



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF
SCIENCE (INTEGRATED SOIL FERTILITY MANAGEMENT)

KRM 508: WATER AND SOIL CONSERVATION

DATE: TUESDAY, 3RD APRIL 2012

TIME: 9.00 A.M – 12.00 A.M

INSTRUCTIONS; Answer Question ONE and any other THREE Questions

1. a) Write short notes on the following terms
 - (i) Soil conservation
 - (ii) Soil moisture tension
 - (iii) Permanent wilting point
 - (iv) Soil field capacity
 - (v) Crop water use efficiency
- b) Show how water and soil conservation study can contribute to the realization of the goals of the Kenya government of opening up arid and semi- arid lands.

[10 marks]
2. Discuss soil conservation strategies that applicable in cultivated lands.

[10 marks]
3. Briefly discuss the major factors that affect surface runoff process

[10 marks]
4. a) Define six factors that form the Universal Soil Loss Equation(USLE) [6 marks]
- b) From a standard runoff plot, it was determined that the average annual soil loss was 36 Mg ha^{-1} per year. What was the soil erodibility factor if rainfall erosivity factor for the area $24 \text{ MJha}^{-1} \text{ mmh}^{-1}$.

[4 marks]
5. a) Define the following terms
 - (i) Water erosion
 - (ii) Crop water requirement
 - (iii) Net irrigation requirement
 - (iv) Land degradation
 - (v) Soil consistency

[5 marks]
- b) Calculate the gross amount of water to be applied to the field if the net amount of irrigation is 8cm and the field efficiency is 75 percent. [5 marks]