



**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**

2019/2020 ACADEMIC YEAR

REGULAR

COURSE CODE: ALS 3323

COURSE TITLE: Nutrient Management and Research in Agro-ecosystems

EXAM VENUE:

STREAM: BSc. (Soil Science)

DATE:

EXAM SESSION:

TIME: 2 HOURS

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. Define the following terms:
 - a. Lime requirement (3 Marks)
 - b. Alkali soils (2 Marks)
 - c. Soil pH (2 Marks)
 - d. C:N ratio (2 Marks)
 - e. Fertilizer (2 Marks)
2. Explain the advantages of foliar fertilizers (3 Marks)
3. Describe the formation of saline soils (3 Marks)
4. Discuss the benefits of liming on acidic soils (3 marks)
5. Explain the advantages of plant analysis in nutrient management (3 marks)
6. Discuss four objectives of soil testing (3 marks)
7. Describe the factors that affect soil productivity (4 marks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

8. Discuss two approaches to soil fertility evaluation and fertilizer recommendation (20 marks)
9.
 - a. Describe the importance of C:N ratio in soil nutrient management (10 marks)
 - b. Explain the agronomic methods of land reclamation and management of saline soils (10 marks)
10. Discuss the following:
 - a. Principles of fertilizer application (10 Marks)
 - b. Reclamation of alkali soils (10 Marks)