



MACHAKOS UNIVERSITY

University Examinations for 2024/2025 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF AGRICULTURAL SCIENCES

FOURTH YEAR SEMESTER ONE EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

AEE 413: AGRICULTURAL INFORMATION MANAGEMENT

TIME:

DATE:

INSTRUCTION TO CANDIDATES: Answer question ONE (COMPULSORY) any other TWO

QUESTION ONE (30 MARKS)

- Explain the concept of e-agriculture and its primary focus within the rural domain. (4 marks)
- State four reasons why maintaining data integrity is crucial for effective decision-making in agriculture. (4 marks)
- Describe two examples of ICT tools used in e-agriculture and explain their significance. (3 marks)
- Describe three potential benefits and three challenges of integrating Artificial Intelligence (AI) into agricultural information management systems. (6 marks)
- Explain five roles of Geographic Information Systems (GIS) in precision agriculture. (5 marks)
- Describe two applications of Remote Sensing technology in agricultural land use planning and management. (4 marks)
- Outline two key components and functionalities of a decision support system for crop management on a farm (4 marks)

QUESTION TWO (20 MARKS)

- a) Discuss FIVE common problems encountered in a Database Management System (DBMS) (10 Marks)
- b) Discuss how open access to agricultural datasets, research publications, and digital tools can accelerate innovations (10 Marks)

QUESTION THREE (20 MARKS)

- a) Discuss five major Agricultural Organizations and research centers that produce agricultural information in Kenya (10 Marks)
- b) Discuss the components of digital Agricultural Information Management System (AIMS) (10 Marks)

QUESTION FOUR (20 MARKS)

- a) With the aid of a diagram, describe the relationship between data, information, knowledge and wisdom (10 Marks)
- b) Discuss five Information and Communications Technology (ICT) tools applied in the agriculture sector 10 Marks)

QUESTION FIVE (20 MARKS)

- a) Describe FIVE key functions of a database (10 Marks)
- b) Discuss FIVE Characteristics of Agricultural Systems (10 Marks)