



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

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
FOOD SECURITY**

**2017/2018 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE: ALS 3216**

**COURSE TITLE: SOIL AND CIVILIZATION**

**EXAM VENUE:**

**STREAM: BSc. (Food Security)**

**DATE:**

**EXAM SESSION: December 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. Integrated soil fertility management (2 Marks)
2. Discuss the following major changes in agricultural land use in developing countries and associated degradation problems
  - a. Extensively managed marginal lands 3 marks
  - b. High quality rain-fed lands 3 marks
  - c. Density populated marginal lands 3 marks
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 (4 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 plant materials and plant management
  - d. Improving soil fertility and nutrient cycling
7. Giving specific examples, discuss the role of soil in the success or decline of ancient civilization (20 Marks)