JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

THIRD YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN SOIL SCIENCE

2016/2017 ACADEMIC YEAR

REGULAR

COURSE CODE: ALS 3323
COURSE TITLE: Nutrient Management and Research on the Ecosystem
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 liquid form fertilizer **(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 4 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.

1. Discuss two approaches to soil fertility evaluation and fertilizer recommendation **(20 marks)**
2. Describe the importance of C:N ratio in soil nutrient management **(20 marks)**
3. Explain the agronomic methods of land reclamation and management of saline soils **(20 marks)**
4. Discuss the following:
    a. Broadcasting as a method of fertilizer application **(5marks)**
    b. Principles of fertilizer application **(4marks)**
    c. Fertilizer mixtures **(6 marks)**
    d. Reclamation of alkali soils **(5 marks)**