



NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16, Ahmadu Bello Way, Victoria Island

SCHOOL OF SCIENCE AND TECHNOLOGY
October, 2013 Examination

COURSE TITLE: SOIL ECOLOGY

COURSE CODE: BIO408

CREDIT UNIT: 2

TIME ALLOWED: 2 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE QUESTIONS

- 1 (a). Why are soils crucial to life on earth?
(b). List five major factors that control soil formation and give the name that a set of soils formed under the dominant influence of each factor is called.
(c). Discuss each of the five factors that control soil formation.
- 2 (a). What is the principal soil property by which ultisols differ from Alfisols? Inceptisols from entisols?
(b). Soil Taxonomy is said to be a hierarchical classification system. Explain.
- 3 (a). Discuss the uses of soil tests and plant tissue analysis.
(b). Discuss the limitations of soil tests as indicators of plant nutrient needs and water pollution risks.
(c). Why must you sample plants from the best and worst areas in a field when sampling for tissue analysis for chemical constituents?
- 4 (a). Why are nutrient cycling problems in agricultural systems more prominent than in those in forested areas?
(b). Discuss briefly the three classes of rocks
- 5 (a). Give four reasons why compacting a soil would likely reduce the amount of water available to growing plants.
(b). Explain how decomposition affects the rate of nutrient cycling in ecosystems.
(c). Discuss the carbon cycle
- 6 (a). Discuss cation exchange and its benefits to the ecosystem.
(b). Name the key bacterial processes in nitrogen cycle.