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(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF

SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

THIRD YEARSECOND SEMESTER MAIN EXAMINATIONS

FOR DIPLOMA IN GENERAL AGRICULTURE

COURSE CODE: DAG 090

COURSE TITLE: Information Technology in Agriculture

DATE: 25TH APRIL, 2022 **TIME: 3-5PM**

INSTRUCTIONS

Answer ALL questions in section A and any TWO in section B;

Duration: 2 HRS

MMUST observe Zero tolerance to examination cheating

SECTION A 30 MARKS ANSWER AII QUESTIONS

1. a. Define the following terms as related to agriculture **(5 marks)**

   i. Information

   ii. Agricultural Start-ups

   iii. Data

   iv. Remote sensing

   v. Information Technology

   b. As a student explain five ways you can apply mobile phone to promote farmers outreach in rural Kenya **(10 Marks)**

2. List and explain 5 areas where Information Technology can be applied in Agriculture **(10 Marks)**

3. Outline five e-Agriculture startups and their roles in Kenya. **(5 Marks)**

4. Explain five benefits of applying Information Technology in Agriculture in Kenya **(5 Marks)**

SECTION B (40MARKS) Attempt any two questions

5. a. Briefly explains challenges facing farmers in applying Information Technology in Kenya today. **(10 Marks)**

   b. State and explain five technologies been applied in agricultural with the aim of improving output. **(10 Marks)**

6. a. How can a farming organization apply IT in its daily routines? **(10 Marks)**

   b. How is Kenyan Government supporting application of Information Technology in Farming **(10 Marks)**

7. Draft an AppDevelopment proposal to create an app to help farmers' sales their products online. **(10 Marks)**

END

QUESTION FOUR

a) Solve the following system of linear simultaneous equations using Cramer's Rule (6mks)

$$x + 2y + 3z = 3$$
$$2x + 4y + 5z = 4$$
$$3x + 5y + 6z = 8$$

Given that A is a singular matrix where $A = \begin{pmatrix} x & 3 \\ 4 & x+1 \end{pmatrix}$ determine the value of x(5mks)

b) Solve the equation and find all the solutions $1 + \text{Cos}\,\theta = 2\,Sin^2\theta$ for $0 \leq \Theta \leq 2\pi$ (9mks)

QUESTION FIVE

a) The 5^{th} term of a GP is -48 and the 7^{th} term is -12. Find the common ratio and the first term (7mks)

b) Find AB if $A = \begin{pmatrix} 1 & 3 & 6 \\ 4 & 1 & 0 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & 0 \\ 3 & 2 \\ 0 & 1 \end{pmatrix}$(3mks)

c) Find all eigenvalues and corresponding eigenvectors for the matrix A (10mks)

$$A = \begin{pmatrix} 2 & -3 & 0 \\ 2 & -5 & 0 \\ 0 & 0 & 3 \end{pmatrix}$$