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**University Examinations 2015/2016**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN AGRICULTURE

**NAR 0240: SOIL FERTILITY AND FERTILIZERS**

**DATE: NOVEMBER 2015 TIME: 11/2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Explain the effect of soil PH on nutrients availability to plants (4 Marks)
2. Describe briefly the importance of organic matter in the soil (4 Marks)
3. Briefly describe ways through which soil nutrition value is lost (5 Marks)
4. To prepare a tonne of a mixed fertilizer, of grade 10:25:20, a farmer was provided with the following carriers:

 MAP 15:50:0

 AN 35:0:0

 KCL 0:0:60

 Use the above information to answer the following questions:

1. Calculate the amount of each nutrient carrier that the farmer will be required to use. (6 Marks)
2. Calculate the quantity of the filler material needed. (3 Marks)
3. Explain the concept of cation exchange capacity in the soil (4 Marks)
4. Describe briefly the importance of temperature and aeration in mineral absorption (4 Marks)

**QUESTION TWO (15 MARKS)**

1. Describe briefly the functions and deficiencies of calcium, Nitrogen and phosphorous to plant growth and development (6 Marks)
2. Stating the liming materials, describe briefly the importance of soil liming. (9 Marks)

**QUESTION THRE (15 MARKS)**

1. Discuss the factors that influence nutrient usage by the plant. (10 Marks)
2. With the aid of diagram describe the sources of nutrients to the plant. (5 Marks)

**QUESTION FOUR (15 MARKS)**

1. Describe briefly how to take soil samples for soil testing (6 Marks)
2. Briefly describe the importance of soil testing (4 Marks)
3. Briefly describe the characteristics of fertile soil. (5 Marks)