



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2014/2015

DIGITAL SCHOOL OF VIRTUAL AND OPEN LEARNING

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS AND BACHELOR OF EDUCATION

AGE 205: SOIL GEOGRAPHY

DATE: Saturday, 2nd May, 2015

TIME: 4.30 p.m. – 6.30 p.m.

INSTRUCTIONS:

Answer Question One and any Two Questions.

Use illustration where appropriate.

1. (a) Describe the salient features of the following:
 - (i) A-Horizon [2 Marks]
 - (ii) Caliche [2 Marks]
 - (b) Explain the relationship between the following chemical, physical, and biological properties of soils:
 - (i) Cation Exchange capacity and soil fertility. [4 Marks]
 - (ii) Soil salinity and soil water stress. [4 Marks]
 - (iii) Soil catena and topography. [4 Marks]
 - (iv) Base saturation percentage and soil pH. [4 Marks]
 - (c) Explain how oxygen-tension in the soil influences denitrification potential. [10 Marks]
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2. Explain how the soil buffering capacity may be affected by long-term application of artificial fertilizers. [20 Marks]
 3. Explain the role of soil microbiota in carbon and nitrogen cycling. [20 Marks]
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4. Describe:
- (a) Soil characteristics aid in soil classification. [10 Marks]
 - (b) Show how azonal and intrazonal soils are treated in soil classification systems. [10 Marks]
5. Discuss:
- (a) Strategies for soil conservation and, [5 Marks]
 - (b) Agronomic, soil management, and mechanical techniques of soil conservation. [15 Marks]