



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURAL AND FOOD SCIENCES
THIRD YEAR SECOND SEMESTER UNIVERSITY EXAMINATION FOR THE
DEGREE OF BACHELOR OF SCIENCE IN SOIL SCIENCE

2024/2025 ACADEMIC YEAR

SIAYA

COURSE CODE: ALS 3321

COURSE TITLE: SOIL WATER AND PUBLIC HEALTH

DATE: **STREAM: BSc. Soil Science**

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 from this Section.

1. Explain the term public health, and its significance in community well-being. (4 Marks)
2. Describe any THREE essential environmental public health services. (6 Marks)
3. Explain the FOUR steps of environmental health risk assessment. (6 Marks)
4. Identify three sources of soil contamination and highlight their impact on human health.
· (3 Marks)
5. How do soil properties influence water filtration and purification? (6 Marks)
6. What is the importance of microbial degradation in soil remediation? (5 Marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

8. a) Relate soil health to food security in agricultural production. (10 Marks)
b) Explain how trace elements in soil and water influence human health. (10 Marks)
9. a) Evaluate the role of water quality monitoring in public health protection. (10 Marks)
b) Analyse the health risks associated with industrial pollutants in soil and water.
· (10 Marks)
10. a) Explain the sources and effects of heavy metals in contaminated soils. (10 Marks)
b) How does excessive use of fertilizers and pesticides in agriculture lead to water pollution?
· (10 Marks)
11. a) Discuss the impact of soil degradation on human health and the environment.
· (10 Marks)
b) Discuss how various soil types affect the bioavailability of essential and toxic elements in food crops and drinking water. (10 Marks)