



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**  
**FACULTY OF SCIENCE**  
**2020\_2 EXAMINATION**

**BIO 320 - Microbial Ecology**

**Credit Units: 3**

**Instruction: Answer Question 1 and any other FOUR Questions**

- 1a. What are the roles played by soil water on microbials? (6 mks)
- 1b. What is a climax community? (2 mks)
- 1c. Comment on the nature and function of soil bacteria. (4.5mks).
- 1d. Elucidate the major important components of soil. (4.5mks)
- 1e. The dispersion of air-borne microorganisms can be considered at two levels. State categorically these two levels. (2 mks)
- 1f. What are the factors that affect the concentration of microorganisms in the air? (3mks)
- 2a. Define the following term: -
  - i. Ecosystem
  - ii. Community.
  - iii. Population. (3mks)
- b. Enumerate the characteristics of a climax community. (3mks)
- c. In the study of breakdown of cellophane buried in the soil, the first colonizers were fungi. Based on the morphological and vegetative characters, state three classes of fungi identified. (3mks)
- d. Give an account of the sequential colonization of microorganism of sterile human hair on the morphological and vegetative characters, state three classes of fungi identified. (3mks).
- 3a. Give an account of the classification of the components in the special habitat of sand to mud and silt based on the origin. (3mks)
- b. List two physical and two chemical factors of the aquatic environment. (2mks)
- c. Write concisely on the following terms in relation to aquatic environment.
  - i. Temperature
  - ii. Dissolved gases. (7mks)
- 4a. In what ways can antagonism/ Anensalism be achieved? (3mks)
- b. Enumerate the reasons why it is necessary for trapping microorganisms in the air. (3mks)
- c. What do you understand by Prey-Predator relationship? (2mks)
- d. Write concisely on competition among microbes. (4mks)
- 5a. What information are required in making a choice of sampling method? (4 mks)
- b. What do you understand by colonization and succession? (5 mks)
- c. What are the factors that cause metabiosis? (3 mks)
- 6a. What are the factors that affect the concentration of microorganisms in the air? (3 mks)
- b. Explain how the following factors affect microorganisms in the air
  - i. Vegetation,
  - ii. Wind.
  - iii. Man's activities. (5 mks)
- c. What are the different techniques involved in the study and isolation of aerial microorganisms? (3 mks)
- d. Define bioconservation in terms of microbial ecology. (1 mk)