?
- (6) What are PAHs? Explain the ill-effects caused by persistent PAHs in environment.
- (7) What is mycoremediation ? Explain with suitable example.
- (8) What is acid mine drainage?
- (9) What are inorganic pollutants?
- (10) Enlist few genetically modified microorganisms that contribute to bioremediation.

2 Answer the following : (any Two) 2×7=14

- (a) Describe various enzymatic reactions that contribute to biodegradation of organic compounds in nature.
- (b) Give an account of central metabolites of an aerobic ring cleavage reactions.

- (c) What are various types of degradation reactions? Explain any one in detail.

3 Answer the following : **2×7=14**

- (a) Write a detailed note on biodegradation of pesticides.
(b) Highlight microbes and their role in biodegradation of nitroaromatics.

OR

- (a) Write a detailed note on biodegradation of polyaromatic hydrocarbons (PAHs).
(b) Explain role of microbes in biodegradation of chloroaromatics.

4 Answer the following : **2×7=14**

- (a) Give an account on microbial methylation of mercury and summarize potential health hazards.
(b) Write a detailed note on toxicity due to heavy metals and its biodegradation.

5 Write a short note on : (any Two) **2×7=14**

- (a) Microbes and their role in restoration of environment
(b) Genetically engineered microbes and their bioremediation potential
(c) Strategies for bioremediation
(d) Bioremediation mediated by white rot fungi.