



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE  
OF  
MASTER OF SCIENCE IN AGRICULRUAL EXTENSION  
2016/2017 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE: AAE 5114**

**COURSE TITLE: AGRICULTURAL PRODUCTION SYSTEMS**

**EXAM VENUE:**

**STREAM: MSC. AGRIC, EXT.**

**DATE:**

**EXAM SESSION:**

**TIME: 3 HOURS**

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**Instructions:**

- 1. Answer ALL questions in section A and ANY other 3 Questions in section B**
- 2. Candidates are advised not to write on question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

## SECTION A

[15 MARKS]

### Answer ALL questions in this section

Q1. Agriculture plays a critical role in the entire life of any given economy. It is the backbone of economic system of many developing countries.

- a) State and explain any five (5) important contributions of agriculture in an economy. **(5 Marks)**
- b) Looking forward four decades to 2050, briefly explain the triple challenge faced by the African food systems. **(5 Marks)**
- c) It is instructive to examine the distribution of rural poverty across the farming systems. In the context of Pathways out of poverty, discuss the five (5) main strategies to improve farm household livelihoods. **(5 Marks)**

## SECTION B

[45 MARKS]

### Answer ANY THREE questions in this section

Q2. There are many specialties within ecology: marine, vegetation, and statistical ecology. These provide us with information to better understand the world around us.

- a) Discuss any 3 examples illustrating the ways that ecological knowledge has positively influenced people's lives. **(6 Marks)**
- b) What are plant-animal interactions? **(3 Marks)**
- c) Discuss the following as forms of Species Interactions in the Ecosystem. **(6 Marks)**
  - iii) Mutualism; ii) Resource competition; iii) Parasitism

Q3. The Earth's climate is changing as a result of increasing anthropogenic emissions of greenhouse gases. Globally, the atmosphere and the oceans are warming.

- a) State and briefly discuss any three (3) practices that governments and other funding agencies must prioritize to promote transitions to climate-resilient agricultural systems. **(9 Marks)**
- b) Describe "Managing climate risks and reducing vulnerability" and "Building supportive international policy frameworks" as among the essential elements crucial to move towards climate resiliency. **(6 Marks)**

Q4. From a practical production, administration and management point of view, 'all agriculture' can be regarded as consisting of sets of systems.

- a) Discuss the three (3) broad families or divisions into which Agricultural systems can be classified. **(6 Marks)**

- b) Identify four basic rules that must be followed for a system to be environmentally sustainable. **(4 Marks)**
- c) Explain the Green Support Program (GSP) and how it relates to sustainable agriculture. **(5 Marks)**