



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

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**FOURTH YEAR SPECIAL UNIVERSITY EXAMINATION FOR THE  
DEGREE OF BACHELOR OF SCIENCE IN FOOD SECURITY,  
BACHELOR OF SCIENCE IN ANIMAL SCIENCE AND BACHELOR OF  
SCIENCE IN AGRICULTURAL AND EXTENSION EDUCATION**

**2019/2020 ACADEMIC YEAR**

**SPECIAL/RESIT EXAMS**

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**COURSE CODE: ALS 3221/PWE 3321**

**COURSE TITLE: Soil and Water Conservation Management**

**EXAM VENUE:**

**STREAMS: BSc. Food Security, BSc. Animal  
Science and BSc. Agricultural and Extension  
Education.**

**DATE:**

**EXAM SESSION:**

**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. Discuss the mechanics of water erosion. **(4 Marks)**
2. Define the following terms;
  - a. Land degradation **(2 marks)**
  - b. Soil erodibility **(2 marks)**
  - c. Water use efficiency **(2 marks)**
  - d. Soil tolerance **(2 marks)**
3. Discuss the factors influencing erodibility. **(5 Marks)**
4. Differentiate between;
  - a. Drought resistant and drought escaping crop. **(2 Marks)**
  - b. Cut off drains and retention ditches. **(2 Marks)**
5. Discuss factors affecting each of the following processes of the hydrologic cycle. **(4 Marks)**
  - a. Infiltration process
  - b. Runoff process
6. Discuss ways through which surface residue cover influences infiltration rate. **(5 Marks)**

## SECTION B [40 MARKS]

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

7.
  - a) Discuss FIVE ways of improving Crop Water Use Efficiency in Arid and Semi Arid regions of Kenya. **(10 Marks)**
  - b) Discuss the impacts of soil erosion on land productivity. **(10 Marks)**
8.
  - a) Discuss FIVE major causes of degradation in croplands. **(10 Marks)**
  - b) Discuss the causes and global effects of deforestation. **(10 Marks)**
9. Discuss the soil conservation practices that should be employed under the following circumstances.
  - a. Restricted rainfall infiltration. **(10 Marks)**
  - b. Low erratic rainfall. **(10 Marks)**