



National Open University Of Nigeria
Plot 91, Cadastral Zone, NnamdiAzikiwe Expressway, Jabi - Abuja
Faculty of Science

BIO 320 - Microbial Ecology (2 Units)

Time 2½hours

Question 1 is compulsory. Answer FIVE questions only

1. a. What is an Ecosystem (2 marks)
b. Describe the process of Succession (5marks)
c. Enumerate the role of water in the soil (7 marks)
d. Illuminate mutualism as a type of microbial interaction giving examples (8marks)
2. Describe the soil isolation of soil microorganisms using the serial dilution method (6marks)
b. Enumerate the inadequacies in this technique(6marks)
3. a. Explain the term ‘Amensalism’?(6marks)
b. Elucidate 3 factors which can lead to Amensalism (6marks)
- 4 .a. Give an account of the succession of fungi on a cellophane film buried in soil as described by Tribe(1960) (10marks)
b. List two other groups of microorganisms involved in the succession on a cellophane film buried in soil as described by Tribe(1960) (2marks)
5. Enumerate 3 differences between Biodegradation and Biodeterioration (6marks)
Give four examples of Biodeterioration processes and two example of biodegradation processes (6 marks)
6. Copy and complete the following table: (12marks)

Environment Extreme	Damage caused	Resistant forms
High Temperature	Enzyme denaturation	(1 mark)
Low pH	1½marks	(1 mark)
Extreme hydrostatic pressure	1½marks	(1 mark)
Ionization radiation	1½marks	(1 mark)
Low water activity	1½marks	<ul style="list-style-type: none"> • Halophiles • Osmophiles • Xenophiles
(1 mark)	Loss of regulation, Decrease in membrane permeability as a result of crystallization of major cytoplasm components.	(1 mark)