

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF
CERTIFICATE IN ANIMAL HEALTH AND PRODUCTION**

SOIL 00100: SOIL SCIENCE

STREAMS: CERT (ANHE) YISI

TIME: 2 HOURS

DAY/DATE: MONDAY 10/12/2018

8.30 AM – 10.30 AM

INSTRUCTIONS:

Answer ALL Questions in Section A and any Two in Section B

SECTION A: ANSWER ALL QUESTIONS

QUESTION ONE

- (a) Explain any two (2) beneficial effects of soil organisms in agricultural systems. [4 marks]
- (b) Explain any two (2) indicators of a damaged soil structure. [4 marks]

QUESTION TWO

- (a) Describe metamorphic rocks. [3 marks]
- (b) Complete the following equations of chemical weathering of soils:
- (i) $\text{FeO (Ferrous oxide) + O}_2 \rightarrow$ [2 marks]
- (ii) $\text{Fe}_2\text{O}_3 \text{ (Hematite) - O}_2 \rightarrow$ [2 marks]

QUESTION THREE

- (a) Describe the A horizon in a given soil profile. [2 marks]
- (b) illustrate with aid of a diagram the composition of soil in a typically compacted landscape. [4 marks]

QUESTION FOUR

- (a) Explain monoammonium phosphate (MAP) as a commercial nitrogen fertilizer source. [4 marks]
- (b) Explain the principle of ecology as applied in organic agriculture. [5 marks]

SECTION B

QUESTION FIVE

- (a) Describe how you would carry out the ribbon and feel soil textural tests on a given farm. [8 marks]
- (b) Explain any seven (7) benefits of manure fertilizers in agricultural systems. [7 marks]

QUESTION SIX

- (a) Explain rock phosphate (RP) as a commercial source of phosphate fertilizers. [7 marks]
- (b) Explain any four (4) main functions of water in relation to plant growth. [8 marks]

QUESTION SEVEN

- (a) Explain health as a principle of organic farming. [7 marks]
 - (b) Explain how you would carry out the shine and taste textural tests on a paddock. [8 marks]
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