



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2015/2016

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF  
BACHELOR IN AGRIBUSINESS MANAGEMENT

### AAA 3203: SOIL SCIENCE AND PLANT NUTRITION

DATE: NOVEMBER 2015

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) Explain the factors for soil formation (10 Marks)
- b) Explain the soil factors that influence nutrient uptake (5 Marks)
- c) Describe the functions of the major macro-nutrients(NPK) in plant growth (10 Marks)
- d) Explain the significance of PH to plant nutrients availability (5 Marks)

#### QUESTION TWO (20 MARKS)

- a) Explain the three processes of weathering that lead to disintegration and decomposition of rock parent materials (10 Marks)
- b) Soil fertility can be gained or be lost. Explain the factors that may contribute to this situation (10 Marks)

**QUESTION THREE (20 MARKS)**

- a) Describe soil texture and show its influence in soil nutrition's (8 Marks)
- b) Explain the importance of organic matter in the soil. (7 Marks)
- c) Show how mineralization and immobilization of nutrients occurs (5 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Explain how you would differentiate the clayey soil from sandy soil using field method. (6 Marks)
- b) Highlight the various types of soil water. (4 Marks)
- c) Using and illustration, explain how the following relates to nutrients concentration levels in plants
  - i) Deficient level
  - ii) Critical level
  - iii) Luxury consumption
  - iv) Toxic level
  - v) Sufficiency range
  - vi) Hidden hunger (10 Marks)