



**NATIONAL OPEN UNIVERSITY OF NIGERIA  
FACULTY OF AGRICULTURAL SCIENCES  
DEPARTMENT OF CROP AND SOIL SCIENCE**

**2024 1 EXAMINATION**

***COURSE TITLE: INTRODUCTION TO PEDOLOGY AND SOIL CLASSIFICATION (2 CU)***

***COURSE CODE: SLM 303***

***TOTAL SCORE: 70 MARKS***

***INSTRUCTION: Answer 3 questions in all***

***Question 1 is compulsory (30 marks) and any other TWO questions (20 marks each)***

***TIME ALLOWED: 2 ½ Hours/***

- 1.a. Topography and biota are factors of soil formation. Discuss in details their roles in soil development. (10 marks)
- 1.b Use appropriate equations to explain any four (4) processes associated with chemical weathering of rocks. (10 marks)
- 1.c Outline five types/categories of parent materials. (10 marks)
- 2.a. Explain the following processes involved in physical/mechanical weathering of rocks.  
ai Crystallization aii Temperature variation. aii. Unloading/exfoliation (10 marks)
- 2bii. List ten elements that are found in the highest quantities in a well-developed soil. (10 marks)
- 3.a. Make a diagram of a hypothetical soil profile and show the horizons. (10 marks)
- 3.b Explain in details the concept of soil order and state the 12 soil orders according to USDA soil taxonomy. (10 marks)
- 4.a. a Discuss the role of farmyard manure and green manuring in maintenance of the fertility of Nigerian soils. (10 Marks)
- 4.b. Define the following terms associated with pedology:  
bi Map unit bii Saprolite biii Soil order biv Soil profile. (10 marks)