



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**SECOND YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR
THE DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE AND
BACHELOR OF SCIENCE AGRICULTURAL EDUCATION AND
EXTENSION**

2017/2018 ACADEMIC YEAR

REGULAR

COURSE CODE: ALS 3213

COURSE TITLE: SOIL SURVEY, CLASSIFICATION AND LAND EVALUATION

EXAM VENUE: LAB 4

STREAM: BSc. (Horticulture) and AGED

DATE: 21/12/17

EXAM SESSION: 9.00 - 11.00 AM

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 as used in soil science:
 - a. Pedon (2 Mark)
 - b. Series (2 Mark)
 - c. Soil classification (2 Mark)
2.
 - a. State the six hierarchical soil classifications according to USDA (3mks)
 - b. Explain the advantages of USDA soil classification system (6mks)
3. State any three importance of soil survey (3mks)
4. Differentiate between the following
 - a. Land evaluation and land improvement (3 Marks)
 - b. Land suitability order and land suitability class (3 Marks)
5. Explain the characteristics of the following
 - a. Mollic diagnostic horizon (3mks)
 - b Anthropic diagnostic horizon (3mks)

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

6.
 - a Describe the properties and occurrence of solonchaks and solonetz in Kenya (10 mks)
 - b. Explain the reclamation process of the following (10mks)
 - i. Saline soils,
 - ii. Sodic soils,
 - iii. Saline - sodic soils
7. Discuss land suitability classes stating the factors affecting land suitability classification (20mks)
8. Discuss ferralsols and vertisols under the following (20mks)
 - a. Properties
 - b. Distribution
 - c. Use .
9. Discuss the following types of soil survey (20mks)
 - a. Exploratory
 - b. Reconnaissance
 - c. detailed
 - d. detailed - reconnaissance