



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURE AND EDUCATION EXTENSION

AGR 452 PRINCIPLES OF ORGANIC FARMING AND CONSERVATION

AGRICULTURE

DATE: 10/5/2019

TIME: 8:30 – 10:30 AM

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**INSTRUCTIONS:**

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

- 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)

**QUESTION TWO (20 MARKS)**

- 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 (20 MARKS)**

- 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 (20 MARKS)**

- 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 (20 MARKS)**

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