



*(Knowledge for Development)*

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**KIBABII UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**2017/2018 ACADEMIC YEAR**

**FOURTH YEAR FIRST SEMESTER**

**MAIN EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE AND  
BIOTECHNOLOGY**

**COURSE CODE: SAB 411**

**COURSE TITLE: AGRICULTURAL SYSTEM NUTRIENT MANAGEMENT**

**DATE: 21<sup>ST</sup> DECEMBER 2017**

**TIME: 11:30 AM – 1:30 PM**

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**INSTRUCTIONS TO CANDIDATES**

Answer Question One and Any other TWO (2) Questions

TIME: 2 Hours

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

KIBU observes ZERO tolerance to examination cheating

### QUESTION ONE

- a. Briefly explain any four processes of transformations of nitrogen in the soil (4MKS)
- b. Identify any two types of Potassium and Zinc fertilizer in use for plant growth (4 MKS)
- c. Describe THREE advantages and THREE disadvantages of Integrated Nutrient Management (6 MKS)
- d. Define Land-Use Planning as used in Farm systems (2 MKS)
- e. Define the term Agroforestry (3 MKS)
- f. State and explain any four advantages of Agroforestry (4 MKS)
- g. Discuss Nitrogen nutrient elements under the following topics;
  - i. Forms available for plant uptake (2 MKS)
  - ii. Functions (2 MKS)
  - iii. Deficiency symptoms (3 MKS)

### QUESTION TWO

- a. Briefly describe the following interactions in the Agroforestry system:
  - i. Positive Tree-Crop interaction (4 MKS)
  - ii. Negative Tree-Crop interaction (5 MKS)
  - iii. Positive Tree animal interaction (4 MKS)
  - iv. Negative animal interaction (4 MKS)
- b. Explain any three factors that affect availability of Phosphorus to the growing plants (3 MKS)

### QUESTION THREE

- a. Discuss any five Factors Affecting Economic Performance of Farming Systems (10 MKS)
- b. Describe Potassium nutrient element cycle in details (10 MKS)

### QUESTION FOUR

- a. Briefly describe the 4Rs for effective fertilizer use and application (12 MKS)
- b. Describe any four factors affecting Zinc availability in plant uptake (8 MKS)