




**ELIZADE UNIVERSITY, ILARA-MOKIN,  
ONDO STATE, NIGERIA**

**BASIC & APPLIED SCIENCES  
BIOLOGICAL SCIENCES  
FIRST SEMESTER EXAMINATION  
2020/2021 ACADEMIC SESSION**

**COURSE CODE: EMT 513**

**COURSE TITLE: ENVIRONMENTAL BIOTECHNOLOGY**

**DURATION: 2 HOURS**

 22/03/2021

**NAME:.....MAT. No:.....**

**INSTRUCTION**

**Answer any FOUR questions.**

## QUESTIONS

1. a) Explain three (3) ways in which microorganisms can transform hazardous contaminants into relatively harmless byproducts.  
b) Write briefly on the following:  
i) Thermophiles, ii) Mesophiles, iii) Psychrophiles or cryophiles  
c) Outline steps for successful bioremediation practices.

(15 Marks)

2. a) A recent academic summit in the department treated extensively bio-based plastics. Using the knowledge acquired from the summit,  
i) Explain what is meant by bio-based plastic and give examples  
ii) Outline factors that may affect the biodegradability of plastics  
b) Briefly explain the difference between Plastic and Rubber.  
c) Discuss co-processing and co-metabolism of plastics.

(15 Marks)

3. a) Write short notes on the following.  
i) Biosorption  
ii) Recalcitrant  
iii) Bio-immobilization  
iv) Bioleaching  
v) Biomineralization  
b) Differentiate between Dehalogenation and Debromination.  
c) Briefly explain the following techniques in bioremediation.  
i) Biosparging  
ii) Bioaugmentation  
iii) Bioventing

(15 Marks)

4. a) What are hyperaccumulators? Give five (5) examples of plants that are hyperaccumulators of metals?  
b) Describe the processes involved in the biosorption of metals by cells?  
c) Differentiate between bioaccumulation and biomagnification?

(15 Marks)

5. a) What is an industrial wastewater?  
b) Explain the importance of wastewater treatment and state examples of four (4) wastewater treatment technologies?  
c) Discuss briefly on bioremediation technology?

(15 Marks)

6. a) Discuss the treatment process that is involved in an oxidation pond?  
b) Write on the component essential for the functioning of the oxidation pond?  
c) With an annotated diagram describe the wastewater treatment processes?

(15 Marks)