



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

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

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

2019/2020 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) Cation Exchange Capacity **(2 Marks)**
 - b) Base Saturation **(2 Marks)**
 - c) Soil Consistence **(2 Marks)**
 - d) Isomorphic Substitution **(2 Marks)**
2. Discuss FOUR processes involved in chemical weathering. **(8 Marks)**
3. Give the morphological characteristics of each of the following horizon designations.
 - a) Bts **(1 Mark)**
 - b) Bhy **(1 Mark)**
 - c) Cmk **(1 Mark)**
 - d) Bwt **(1 Mark)**
4. Explain THREE causes and THREE effects of soil acidity. **(6 Marks)**
5. Differentiate between the following terms as used in soil science.
 - a) Autotrophic and Heterotrophic organisms **(2 Marks)**
 - b) Hygroscopic water and Capillary water **(2 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) Explain the importance of soil structure to an agriculturist. **(10 Marks)**
 - b) Discuss the main soil forming processes. **(10 Marks)**
8.
 - a) Explain the roles of mycorrhizae fungi in soil. **(8 Marks)**
 - b) Explain the significance of soil organic matter. **(12 Marks)**