



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 THE DEGREE OF
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)

- a. Explain the concept of e-agriculture and its primary focus within the rural domain. (4 marks)
- b. State four reasons why maintaining data integrity is crucial (4 marks)
- c. Explain three roles of an agricultural information system (3 marks)
- d. Describe three potential benefits and three challenges of integrating Artificial Intelligence (AI) into agricultural information management systems. (6 marks)
- e. Explain five roles of Geographic Information Systems (GIS) in precision Agriculture. (5 marks)
- f. Describe two applications of Remote Sensing Technology in agricultural land use planning and management. (4 marks)

- g. Describe four basic functions of an agricultural information management system (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)