



NATIONAL OPEN UNIVERSITY OF NIGERIA  
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA  
FACULTY OF SCIENCE  
SEPTEMBER, 2020\_1 EXAMINATION

**BIO 320 - Microbial Ecology**

**Time allowed: 2½hrs**

**Credit Units: 3**

**Instruction: Answer FIVE questions only. Question 1 is compulsory.**

- 1a. What do you understand by the term “Soil Microbiology”? (1mks)  
1b. Mention any four functions of soil fungi you know. (5mks)  
1c i. Discuss Soil Plate Dilution as a method employed in the study and isolation of soil microorganisms (4mks)  
ii. Enumerate the advantages and at least 2 disadvantages of this method. (6mks)  
1d. Classify soil microorganisms based on their level of tolerance of the following soil factors (6mks)  
i. Soil pH  
ii. Soil temperature
- 2a. Define the following microbial interactions. (4mks)  
i. Commensalism  
ii. Amensalism  
iii. Mutualism  
iv. Neutralism  
2b. Mention any two ways you know metabiosis may be caused. (6mks)  
2c. *Saccharomyces cerevisiae* and *Lactobacillus casei* are said to be commensals. Why? (2mks)
- 3a. Define bioconversion under the following subheadings: (4mks)  
i. Biodeterioration  
ii. Biodegradation  
3b. Enumerate any three importance of biological causation you were taught. (3mks)  
3c. Using an obvious example, state the difference between pathology and biodeterioration. (5mks)
- 4a. Define Aeromicrobiology? (1.5mks)  
4b. Mention the three stages involved in the dispersal of air – borne particles. (4.5mks)  
4c. Mention three application of and importance of aeromicrobiological studies. (6mks)
5. Define the following terms: (12mks)  
i. Halophiles  
ii. Thermophiles  
iii. Osmophilia  
iv. Acidophiles

6a. what do you understand by the word “retting”? (2mks)

6b. Mention the microorganisms the following baits isolate. (10mks)

- i. Pears
- ii. Hair/Nails
- iii. Cotton
- iv. Hemp seed
- v. Apple/ pineapple.