JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY SCHOOL OF AGRICULTURE

UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF EDUCATION SCIENCE (HORTICULTURE)

1ST YEAR 2ND SEMESTER 2013/2014 ACADEMIC YEAR

MAIN

COURSE CODE: ALS 3123

COURSE TITLE: INTRODUCTION TO SOIL SCIENCE

EXAM VENUE: LAB 1 **STREAM: (BSc. Soil science)**

DATE: 18/08/14 **EXAM SESSION: 9.00 – 11.00 AM**

TIME: 2.00 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 the question paper.

3.Candidates must hand in their answer booklets to the invigilator while in the examination room.

SECTION A

1. a) Differentiate between Ped and Pedon. [2 marks]
b)Explain the relevance of soil textural triangle to a soil scientist. [3 marks]
c)Explain any three criteria for classifying soil micro-organisms. [3 marks]
d)Briefly comment on the role of temperature in soil formation. [3 marks]
e)Explain what you understand by the term isomorphous substitution. [3 marks]
f)As a soil science student why is understanding of soil as a natural body important. [4 marks]
g)Explain any two differences between Illuviation and Elluviation in pedology. [4 marks]
h)Highlight the difference between primary and secondary minerals in soil. Givetwoexamples in each case. [4 marks]
i)Show how hydrolysis and redox reactions contribute to chemical weathering. [4 marks]

SECTION B

2.a) Discuss time and relief as soil forming factors [10 marks]
b) 2:1 and 1:1 are types of clay, explain giving one example in each case [5 marks]
c) Explain how water infiltration can be managed in sustaining soil health [5 marks]

3. a) Discuss the development of charge on clay minerals, highlighting its significance in agricultural productivity. [10 marks]
b) Using a well labeled diagram, describe the soil profile. [10 marks]

4.Describe basic principles of land evaluation and survey. [20 marks]