



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DIPLOMA

OF

INFORMATION TECHNOLOGY

COURSE CODE: DIT 059

COURSE TITLE: : DATABASE SYSTEMS

DATE: 14/04/2023

TIME: 2:00-3:30PM

INSTRUCTIONS TO CANDIDATES

Answer SECTION A and any other **Two** questions from SECTION B

TIME: 1 Hour 30MINS

MMUST observes ZERO tolerance to examination cheating

SECTION B(36 Marks)

4. (a) 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

(b) State the difference between file based approach and database approach **(4 Marks)**

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

FirstName	SirName	IDNo	DoB	Marks
Alice	Smith	1234	23-06-1985	95
Alex	Peter	3456	26-05-1980	60
Bance	Wamalwa	24680999	30-01-1965	75
John	Waititu	66668	20-06-1957	50

Using SQL statements,

- (i) Display all records from fields FirstName, SirName and IDNo **(3 Marks)**
- (ii) Display the DoB value for John Waititu **(2 Marks)**
- (iii) Display all records where Marks range from 50 to 90 **(3 Marks)**
- (iv) Sort all records from lowest to highest on Marks **(2 Marks)**

5. (a) Explain **Two** circumstances under which Telecommunication company would use database system **(4 Marks)**

(b) State **Any Two** commands used under each of the following database languages

- (i) Data Manipulation Language
- (ii) Data Definition Language
- (iii) Data Control Language
- (iv) Transaction Control Language

(8 Marks)

(c) In a university, a student Enrolls in Courses. A student must be assigned to at least one or more courses. Each Course is taught by a single Lecturer. To maintain instruction quality, a Lecturer can deliver only one course. As a system analyst, draw an E-R diagram showing the attributes and their relationships **(6 Marks)**

6. Mama Watoto Traders reported frequent attacks on their database system. On analysis it was realized that the DBMS environment was not properly configured.

(a) With a proper diagram, discuss Three Possible DBMS architecture that you will propose to them **(10 Marks)**

(b) State Any Four Roles of Database Administrator in system development

(4 Marks)

(c) State Any Four causes of data loss in database systems

(4 Marks)