



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**  
**Faculty of Science**  
**DEPARTMENT OF BIOLOGICAL SCIENCES**  
**2024 1 EXAMINATION**

**COURSE CODE: BIO 320**

**COURSE TITLE: MICROBIAL ECOLOGY**

**CREDIT UNIT: 3 Units**

**TIME ALLOWED: 3 Hours**

**INSTRUCTION: Answer Question ONE (1) and any other THREE (3) Questions**

1. (a) Describe the microbial colonization of sterile air. **(8 marks)**  
(b) Discuss the factors that affect the concentration of microorganisms in the atmosphere. **(15 marks)**  
(c) State the two (2) main difficulties commonly connected with the isolation of soil microorganisms. **(2 marks)**
2. (a) State five (5) examples of deterioration. **(5 marks)**  
(b) Describe soil plate dilution method of microbial isolation from soil with emphasis on its advantages and disadvantages. **(10 marks)**
3. (a) Write short notes on the following:  
(i) Prey-predator relationship **(6 marks)**  
(ii) Neutralism **(3 marks)**  
(b) Describe the roles and distribution of aquatic microalgae. **(6 marks)**
4. (a) Discuss the effect of the following factors on the aquatic environment:  
(i) Light **(8 marks)**  
(ii) Salinity **(3 marks)**  
(b) In tabular form, differentiate between biodeterioration and biodegradation. **(4 marks)**
5. (a) What is biodeterioration? **(3 marks)**  
(b) Outline the two (2) groups of fungi that attack stored grains. **(3 marks)**  
(c) Discuss the biological method of studying and isolating soil microbes. **(6 marks)**  
(d) Mention the three (3) basic methods of indirect isolation of microorganism. **(3 marks)**
6. (a) Discuss the contributions of Casida (1939) to soil microbiology. **(5 marks)**  
(b) Discuss the findings of Tribe (1960) study on the colonization and breakdown of pure regenerated cellulose. **(10 marks)**