



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

**SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF
SCIENCE IN LAND AND WATER MANAGEMENT**

KRM 520: LAND DEGRADATION AND PRODUCTIVITY MANAGEMENT

DATE: Tuesday, 29th March, 2011

TIME: 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS:

Answer question **ONE** and any other **THREE** questions.

1. a) What do you understand by the following terms:-
 - i) Land degradation (8 marks)
 - ii) Climate change (3 marks)
 - iii) Water use efficiency (4 marks)
 - iv) Pollution (5 marks)
- b) Name six (6) indicators used to describe soil quality (3 marks)
- c) State four (4) causes of deforestation (4 marks)
- d) State 5 inappropriate agricultural activities which cause land degradation (5 marks)
- e) State two (2) irrigation problems and explain how each affect crop growth (4 marks)
- f) Describe six (6) general methods by which land productivity can be improved. (6 marks)
2. a) What is land degradation? (1 mark)
- b) Apart from irrigation issues, state six (6) types of land degradation processes. (3 marks)

- c) Discuss the consequences of each degradation process on land productivity (6 marks)
3. a) Discuss the environmental problems caused by deforestation (5 marks)
- b) How can deforestation be controlled? (5 marks)
4. Discuss the impact of erosion on soil fertility and productivity (10 marks)
5. Study the information in the Table below and answer the questions that follow:-

Soil type	pH (1:2 H ₂ O)	ECe (dS/m)	S.A.R
Soil A	< 8.5	> 4.0	< 13
Soil B	≤ 8.5	> 4.0	> 13 - 15
Soil C	> 8.5	< 4.0	> 13 - 15
Soil D	< 4.5	2-4	< 13

- a) Identify the main constraints to plant growth for each of these soils (4 marks)
- b) Discuss the procedure you would follow to better manage these soils for increased productivity. (6 marks)