



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCE
Department of Biological Sciences
2025_1 EXAMINATION...

BIO 408: Soil Ecology

Time: 2 Hours

Credit Units: 2

Instruction: Attempt Three (3) questions only. QUESTION 1 is compulsory.

- 1a. Define soil structure and mention the four principal shapes of soil structure (5 marks)
- b. Discuss chemical analysis of the soil (5 marks)
- c. Concisely discuss the process of weathering (10 marks)
- d. Explain the following terms in relation to soil analysis:
 - i. Soil Sampling (2 marks)
 - ii. Composite Samples (2 marks)
 - iii. Depth to Sample (2 marks)
 - iv. Time of Year (2 marks)
 - v. Interpretation of Soil Analysis Result (2 marks)

- 2a. Mention five reasons why compact soil is likely to reduce the amount of available water to the growing plants.
- b. Mention five (5) soil moisture regime (5marks)
- c. Discuss Carbon cycle (10 marks)

- 3a. Mention four soil order that you know (4 marks)
- b. Mention six (6) categories of classification in soil taxonomy (6 marks)
- c. Discuss plant tissue analysis in relation to nutrient concentration (10marks)

- 4a. Mention five (5) factors used in determining soil formation (5 marks)
- b. What is the principal soil property by which ultisols differ from alfisols? (5 marks)
- c. Describe soil moisture regime and classes used for their characteristics (10 marks)

- 5a. Explain the process of soil formation (4 marks)
- b. What is meant by the statement, 'weathering combines the processes of destruction and synthesis'? Give examples of these two processes in the weathering of a primary mineral (6 marks)
- c. Discuss five (5) soil order you know (10marks)