

NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF AGRICULTURAL SCIENCES

January/ February 2017_2 POP Examination

Course Title: Introduction to Pedology and Soil Classification

Course Code: SOS301

INSTRUCTION:

- i) Answer at least one question from each section compulsorily.
- ii) Answer four questions in all.
- iii) Time: 2 hours

SECTION A

Question One

- a) Match the following words against the below listed soil descriptions. Please note that a word can be matched more than once. **2 marks each x 10= 20 marks**
(Clay, loam, sand, Humus, Mineral nutrients, and organic matter)
- i) Can easily get water logged
 - ii) Can form a cast when wet but cracks when dry
 - iii) Has very low infiltration rate
 - iv) Has very high infiltration rate
 - v) Has low water holding capacity
 - vi) Easily get drained
 - vii) Has an almost balanced ratio of clay and sand
 - viii) An un-decomposed biodegradable matter
 - ix) A well decomposed/degraded organic matter in the soil.
 - x) Macro and micro chemical elements in the soil.
- b) Give reasons or state the implications/meanings of the following of the following.
(2 marks each x 5= 10 marks)
- i) A very bright red/brownish brick color sub soil
 - ii) A dull blackish/gray to silver color sub soil
 - iii) Heavy presence of worm cast on a soil
 - iv) What is the basic parent material of any soil
 - v) Flora and fauna refers to what in the soil characteristics
- c) List five factors or bad practices that can destroy the soil **(2 marks each x 5= 10 marks)**

SECTION B

Question Two

- a) Define the term “**Rock**”(**5 marks**)
- b) What are the basic types of rocks that naturally exist (**5 marks**)
- c) Write a short descriptive note on rocks formed as a result of accumulation of minerals and solid particles (**2 marks**)
- d) List 3 types of rocks formed from sedimentary actions. (**3 marks**)

Question Three

- a) What is weathering (**5 marks**)

- b) List five agents of biological weathering. (5 marks)
- c) Write a brief but comprehensive note on chemical weathering (5 marks)

Question Four

- a) Outline the components of (i) Physical and ii) biological weathering (8 marks)
- b) Explain the formation of soil using passive and active factors (7 marks)

Question five

Write a short note on (i) soil texture (ii) soil permeability (iii) soil infiltration rate, (iv) soil structure and (v) soil bulk density. (3marks each x 5=15)

Question Six

- a) Discuss the importance of soil amendment to a crop producer. (5 marks)
- b) Write a short note on biological properties of the soil. (4 marks)
- c) Describe any 3 soil reactions (2marks each x3= 6 marks)