

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA  
IN AGRICULTURE AND RURAL DEVELOPMENT

SOIL 0100: INTRODUCTION TO SOIL SCIENCE

STREAMS: DIP. AGRIC (Y1S2)

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 15/04/2020

11.30 A.M. – 1.30 P.M.

**INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A (40 MARKS) AND  
ANY TWO IN SECTION B (30 MARKS)**

**SECTION A: ANSWER ALL QUESTIONS (40 MARKS)**

**QUESTION ONE**

- (a) Briefly describe nitisols as one of the major soils used in agriculture. [6 marks]
- (b) Describe colluvium cover deposit. [4 marks]
- (c) Giving examples, describe any three (3) groups of minerals. [6 marks]

**QUESTION TWO**

- (a) Describe the rock cycle. [6 marks]
- (b) Explain any three (3) objectives of soil survey. [3 marks]
- (c) Describe the following soil forming processes:
  - (i) Calcification [3 marks]
  - (ii) Podzolization [3 marks]

**QUESTION THREE**

- (a) Describe Clastic Sedimentary Rock. [5 marks]
- (b) Explain any two (2) disadvantages which hinder the application of conservation tillage in semiarid conditions. [4 marks]

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**SECTION B: ANSWER ANY TWO QUESTIONS (30 MARKS)**

**QUESTION FOUR**

- (a) Describe how climate influences soil formation and development. [7 marks]
- (b) Describe any four (4) mechanisms of soil aggregation. [8 marks]

**QUESTION FIVE**

- (a) Describe Eolian transported materials. [7 marks]
- (b) The development of structure in arable soil depends on different factors. Discuss any four (4) of these factors. [8 marks]

**QUESTION SIX**

- (a) Discuss the differences between deep open drains and pipe drains. [6 marks]
  - (b) Describe any three (3) factors affecting irrigation water use efficiency in agricultural farms. [6 marks]
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