CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION , ENVIRONMENTAL SCIENCE,HORTICULTURE

SOIL 100: INTRODCUTION TO SOIL SCIENCE

STREAMS:BSC(ENSC HORTAGED) Y1S1 **TIME: 2 HOURS**

DAY/DATE: THURSDAY 13/12/2018 **11.30 A.M – 1.30 P.M**

INSSTRUCTIONS:

- **Answer all questions in section A and any other two in section B**

SECTION A (30 MARKS) ANSWER ALL QUESTIONS

1. (a) Explain the various phases of a typical soil sample. [3 marks]
   (b) Explain the consequences of soil erosion in agro-ecological systems. [4 marks]
2. (a) With aid of a diagram, illustrate the composition of soil on a well managed cropped field. [4 marks]
   (b) Distinguish between spodosols and vertisols. [4 marks]
3. (a) Describe the basic step you would follow when opening a soil pit for profile description during survey. [4 marks]
   (b) Discuss the various mesofauna found in soils. [5 marks]
4. (a) Describe the rock cycle. [4 marks]
   (b) Distinguish between gravitational and hygroscopic soil water. [2 marks]

SECTION B: ANSWER ANY TWO QUESTIONS

5. (a) Explain how soil organisms near the rhizosphere influence plant roots. [8 marks]
   (b) Describe reconnaissance and detailed types of soil survey methods. [6 marks]
   (c) Explain the main types of sedimentary rocks. [6 marks]

6. (a) Discuss the effects of cation exchange capacity on soil fertility. [7 marks]

(b) Describe the typical information in a published soil survey report of an area. [7 marks]

(c) Explain contour farming as an effective soil conservation measure. [6 marks]

7. (a) Explain the significance of C: N ratio in soils for agricultural purposes. [7 marks]

(b) Explain the functions of water in relation to plant growth. [7 marks]

(c) Describe how you would carry out ribbon and sticky soil textural fields tests on a given farm. [6 marks]
