



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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UNIVERSITY EXAMINATIONS 2023/2024

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION TECHNOLOGY AND CERTIFICATE IN INFORMATION TECHNOLOGY

CIT 1304/CIT 2312: INTRODUCTION TO DATABASE SYSTEMS

DATE: DECEMBER 2024

TIME: 1½ HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a. Define the following terms as used in relational databases.
 - i. Database (2 Marks)
 - ii. Tuple (2 Marks)
 - iii. Domain (2 Marks)
- b. Describe two integrity constraints used in MySQL. (4 Marks)
- c. Differentiate the following as used in databases.
 - i. Key attribute and Composite attribute. (2 Marks)
 - ii. DDL and DML (2 Marks)
- d. Describe two advantages of normalizing tables in databases. (4 Marks)
- e. Write M SQL statements to create the students table below. (4 Marks)



Registration number	NationalID	Firstname	Lastname	DOB	Course
CT103/401275/24	44231241	John	Mwangi	19/5/2008	DIT
CTI03/401276/24	45342321	Ken	Rop	23/4/2009	DIT

Write MySQL statement to do the following

- i. Display ALL records in the Students table. (2 Marks)
- ii. Add another column called CourseID. (2 Marks)
- f. Describe two types of database backups. (4 Marks)

QUESTION TWO (15 MARKS)

- a. Explain the steps of developing an Entity Relationship diagram. (6 Marks)
- b. Explain two special operators that are used in conjunction with the WHERE clause in MySQL. (4 Marks)
- c. Explain three properties of Relations. (5 Marks)

QUESTION THREE (15 MARKS)

- a. Write an SQL query to retrieve all records from the employees table where the salary is greater than Kshs 25,000. (3 Marks)
- b. Write an SQL query to find the top 5 customers with the highest total orders from the orders table. (4 Marks)
- c. Given a table students with columns id, name, and age, write an SQL query to select all students whose age is between 18 and 25. (3 Marks)
- d. Explain three components of an entity relation diagram. (5 Marks)

QUESTION FOUR (15 MARKS)

- a. Explain the differences between primary key, unique key and foreign key in MySQL.
- b. Provide an example of each in SQL syntax. (7 Marks)
- c. Explain the difference between DELETE and DROP commands in MySQL. (2 Marks)
- d. Explain three different types of relationships in databases? (6 Marks)

