



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**BSC. HORTICULTURE AND BSC ANIMAL SCIENCE YEAR 1 SEMESTER 2
UNIVERSITY EXAMINATIONS
2024/2025 ACADEMIC YEAR**

SIAYA

COURSE CODE: APB 1106:

COURSE TITLE: INTRODUCTION TO SOIL SCIENCE

STREAM: BSc. HORTICULTURE AND BSC ANIMAL SCIENCE

DATE

TIME: 2 HOURS

SESSION:

Instructions:

- 1. Answer ALL questions in section A and ANY other 2 Questions in section B.**
- 2. Candidates are advised not to write on question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A: 30 MARKS
ANSWER ALL QUESTIONS

Question 1

- a) Explain the relevance of soil textural triangle to a soil scientist. (2 marks)
- b) Comment on the role of temperature in soil formation. (3 marks)
- c) Outline any three factors that affect water infiltration in soil. (3 marks)
- d) Describe the relevance of isomorphous substitution in sustaining soil fertility. (3 marks)
- e) What is the relationship between rock mineral composition thermal expansion and contraction? (3 marks)
- f) Differentiate between the following terms as used in soil science. (3 marks)
 - Pedology
 - Pedon and
 - Ped
- g) Describe the architectural significance of consistency and swell-shrink potential properties of soil. (4 marks)
- h) Contrast between 2:1 and 1:1 clay mineral giving one example in each case. (4 marks)
- i) As a soil science student, why is the study of soil as a natural body important. (5 marks)

SECTION B: 40 MARKS
ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) Discuss climate and relief as soil forming factors. (10 marks)
- b) Using a well labeled diagram, describe the soil profile. (10 marks)

QUESTION 3

- a) Describe chemical weathering, detailing how it contributes to soil formation. (10 marks)
- b) Discuss the role of CEC in soil fertility maintenance. (10 marks)

QUESTION 4

- Describe soil classification based on FAO criteria. (20 marks)