



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

INTRODUCTION TO DATABASE

DATE: 17/4/2019

TIME: 8.30-11.30 AM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

- a) Explain the meaning of the following terms as used in *DBMS*
- i. Normalization.
 - ii. Database
 - iii. Database Management System
 - iv. Data Mining
 - v. Data independence
 - vi. ERD. (12 marks)
- b) Using a well labeled diagram, explain the different components of a Database system (4 marks)
- c) Explain any three symbols used in an Entity Relationship Diagram (6 marks)
- d) Explain the **three** main SQL command classification (6 marks)
- e) Differentiate between a distributed and a centralized systems (2 marks)

QUESTION TWO (20 MARKS)

- a) Consider the table below

Sno	S_name	Sales_amt	City
S001	Alice	50000	Mombasa
S002	Alex	20000	Kisumu
S003	Alphonse	40000	Nairobi

Write SQL statements to perform the following tasks

- i. Create a database called marketing
 - ii. Create an empty structure of the table called *sales*
 - iii. Insert the records as displayed above.
 - iv. Add a column called commission to the table
 - v. Insert a fourth record to the table(S004, John, 30000,Nairobi)
 - vi. Set the commission of sales to 0.3% of the sales amount
 - vii. Display the total amount for all salesmen
 - viii. Display all the salesmen whose city is Mombasa
 - ix. Delete the salesman with a Sno of S003 (8 marks)
- b) Discuss any **five** disadvantages and any **five** advantages of DBMS (10 marks)
- c) Explain the meaning of the term *Data redundancy*. (2 marks)

QUESTION THREE (20 MARKS)

- a) Explain the differences between a distributed system and a centralized system (4 marks)
- b) Explain the four types of database End users (8 marks)
- c) Explain any **four** database models (8 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the Meaning of the following terms
- i. Data Dictionary
 - ii. Data warehouse
 - iii. Schema
 - iv. Entity
 - v. Attribute

- vi. Relationship (6 marks)
- b) Using examples, explain the different type of relationships. (6 marks)
- c) Explain any four components of a relational database. (8 marks)

QUESTION FIVE (20 MARKS)

- a) Explain any **four** functions of a DBMS (4 marks)
- b) Consider a table with the following field
Stud_name, Stud_number, StudID_number, Age, County, Place_of_birth, Fee_paid,
bursary, Sports, Fee_balance, Department, Course, Position_in_sport.
Normalize the table above up to 3NF (9 marks)
- c) Discuss the differences between a Primary key and a foreign (4 marks)
- d) Explain any three functions of a database administrator. (3 marks)