



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF AGRICULTURE, FOOD SECURITY AND BIODIVERSITY
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION**

**FINAL FIRST YEAR FIRST SEMESTER UNIVERSITY EXAMINATIONS FOR THE
DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL AND EXTENSION
EDUCATION**

2024/2025 ACADEMIC YEAR

COURSE CODE: AAE 5114

COURSE TITLE: AGRICULTURAL PRODUCTION SYSTEMS

EXAM VENUE:

STREAM: PhD FSSA

DATE:

EXAM SESSION:

TIME: 3 HOURS

Instructions:

- 1. Answer ALL questions.**
- 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.**

ANSWER ALL QUESTIONS

Q1. 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 broad families or divisions into which Agricultural systems can be classified. **(9 Marks)**
- b) Identify FOUR basic rules that must be followed for a system to be environmentally sustainable. **(3 Marks)**
- c) Explain the Green Support Program (GSP) and how it relates to sustainable agriculture. **(3 Marks)**

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

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

- a) State and briefly discuss any THREE 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. It is instructive to examine the distribution of rural poverty across the farming systems. In broad terms, there are five main strategies to improve farm household livelihoods. **(10 Marks)**

- a) Write short notes on:
 - a. Expanded farm or herd size
 - b. Increased off-farm income, both agricultural and non-agricultural.
 - c. A complete exit from agricultural production within a particular farming system as strategies to improve farm household livelihoods.
- b) Looking forward FOUR decades to 2050, African food systems face triple challenges, discuss. **(5 Marks)**