

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF CERTIFICATE IN ANIMAL HEALTH AND PRODUCTION

SOIL 00100: INTRODUCTION TO SOIL SCIENCE

STREAMS: CERT ANHE Y1S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 18/12/2024

2.30 P.M – 4.30 P.M

INSTRUCTIONS:

- Answer all questions in section A (40 marks) any two in section B (30 marks)
- Do not write anything on the question paper

SECTION A: ANSWER ALL QUESTIONS [40 MARKS]

QUESTION ONE

(a) The colour of the ground cover and its insulating properties have a strong influence on soil temperature. Explain [2 marks]

b) Differentiate between colluvium and alluvium transported deposits [2 marks]

(c) The amount of water in the soil is dependent upon two factors. Explain [2 marks]

QUESTION TWO

(a) Briefly describe any three (3) characteristics of soils formed by laterization pedogenic process. [3 marks]

(b) As a soil scientist explain any three (3) benefits of soil conservation in agriculture [6 marks]

- (c) Briefly describe how the following factors influence the composition of Soil air [marks]
- i. Soil organic matter [2marks]
 - ii. Soil moisture [2 marks]
 - iii. Vegetation [2marks]

(c) Briefly characterize Ferralsols soils [5 marks]

QUESTION THREE

(b) Briefly discuss any three (3) importances of weathering [3 marks]

(a) In your opinion explain any two (3) uses of soil survey [3 marks]

QUESTION FOUR

a) Due to the prolonged droughts, a farmer in Tharaka Nithi County intends to install an irrigation system in his agricultural field, as an expert advise the farmers on any two (2) factors that will affect irrigation water use efficiency [4 marks]

b) Justify any four (4) disadvantages of using surface mulching in agricultural farm. [4 Marks]

SECTION B: ANSWER ANY TWO QUESTIONS [30 MARKS]

QUESTION FIVE

a) As a soil scientist advice napier grass grower on how to minimise problems of handling and recording of soil samples meant for laboratory analysis. [10 marks]

(b) Summarize on any five (5) factors that promotes structure development in arable soil. [5 marks]

QUESTION SIX

(a) Describe reduction as one of the principle reaction of chemical weathering. [7 Marks]

(b) Assuming you are the ward extension officer in your home county advice farmers on any four (4) reasons for laboratory soil testing of their agricultural fields [8marks]

QUESTION SEVEN

(a) Properties of soil minerals determine the composition and type of rock formed. Describe any four (4) unique physical properties of minerals [8 marks]

(b) Discuss the influence of temperature and precipitation on soil formation and development. [7 marks]
