



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

**AGR 452 PRINCIPLES OF ORGANIC FARMING AND CONSERVATION
AGRICULTURE**

DATE: 26/7/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS:

Answer **ALL** questions from Section A and any **TWO** in Section B

SECTION A: COMPULSORY: (30 MARKS)

- a) Explain the following terms
 - i) Conservation tillage (2 marks)
 - ii) Permaculture (2 marks)

- b) Differentiate the following terms
 - i) Commensalism and parasitism (2 marks)
 - ii) Intercropping and alley cropping (2 marks)
 - iii) Agroforestry and silvo-pasture (2 marks)

- c) Explain the **THREE** main pathways that contribute to Nitrogen nutrient (6 marks)

- d) Explain **FIVE** roles played by organic matter in the soil (5 marks)

- e) Describe **FIVE** key characteristics that need to be considered while determining the choice of good green manuring species (5 marks)

- f) Explain the **FOUR** principles that govern organic agriculture (4 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

QUESTION TWO

- a) Discuss the contribution of mixed farming systems to environmental sustainability (10 marks)
- b) Describe the potential benefits gained by a farmer who converts from conventional farming to organic farming (10 marks)

QUESTION THREE

- a) Discuss the **THREE** principles of conservation agriculture (10 marks)
- b) Discuss the potential benefits of using biological control as a pest control method in organic production systems (10 marks)

QUESTION FOUR

- a) Using a diagrammatic illustration, describe the relationship between yield response, nutrient rate and nutrient use efficiency (10 marks)
- b) Discuss **FIVE** strategies employed by organic farmers to manage pests and diseases in an integrated farming systems (IFS) (10 marks)

QUESTION FIVE

“Organic agriculture has the potential to secure a global food supply with reduced environmental impact” Discuss. (20 marks)