



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

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

KRM 520: LAND DEGRADATION AND PRODUCTIVITY MANAGEMENT

DATE: Thursday 29th March, 2012

TIME: 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS:

Answer Question ONE and any other THREE questions TIME: 3 hours

1. (a) Identify 3 common types of land use for which land degradation may occur (3 marks).
- (b) Differentiate between
 - (i) Land degradation and soil degradation (4 marks)
 - (ii) Physical, chemical and biological degradation processes (6 marks)
- (c) Briefly discuss the extent of land degradation in Africa, using relevant examples (5 marks)
- (d) State four causes of deforestation (4 marks)
- (e) Describe the different types of water erosion on crop lands (8marks)
2. Discuss the impact of erosion on soil fertility and productivity (10 marks)
3. Discuss the importance of irrigation both as a cause of land degradation and improved land productivity management (10 marks)
4. Discuss the role of conservation agriculture in land productivity management. (10 marks)
5. Study the information in the Table below and answer the questions that follow

Soil type	pH (1:2 H ₂ O)	EC _e (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)