

Uganda Martyrs University

FACULTY OF AGRICULTURE AND NATURAL RESOURCE
Masters of Science in Agro-ecology Year 1 2023 Intake
Final Examinations November 2023

Module MAE 1/1 SYSTEMS AND AGRO-ECOLOGIES

Date: 11th November 2023

Time: 2:00 pm – 05:00pm

Instructions

- i. Please attempt only Four Questions
- ii. Each question is allowed only 45 Minutes
- iii. The time allowed for the paper is Three Hours
- iv. **DO NOT WRITE ON THIS QUESTION PAPER**

Question one

- a) What is the moral obligation of man towards an agro ecosystem (5 marks)?
- b) Explain the role of culture in the maintenance of the agro ecological productivity for food security. (20 marks).

Question two

- a) Differentiate between Natural Ecosystem and Agro ecosystem (6 marks)
- b) Explain how **the farmers' attitude** may affect the following components of an agroecosystem.
 - i) Complexity (5marks)
 - ii) Evolution (5marks)
 - iii) Stability. (5marks)
 - iv) Diversity (4marks)

Question three

"The survival of agricultural food systems is dependent on the ecosystem services and forces of human well being". Discuss the statement drawing lessons from Uganda's forests. (25marks)

Question four

- a) Explain, how conservation of ecosystems and development can both be achieved at a small holder farm level. (18 marks)
- b) Discuss the techniques of practicing sustainable ecological agriculture by smallholder farming systems (7 marks)

Question five

- a) With relevant examples, differentiate the two major types of environmental systems **(7marks)**
- b) Explain the features that characterize environmental systems in and around your community. **(18 marks)**

Question six

- a) Differentiate between "Back fire" and "Front fire". **(4 marks)**
- b) When Fire is introduced as a shock to an ecosystem, different ecosystems may take different pathways to respond to this shock. With illustrations, describe the pathways to resilience of ecosystems to shock. **(9 marks)**
- c) With relevant examples, explain the ecosystem services **(12marks)**

Question seven

What are the dangers of a linear view approach on an ecological farm unit of production, instead of a systems' wide view approach **(25 marks)?**

Question eight

Discuss the agro ecological practices that can be applied to ensure sustainable food production on a farm **(25 marks)**