



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DIPLOMA
OF
INFORMATION TECHNOLOGY**

COURSE CODE: DIT 059

COURSE TITLE: DATABASE SYSTEMS

DATE: 28/04/2022 TIME: 8:00a.m-9:30a.m

INSTRUCTIONS TO CANDIDATES

Answer SECTION A and any other Two questions from SECTION B

TIME: 1 Hour 30 Minutes

MMUST observes ZERO tolerance to examination cheating

Section A: 24 marks

1. Define the following terms.
 - i. Attribute
 - ii. Database management system
 - iii. Weak entity
 - iv. Data

(4 Marks)
2. (a) Explain the function of the following in database management Systems
 - i. Data Manipulation Language
 - ii. Data definition language

(4 marks)

(b) Distinguish between workers on the scene and workers behind the scene users as used in DBMS **(4 marks)**
3. (a) With an aid of diagram list any **Four** symbols used in E-R model **(4 Marks)**
(b) State and explain any **Four** types of attributes used in database design (**4 Marks**)
(c) Describe the following relationships in database systems **(4 marks)**
 - I. One to One
 - II. One to Many
 - III. Many to One
 - IV. Many to Many

Section B: (36 Marks)

4. (a) State and explain any **Four** application areas of Database Management System in Banking institution**(8 Marks)**
(b) State and explain **Two** things that need to be optimized with dealing with large amount of data in database systems **(4marks)**
(c) State **Any Two** commands used under each of the following database languages
 - (i) Data Manipulation Language
 - (ii) Data Definition Language
 - (iii) Data Control Language **(6 Marks)**
- 5.(a) An organization intends to acquire a database application system to manage its data. Describe **Three** professionals and their roles that may be required for the exercise **(6 Marks)**
(b) State any **Two** causes of accidental data loss in a database **(2 marks)**
(c) Universal Mart reported frequent cyber-attacks on their database system. On analysis by cyber security experts it was realized that the DBMS environment was not properly configured. With a proper diagram, discuss **Three** types DBMS architecture that you will propose to them **(10 Marks)**
7. (a) State **Any Two** commands used under each of the following database languages
 - (i) Data Control Language

(ii) Transaction Control Language

(4

Marks)

(b) The table below named Results in a database. Use it to answer question that follows:

FirstName	SirName	RegistrationNo	DoB	Marks
Wahome	Selle	Ite/d/01-5555/2018	23-06-1985	50
Alex	Patel	Ite/d/01-5545/2018	26-05-1980	60
Bance	Kepher	Ite/d/01-5567/2018	30-01-1965	50
John	Ronaldo	Ite/d/01-53455/2018	20-06-1957	80
Alic	Bakayoko	Ite/d/01-5523/2018	20-09-1957	39

Using SQL statements,

- (c) Display the DoB value for John Waititu **(3 Marks)**
- (d) Display FirstName,SirName and RegistrationNo records for all students **(3 Marks)**
- (e) Update marks for John Ronaldo from 80 marks to 75 marks **(3 Marks)**
- (f) Display the sirName for a student of Registration No. Ite/d/01-5567/2018 **(3 Marks)**
- (g) Delete all details for a student where registration no. is Ite/d/01-5567/2018 **(2 Marks)**