



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

INSTITUTIONAL BASED PROGRAMME (DECEMBER SESSION)

EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE

(INTEGRATED SOIL FERTILITY MANAGEMENT)

KRM 501 : SOIL BIOLOGY AND BIOCHEMISTRY

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DATE: WEDNESDAY 2ND MAY 2012

TIME: 9.00 A.M. – 12.00 P.M.

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INSTRUCTIONS

Answer any four questions. Question ONE is compulsory.

1. a) Discuss the fate of ammonium in tropical soils, highlighting the significance of simultaneous immobilization processes involved when determining net mineralization. (12 marks)
- b) Give a brief review of estimation of available soil nitrogen. (7 marks)
- c) Give a brief account of factors affecting nitrification (6 marks)

2. Citing relevant examples, discuss bioremediation technology as an attempt towards commercializing soil microorganisms. (15 marks)

3. Discuss the role of different microscopic methods in the study of soil microorganisms, stating the strengths of each technique described. (15 marks)

4. Discuss the contribution of microbes in degradation of pesticides and related anthropogenic organic matter in Urban and Peri-Urban Agriculture and explain the contribution of genetic manipulation of catabolic pathways in enhancing the degradation processes. (15 marks)

5. Briefly discuss the practical implication of interactions between soil biota and cover crops incorporation in a specified farming system. (15 marks)