(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018 ACADEMIC YEAR

FOURTH YEAR 1ST SEMESTER MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE AGRICULTURE AND BIOTECHNOLOGY & BACHELOR OF SCIENCE AGRICULTURE ECONOMICS AND RESOURCE MANAGEMENT

COURSE CODE: SAB 410
COURSE TITLE: FERTILIZER MANUFACTURE & FORMULATION

DATE: 20TH DECEMBER 2017 **TIME: 3 PM – 5 PM**

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours
This paper consists of 3 printed pages. Please Turn Over

1. a) Define the term Fertilizer (1 Mark)

   b) Differentiate between a fertilizer grade and a fertilizer ratio (2 Marks)

   c) Explain why dog and cat manures are not recommended for use on farm (2 Marks)

   e) Give the analytical grades of the following fertilizer

      i) MOP (1 Mark)

      ii) CAN (1 Mark)

   f) Discuss three main reasons why placement of fertilizers is considered a very important aspect to farmers (6 Marks)

   c) In the manufacture of P fertilizers,

   i) Name the raw materials. (2 Marks)

   ii) Give the chemical reactions when the following fertilizers are manufactured

   - Single superphosphate (SSP) (2 Marks)
   - Triple superphosphate (TSP) (4 Marks)

   iii) State the chemical reactions by which elemental P is oxidized to form orthophosphoric acid. (2 Marks)

   d) Give the equation of reaction when the following materials are mixed to form fertilizer mixtures and state weather or not it is advisable to mix them depending on the products formed.

   - Urea + TSP. (3 Marks)
   - DAP + SSP. (3 Marks)

2. The exclusive use of organic manures as nutrient sources for plant growth has been advocated as a logical alternative to expensive inorganic fertilizers for small-holder farmers in sub-Saharan Africa. Explain the merits and demerits of this alternative (20 Marks)

3. a) Meshack, a large scale maize farmer in Trans-Nzoia has ordered a fertilizer blend of 17:17:17. Calculate the amount of each ingredient required to make the blend (10 Marks)

b) Describe the CORE factors that determines the choice of ingredients to be used to make a fertilizer blend (10 Marks)

4. Discuss the various types of Biofertilizers (20 Marks)