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University Examinations 2023/2024

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

CIT 2312: INTRODUCTION TO DATABASE SYSTEM

DATE: APRIL 2024 **TIME: 1 1/2 HOURS**

INSTRUCTIONS:

1. Answer Question ONE, and any other TWO

QUESTION ONE (30 MARKS)

a. Define the following terms as used in ER Modeling (4 marks)

i. Key attribute

ii. Weak entity

iii. Relationship

iv. Domain

b. Differentiate the following as used in Database Systems.

i. Simple attribute and composite attribute (2 marks)

ii. Database and Relation (2 marks)

iii. Entity integrity and validity integrity (2 marks)

c. Describe the people as a component of database systems. (4 marks)

d. Identify two disadvantages of a Database Systems (2 marks)

e. Outline the importance of normalizing tables in Databases. (2 marks)

f. Describe three goals of securing database systems. (6 marks)

g. Write MySql statement to create a database and a table. (4 marks)

h. Write MySql statement to delete a table from a database. (2 marks)

QUESTION TWO (15 MARKS)

a. Explain the following database models.

i) Network model (2 marks)

ii) Relational model (2 marks)

b. Using MySql statements create the table below. (2 marks)

Employee Table

Employee ID	Employee Name	Department	Salary
E07	Joseph Njuguna	Human Resource	70000
E09	Mercy Kathambi	Finance	100000

i. Write Mysql statement to display all the records in the table. (1 mark)

ii. Write Mysql statement to change the Employee Name for E07 to Joses Njuguna. (2 marks)

c. Explain three types of relationships as used in database systems. Give an example in each. (6 marks)

QUESTION THREE. (15 MARKS)

a. Briefly describe two problems associated with traditional file processing. (4 marks)

b. Explain three application areas of database systems. (6 marks)

c. Consider the following for a lecture-course.

Lecturer = (lecturer_id, name, age, department)

Course = (course_id, course_name, course_room)

Lectures = (lecturer_id, course_id, lecture_date)

Write MySQL statements you will use to;

(i) Create the lecturer Table, course table and lectures table enforcing referential integrity constraints. (5 marks)

QUESTION FOUR (15 MARKS)

a. Explain two aggregate functions used in database systems (4mks)

b. Explain the basic structure of a SQL expression consisting of three clauses: select, from, and where clauses. (5 marks)

c) Using examples describe the following data manipulation language statement.

i. Update (2 marks)

ii. Delete (2 marks)

iii. Insert into (2 marks)