



**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 408: Soil Ecology**

**Time: 2Hours**

**Credit Units: 2**

**INSTRUCTION: Attempt THREE (3) questions in all. Question 1 is compulsory**

1. Discuss the factors used in determining soil formation (10 marks)
  - b. Explain the following terms:
    - i. Igneous (2marks)
    - ii. Sedimentary (2marks)
    - iii. Metamorphic (2marks)
    - iv. Weathering (2marks)
    - v. Soil formation (2marks)
  - c. Mention three (3) physical properties of soil and explain three (3) major factors that have the greatest influence on the colour of soil (10 marks)
- 2a. Mention the usefulness and importance of soil analysis application to plant (5marks)
  - b. Explain the following terms:
    - i. Soil texture (5marks)
    - ii. Soil Density (5marks)
    - iii. Soil Structure (5marks)
- 3a. List the sources of organic materials in plants (10 marks)
  - b. With appropriate example(s), enumerate the factors that affects the growth of crops (10 marks)
- 4a. Itemize the characteristic features affecting biogeochemical cycles (4 marks)
  - b. Differentiate between the sedimentary cycles and the gaseous cycles (6 marks)
  - c. Discuss the distribution and use of Oxisols (10 marks)
- 5a. Define detritivores and list four (4) importance of soil organisms (5 marks)
  - b. Itemize the essential elements that are present in the soil? (5 marks)
  - c. Differentiate between ammonification and nitrification (10 marks)