



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN
INFORMATION TECHNOLOGY**

SIT 051 – DATABASE MANAGEMENT SYSTEMS

DURATION: 2 HOURS

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

- a) Define the following terms as used in database systems. (6marks)
 - (i) Database
 - (ii) Normalization
 - (iii) Input mask
 - (iv) Entity
 - (v) Attribute
 - (vi) Meta - data
- b) Highlight three differences between data and information. (3marks)
- c) Explain the ACID properties in a database. (6marks)
- d) Outline the security mechanisms that an organization can use to secure its data in DDBMS (6marks)
- e) Elucidate three types of users in a DBMS. (6marks)
- f) Microsoft Access is one of the most popular DBMS nowadays. Explain five data types supported by Microsoft Access. (3marks.)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a) Apart from relational database model discuss any other database models (8marks)
- b) Learning institution maintains the details of its lecturers who are teaching various units as follows.
Lecturer PF NO, lecturer – Name, Grade, department – code, Department –Name, Subject – code subject –name, Subject – level.
Each lecturer may teach many subjects but cannot belong to more than one department. Do the following:
 - (i) Normalize this data upto 2nd normal form. (6marks)
 - (ii) Draw an entity relationship diagram for this case. (6marks)

QUESTION THREE (20 MARKS)

- a) Differentiate between physical and logical database design. (4marks)
- b) Assume you have a database table with the following field's vehicle ID, Vehicle – Name, Price, and Description. perform the following;
 - (i) Choose the appropriate primary key and justify your choice. (2marks)
 - (ii) Differentiate between a foreign key and a primary key. (2marks)
 - (iii) Write SQLcommand to insert a record into this table. (4marks)
 - (iv) Write sql command to delete a record from this table. (4marks)
 - (v) Write SQL command to view all records in the table. (4marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the stops you would follow in creating query in Microsoft Access. (4marks)
- b) Explain challenges that an organization is likely to encounter when implementing a database managements system. (6marks)

c) Discuss for types of attributes in a database.

(8marks)