



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

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**FIRST YEAR SECOND SEMESTER UNIVERSITY EXAMINATION FOR
THE DEGREE OF BACHELOR OF SCIENCE IN SOIL SCIENCE,
BACHELOR OF SCIENCE IN HORTICULTURE AND BACHELOR OF
SCIENCE IN ANIMAL SCIENCE**

2016/2017 ACADEMIC YEAR

REGULAR

COURSE CODE: ALS 3123

COURSE TITLE: Introduction to Soil Science

EXAM VENUE:

**STREAMS: BSc. Soil Science, Bsc.
Horticulture and Bsc. Animal 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 as used in soil science.
 - a) Pedology **(2 Marks)**
 - b) Edaphology **(2 Marks)**
 - c) Cation Exchange Capacity **(2 Marks)**
 - d) Base Saturation **(2 Marks)**
2.
 - a) Define the term “Weathering.” **(2 Marks)**
 - b) Discuss FOUR types of Physical Weathering. **(8 Marks)**
3. Give the morphological characteristics of each of the following horizon designations.
 - a) Btw **(1 Mark)**
 - b) Ahy **(1 Mark)**
 - c) Cmk **(1 Mark)**
 - d) Bgs **(1 Mark)**
4. Differentiate between the following processes of horizon development.
 - a) Transformations and Translocations. **(2 Marks)**
 - b) Eluviation and Illuviation. **(2 Marks)**
5. Discuss FOUR significance of soil texture to an agriculturist. **(4 Marks)**

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

6.
 - a) Discuss FIVE main soil forming factors. **(10 Marks)**
 - b) Discuss the key functions of soil organisms. **(10 Marks)**
7.
 - a) Using the right expression, explain the term bulk density. **(2 Marks)**
 - b) Explain FOUR factors affecting bulk density of soils. **(8 Marks)**
 - c) Explain the importance of soil structure to an agriculturist. **(10 Marks)**
8.
 - a) What is soil acidity? **(2 Marks)**
 - b) Explain the causes and effects of soil acidity. **(8 Marks)**
 - c) Explain the significance of soil organic matter. **(10 Marks)**