INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF BUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS - AUGUST 2025

PROGRAMME: MBA
YEAR/SEM: YEAR 1/SEMESTER 2
COURSE CODE: MBA 723
NAME: MANAGEMENT INFORMATION SYSTEMS MBA

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Answer ONE question only. Each question carries 40 marks.

Question 1:

You have recently been hired as a Database Consultant for AgroMart Ltd, which is currently transitioning from manual records to a robust Management Information System (MIS).

a) What are the primary business information needs AgroMart's MIS should support? (5 marks)
b) Outline the steps you would follow to gather and translate business requirements into a data model. (5 marks)
c) With reference to AgroMart's operations, design an ERD showing at least four entities, their attributes, and the relationships. Define the primary and foreign keys used. (10 marks)
d) Explain the process of normalization and how you would apply it to AgroMart's data from 1NF to 3NF. Use a sample dataset/table of Unnormalized of your own and ensure to have tables well explained at each stage of normalization. (10 marks)

e) Provide two sample SQL queries that AgroMart could use for business reporting, and explain how SQL aids in decision-making. (5 marks)
f) Briefly discuss two data quality or security challenges AgroMart might face and propose one strategy for each. (5 marks)

Question 2:

AgroMart is a growing agri-business startup seeking to digitize its product tracking and farmer relationship system.

Below is a sample flat table from AgroMart's legacy records:

FarmerName	Product Name	Quantity	Location	Phone	Product Type	Price
John	Tomatoes	120	Mbale	0789123456	Vegetable	2000
Asha	Eggs	50	Kampala	0778654321	Poultry	500

Scenario:
You have been hired by AgroMart Ltd, a medium-sized agri-supply company, to help design a Management Information System (MIS) to improve its operations. Currently, AgroMart uses Excel spreadsheets and handwritten records, leading to duplicated data, inconsistencies, and poor reporting.

Using your knowledge of database design and Management Information Systems, respond to the following tasks:

a) Identify three (3) major data anomalies that may arise in AgroMart's current unstructured data environment. *(3 marks)*

b) Normalize the provided unnormalized table to Third Normal Form (3NF). Clearly show the progression from 1NF to 2NF to 3NF, including resulting table structures.*(8 marks)*

c) Draw an Entity Relationship Diagram (ERD) based on your normalized structure. Use appropriate notation to show entities, attributes, relationships, and keys. *(6 marks)*

d) With reference to AgroMart's operations, design a second ERD showing at least four entities, their key attributes, and the relationships among them. Clearly define the primary and foreign keys. *(5 marks)*

e) Write SQL commands to accomplish the following:
i) Create the Farmer and Product tables *(2 marks)*
ii) Insert one sample record into each table *(2 marks)*

iii) Retrieve a list of farmers who sell poultry products in Kampala *(2 marks)*

f) Explain two (2) advantages of using a relational database instead of spreadsheets for AgroMart's operations. *(2 marks)*

g) Describe four key information needs that a Management Information System (MIS) can help AgroMart address.*(5 marks)*

h) State 3 challenge AgroMart might face in migrating from manual systems to an MIS, and propose a mitigation strategy. *(4 marks)*

SECTION B

Attempt any 3 Questions out of 6 Questions , 20 marks each)

Question 1:

Information systems today face an increasing number of security threats, ranging from insider attacks to cybercrime. Organizations like AgroMart Ltd, which are transitioning from manual to digital systems, are particularly vulnerable during and after implementation.

a) Define the term Information System Security and explain its importance in the context of AgroMart's MIS. *(4 marks)*

b) Identify and explain four major security threats or vulnerabilities that AgroMart Ltd may face after implementing its MIS. *(8 marks)*

c) Discuss three specific technical and organizational measures that AgroMart Ltd can implement to mitigate these security threats. Provide practical examples for each. *(6 marks)*

d) Briefly explain the role of user training and awareness in securing an organization's information system. *(2 marks)*

Question 2:

a). Critically evaluate how an open system in MIS can benefit and also pose risks to an organization in today's globalized digital economy. Support your answer with real-life examples.*(8 marks)*

b). You've been hired to redesign an outdated Transaction Processing System (TPS) for a retail firm. Identify three(3) core functions you would enhance, and explain how failure in each can affect operational efficiency and strategic goals.*(6 marks)*

c). As a systems consultant for a startup, recommend two types of information systems they should prioritize in their first year. Justify your recommendation based on typical business functions and scalability. *(6 marks)*

Question 3:

a) Differentiate between Transaction Processing Systems (TPS), Decision Support Systems (DSS), and Executive Support Systems (ESS) in terms of users, function, and data. *(8 marks)*
b) Explain the role of Enterprise Resource Planning (ERP) systems in integrating business functions. *(6 marks)*
c) Identify and describe three functional information systems, and their roles in supporting business operations. *(6 marks)*

Question 4:

a) Define IT infrastructure and describe its main components. *(6 marks)*
b) Explain the differences between system software and application software, including examples of each. *(6 marks)*
c) Discuss how cloud computing enhances IT infrastructure and provide two benefits it offers to SMEs. *(8 marks)*

Question 5:

a) Classify computers by size and functionality, give an example and also describe areas of application *(6 marks)*
b) Explain the role of virtualization in IT infrastructure and how it benefits MIS. *(6 marks)*
c) Discuss the impact of mobile technology on business operations, giving examples. *(8 marks)*

Question 6:

a) Explain any three types of threats to information system security with examples for each type. *(6 marks)*
b) Describe the purpose and functioning of a firewall in protecting systems. *(4 marks)*
c) Discuss the key steps in developing and implementing a comprehensive information security policy. *(6 marks)*
d) Explain the importance of user education and awareness in information system security. *(4 marks)*

Question 7:

a) Compare open systems and closed systems in MIS with examples. *(6 marks)*
b) Discuss three benefits of real-time processing in business operations. *(6 marks)*
c) Describe how MIS supports competitive advantage using Porter's Value Chain or other frameworks. *(8 marks)*

Question 8:

a) Define Business Intelligence (BI) and explain how it enhances managerial decision-making. *(6 marks)*
b) Describe the process of data warehousing, and its role in BI. *(6 marks)*
c) List and explain any two Business Intelligence tools, including their key features. *(4 marks)*
d) Explain the difference between structured and unstructured data in the context of BI. *(4 marks)*

Question 9:

a) Explain three strategic roles that IT plays in modern organizations. *(6 marks)*
b) How does MIS help in performance monitoring and evaluation of employees and processes? *(6 marks)*
c) Define Key Performance Indicators (KPIs) and explain their significance in organizational performance measurement. *(8 marks)*

Question 10:

a) Describe the five major components of an Information System and explain how they work together. *(6 marks)*

b) Explain the role of feedback and control in a Management Information System, using an example. *(6 marks)*
c) Discuss the relevance of MIS in today's business environment, especially in decision-making and efficiency. *(8 marks)*

Question 11:

a) Explain how MIS contributes to operational efficiency and improved productivity. *(6 marks)*

b) Differentiate between data, information, and knowledge, using examples. *(6 marks)*
c) Discuss any 4 recent trends in MIS such as Artificial Intelligence (AI) and the Internet of Things (IoT), and their impact. *(8 marks)*

Question 12:

a) Define a Database Management System (DBMS) and explain its role in information systems. (4 marks)

b) Describe the ACID properties and their importance in maintaining reliable transactions. (8 marks)

c) Explain data normalization, including its objectives, and demonstrate with an example from 1NF to 3NF. (8 marks)