



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTIONAL BASED PROGRAMME (DECEMBER SESSION)

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

KRM 518: SOIL ORGANIC MATTER MANAGEMENT

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DATE: WEDNESDAY 2ND MAY 2012

TIME: 9.00 A.M. – 12.00 P.M.

INSTRUCTIONS

Answer Question ONE and any other TWO questions.

1. a) Define the following:
 - i) Biochar (2 marks)
 - ii) Saturation level of carbon (2 marks)
 - iii) Eco-efficient agriculture (2 marks)
- b) Explain the role of soil organic matter as “**A Revolving Nutrient Bank Account**” (20 marks)
- c) State five methods of sequestering carbon from the atmosphere. (5 marks)
- d) State components of soil organic matter (4 marks)
- e) Explain the three trophic levels in the soil ecosystem (3 marks)
- f) Explain beneficial functions of earthworms in management of soil organic matter. (10 marks)
2. Discuss benefits of organic farming in regard to soil health and human nutritional benefits. (10 marks)
3. a) explain the various components of humus (5 marks)
- b) Discuss the three pools of soil organic matter (5 marks)
4. Discuss differences between the **Phosphorous Cycle** and the **Nitrogen Cycle** (10 marks)
5. Discuss the role of conservation agriculture in management of soil organic matter (10 marks)