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**University Examinations 2015/2016**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN AGRICULTURE

**NAR 0240: SOIL FERTILITY & FERTILIZERS**

**DATE: AUGUST, 2016 TIME: 1 ½ HOURS**

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

**QUESTION ONE – (30 MARKS)**

1. Explain why it’s not recommended to rely on the visual symptoms when diagnosing nutrient deficiencies. (6 Marks)
2. Explain the functions, deficiencies, symptoms and toxicity of Potassium (K) and Sulphur (S) (10 Marks)
3. Explain why the deficiency symptoms may appear first in older or young leaves in a plant. (3 Marks)
4. Explain the form in which nitrogen (N) , Phosphorous (P) and molybdenum(Mo) are available to plants. (5 Marks)
5. Explain the mechanisms of plant nutrient uptake. (6 Marks)

**QUESTION TWO (15 MARKS)**

1. Describe the following terms:- (5 Marks)
2. Macronutrient
3. Nutrients antagonism
4. Mineralization
5. Fertilizer grade
6. Explain how phosphorous increases the water use efficiency in a plant. (5 Marks)
7. Explain how soil water affects the fertility of the soil. (5 Marks)

**QUESTION THREE (15 MARKS)**

1. Explain why and how nitrogen is lost in the soil. (5 Marks)
2. Calculate the filler materials and fertilizer carriers required to prepare one tone of mixed fertilizer of grade 10-5-5 given that:- (10 Marks)
3. Ammonium sulphate (NH4)2SO4 **20-0-0**
4. Supper phosphate **0-20-0**
5. Potassium nitrate **13-0-41**

**QUESTION FOUR (15 MARKS)**

1. Using a diagram, illustrate the concentration levels of a nutrient in the plant tissue.

(7 Marks)

1. Describe the characteristic nature of nitrogeneous fertilizers (3 Marks)
2. Explain five fertilizer application methods. (5 Marks)