MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya.
Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411
Fax: 064-30321
Website: www.must.ac.ke Email: info@must.ac.ke

University Examinations 2015/2016

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR IN HORTICULTURE, AGRICULTURE, AGRICULTURAL EDUCATION & EXTENSION AND BED SCIENCE

AAA 3201: SOIL FORMATION AND CLASSIFICATION

DATE: NOVEMBER 2015 **TIME: 2 HOURS**

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

QUESTION ONE (30 MARKS)

a) Explain how soils are formed from the Residuum, Colluvium and Alluvium. (6 Marks)

b) Describe soil consistence in wet, moist and dry conditions (6 Marks)

c) Chemical weathering processes results in disintegration and decomposition of the rocks and affects their mineral composition. Explain the chemical weathering processes and give examples of such reactions. (10 Marks)

d) Giving examples, describe the characteristics of igneous rocks that differentiate them from others (8 Marks)

QUESTION TWO (20 MARKS)

a) Differentiate by showing the characteristics of A-horizon from B-horizon (4 Marks)

b) The basic soil textural class names are used to present soil texture and are defined in terms of particle-size distribution as determined in the laboratory by particle Size Distribution Analysis or Mechanical Analysis. Explain the various soil textural classes as demonstrated in textural triangle (12 Marks)

c) Explain the importance of soil profile and horizonation to agricultural production (4 Marks)

QUESTION THREE (20 MARKS)

a) Give a brief description of the soil orders according to the USDA soil taxonomy system (6 Marks)

b) Explain the importance and the purpose of soil classification (6 Marks)

c) Demonstrate by showing the steps you would undertake when carrying out a natural soil classification for agricultural purposes (8 Marks)

QUESTION FOUR (20 MARKS)

a) Describe the characteristic features of main sub-surface diagnostic horizon. (10 Marks)

b) Explain the factors that can be used in controlling the rate of water movement in the soil. (7 Marks)

c) Explain three (3) soil waters in relation to plant growth (3 Marks)