



**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

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

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)**