



# MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRIBUSINESS MANAGEMENT AND TRADE

FOURTH YEAR SPECIAL/ SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

AEE 413: AGRICULTURAL INFORMATION MANAGEMENT

DATE: 18/01/2021

TIME: 8.30-10.30 AM

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## **INSTRUCTIONS:**

Answer *ALL* questions from Section A and any other *TWO* from Section B:

### **SECTION A: COMPULSORY: (30 MARKS)**

#### **QUESTION ONE (30 MARKS)**

- a) Differentiate between Agricultural information management (AIM) and Information and Communications Technology (ICT) (4 marks)
- b) Describe TWO types of data models (4 marks)
- c) Explain SIX roles of information and communications technology (ICT) in livestock production (6 marks)
- d) Discuss THREE important roles of Global Positioning system (GPS) in data acquisition (6 marks)
- e) Describe FIVE types of databases applied in precision farming (5 marks)
- f) Describe FIVE organizations that fund agricultural research but do not directly conduct it (5 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)**

**QUESTION TWO (20 MARKS)**

- a) Discuss FIVE major Agricultural Organizations and research centers producing agricultural information (10 marks)
- b) Describe the logical structure of a database using Entity-Relationship (ER) Diagram (10 marks)

**QUESTION THREE (20 MARKS)**

- a) Describe FOUR kinds of database classification (12 marks)
- b) Using a diagram, describe the Tree / Hierarchical data Structure (8 marks)

**QUESTION FOUR (20 MARKS)**

- a) Discuss FIVE Characteristics of Agricultural Systems (10 marks)
- b) Explain FIVE areas where a combination of Global Positioning system (GPS), Geographic Information System (GIS) and Remote Sensing (RS) can be applied in modern agriculture (10 marks)

**QUESTION FIVE (20 MARKS)**

- a) Discuss FIVE advantages of Database Management System (DBMS) over File System (10 marks)
- b) Describe FIVE challenges of a Database Management System (DBMS) (10 marks)