



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**  
**FACULTY OF SCIENCE**  
**Department of Biological Sciences**  
**2025\_2 EXAMINATIONS**

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**BIO 320: Microbial Ecology**

**Time: 2½ Hours**

**Credit Units: 3**

**INSTRUCTION: Attempt FOUR (4) questions in all. Question 1 is compulsory**

- 1a. Define salt wedge and explain its influence on marine organisms. (5 marks)
  - b. State the difference between the two aspects of bioconversion with appropriate examples (10 marks)
  - c. Explain the following terms:
    - i. Ecosystem (2marks)
    - ii. Community (2marks)
    - iii. Population (2marks)
    - iv. Habitat (2marks)
    - v. Niche (2marks)
- 2a. Mention the role of soil water (5 marks)
- b. Discuss with examples, mutualism as microbial interaction(10marks)
- 3a. Discuss the succession of micro-organisms on cellophane film (15 marks)
- 4a. List the various factors that affects microbial growth in the soil (5 marks)
- b. Explain the functions of soil fungi (5 marks)
- c. Discuss the colonization of sterile human hair by micro-organisms (5marks)
- 5a. Explain the term “Soil hydrogen ion ( $H^+$ ) concentration” (15 marks)
- 6a. Explain the following components of aquatic environment (5marks)
  - i. Lithogenous Components (2 ½ marks)
  - ii. Biogenous Components (2 ½ marks)
- b. List the functions of soil fungi (5 marks)
- c. Identify the physical and chemical factors in an aquatic environment (5 marks)