



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

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**SECOND YEAR SECOND SEMESTER UNIVERSITY EXAMINATION  
FOR THE DEGREE OF BACHELOR OF SCIENCE IN SOIL SCIENCE  
AND BACHELOR OF SCIENCE IN FOOD SECURITY**

**2016/2017 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE: ALS 3216**

**COURSE TITLE: Soil and Civilization**

**EXAM VENUE:**

**STREAM: BSc. (Soil Science; Food Security)**

**DATE:**

**EXAM SESSION: April 2107**

**TIME: 2 HOURS**

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**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 with examples:
  - a. Civilization **(2 Marks)**
  - b. Soil degradation **(2 Marks)**
  - c. Sustainable land management **(2 Marks)**
2. Discuss the following major changes in agricultural land use in developing countries and associated degradation problems **(8 Marks)**
  - a. Irrigated lands
  - b. High quality rain-fed lands
  - c. Density populated marginal lands
  - d. Urban and Peri-urban agriculture
3.
  - a. List the three principles of integrated soil fertility management **(3 Marks)**
  - b. Describe push-pull integrated soil fertility management as a strategy for improving soil quality **(5 Marks)**
4. Describe four ways through which soil erosion reduces yield **(8 Marks)**

**SECTION B [40 MARKS]**

**Answer ANY TWO questions from this Section.**

5. Discuss the following current sustainable land management practices in Kenya: **(20 Marks)**
  - a. Conservation agriculture,
  - b. Micro-catchment,
  - c. Cross-slope barriers
  - d. Agroforestry.
6. Discuss the following principles for best sustainable land management practices **(20 Marks)**
  - a. Water use efficiency
  - b. Micro-climate management
  - c. Improving biodiversity
7. Discuss the role of soil in the success and decline of ancient civilization: **(20 Marks)**