(30)

(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR

SECOND YEAR 2ND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND BIOTECHNOLOGY

COURSE CODE: SAB 213
COURSE TITLE: SOIL CHEMISTRY

DATE: 12TH OCTOBER 2018 **TIME: 8 – 10 AM**

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over

QUESTION ONE = 30 MARKS (COMPULSORY)

a) Define the following terms:

i) Mineral (2 Marks)

ii) 2:1 clay type (2 Marks)

iii) Humins (2 Marks)

iv) Sorption Isotherm (2 Marks)

v) Soil Colloid (2 Marks)

b) Differentiate between 1:1 and 2:1:1 clay mineral (2 Marks)

c) Define buffered CEC (2 Marks)

d) Describe the effect of soil organic matter on Chemical properties of soils. (8 Marks)

e) Briefly describe FOUR factors that affect the effectiveness of limestone to react in acidic soils. (8 Marks)

QUESTION TWO = 20 MARKS

a) Differentiate between tri-octahedral and di-octahedral sheets (4 Marks)

b) Describe THREE types of soil acidity. (6 Marks)

c) Briefly explain the effect of soil pH on plant growth. (6 Marks)

d) Explain how neutrality of tetrahedral structure can be achieved (4 Marks)

QUESTION THREE = 20 MARKS

a) State the formulae of Sodium Adsorption Ratio (SAR) (4 Marks)

b) Differentiate between Mor and Mull humus (16 Marks)

QUESTION FOUR = 20 MARKS

Describe the intermediate steps in the decomposition of Organic Matter. (20 Marks)