(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021 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: 11TH JANUARY 2022 **TIME:** 2 – 4 PM

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) Soil Colloid (2 Marks)

ii) Tectosilicates clay type (2 Marks)

iii) Humus (2 Marks)

iv) Isormophous Substitution (2 Marks)

v) Lime Requirement (2 Marks)

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

c) Define unbuffered CEC (2 Marks)

d) Describe the effect of soil organic matter on Physical properties of soils. (7 Marks)

e) Suppose large quantities of high C: N ratio e.g. 50:1 is incorporated into the soil, briefly describe its effect on organic matter decomposition. (8 Marks)

QUESTION TWO = 20 MARKS

a) Differentiate between Tetrahedral and 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)

QUESTION FIVE = 20 MARKS

State and briefly explain factors that influence Soil formation. (20 Marks)