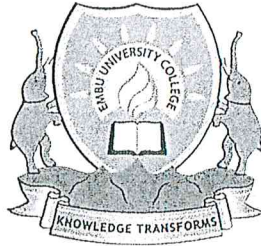


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EMBU UNIVERSITY COLLEGE  
(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)

FIRST SEMESTER EXAMINATION 2013/2014

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
HORTICULTURE/ AGRICULTURAL EDUCATION AND EXTENSION/ AGRICULTURE

ASS 102: INTRODUCTION TO SOIL SCIENCE (SOIL CHEMISTRY)

DATE: NOVEMBER 28, 2013

TIME: 11.00 – 1.00PM

INSTRUCTIONS:

Answer Question ONE and ANY Other TWO Questions.

QUESTION ONE

- a) Differentiate the following terms as used in soil science
- Sedimentary and Metamorphic rocks (2 marks)
  - Cryosols and Leptosols (2 marks)
  - Adhesion and Cohesion (2 marks)
  - Xeric and Aridic moisture regime (2 marks)
  - Nitrification and Nitrogen fixation (2 marks)
- b) Briefly discuss the four physical properties of water (10 marks)
- c) A farmer in Embu took his soil sample to KARI for analysis. He was given the following laboratory results: to grow maize, he requires 60KgN/ha and 20 KgP/. The soil has a pH of 7. Which fertilizer (s) would you recommend him to use, the amount required and why? (10 marks)

**QUESTION TWO**

Briefly describe any five chemical weathering processes (20 marks)

**QUESTION THREE**

Describe four potential sources of negative charge in soils and how they originate. (20 marks)

**QUESTION FOUR**

Describe five beneficial effects of soil organisms to plants (20 marks)

**QUESTION FIVE**

Briefly explain five general guidelines for soil organic matter management (20 marks)

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