MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2018/2019 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER

SCHOOL OF TOURISM AND NATURAL RESOURCE MANAGEMENT

BACHELOR OF FORESTRY

COURSE CODE: FOR 313

COURSE TITLE: SOL CHEMISTRY AND FERTILITY

DATE: 11/12/2018 **TIME: 8.30 -10.30 am**

INSTRUCTIONS TO CANDIDATES

Section **A** is compulsory

Answer any **FOUR** questions in section **B**

This paper consists of 2 printed pages. Please turn over

SECTION A: 25 MARKS (ANSWER ALL THE QUESTIONS)

1. Distinguish between;
    a. Natural organic **vs.** synthetic organic, **(2 marks)**
    b. PH **vs.** Acidity, **(2 marks)**
    c. Alkalinity **vs.** Sodicity, **(2 marks)**
    d. Ammonification **vs**. Nitrification, **(2 marks)**
    e. Active Ingredients **vs.** Fertilizer Ratio. **(2 marks)**

2. How do plants obtain nutrients from the soil? **(4 marks)**

3. What might happen if levels of one essential plant nutrient are very low or very high? **(2 marks)**

4. How can knowledge of the climate of an area help you make an initial assessment of soil fertility? **(4 marks)**

5. List the different forms fertilizer (**4 marks)**

6. When discussing plant nutrition, what is the 'law of the minimum'? **(2 marks)**

7. You know that the air around you is full of nitrogen, yet your garden regularly shows signs that it could use a little of it. How can you harness some of the nitrogen for your garden? **(4 marks)**

SECTION B: 45 MARKS (ANSWER ANY THREE QUESTIONS)

8. Most organic compounds in plants contain nitrogen. Nitrogen is also necessary for the production of sugars as well as to form new cells. Using examples, discuss in sufficient details the nitrogen cycle as it relates to plant nutrition
    (10 marks)

9. In sufficient details describe the four major types of soil colloids **(10 marks)**

10. In sufficient details, discuss the formation and importance of Soil Organic Matter **(10 marks)**

11. In sufficient details, discuss at latest five factors that affect, distribution, activity and population of soil microorganism **(10 marks)**

12. In sufficient details discuss major limitations of inorganic fertilizers and major advantages of organic fertilizers **(10 marks)**

13. What is the most important thing you can do to a mineral soil in order to ensure an adequate supply of and maximum availability of plant nutrients? **(10 marks)**

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