



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL INFORMATICS AND INNOVATIVE SYSTEMS**  
**UNIVERSITY EXAMINATION FOR THE DIPLOMA IN LINUX ENGINEERING FOR IT**  
**PROFESSIONALS**  
**1<sup>ST</sup> YEAR 1<sup>ST</sup> SEMESTER 2022/2023 ACADEMIC YEAR**  
**KISUMU CAMPUS**

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**COURSE CODE: ICT 2114**

**COURSE TITLE: INTRODUCTION TO MYSQL DATABASE SYSTEM**

**EXAM VENUE:**

**STREAM: Dip. Linux Engineering for IT  
Professionals**

**DATE:**

**EXAM SESSION:**

**TIME: 1 ½ HOURS**

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**Instructions:**

- 1. Answer question 1 (COMPULSORY) and ANY other 2 questions.**
- 2. Candidates are advised NOT TO WRITE ON THE QUESTION PAPER.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

### QUESTION ONE (30 MARKS)

- a) Define the following terms: (6 marks)
- i. Row
  - ii. Column
  - iii. Table
  - iv. Database
  - v. Database Management System (DBMS)
- b) Relational Database Management System (**RDBMS**)
- c) Differentiate between a **Primary Key** and a **Foreign Key** (2 marks)
- d) Differentiate between **MySQL** and **NoSQL** (4 marks)
- e) Give four attributes of a foreign key (4 marks)
- f) Define the following (4 marks)
- i. Unions
  - ii. Joins
  - iii. Views
  - iv. indexes
- g) List five examples of RDBMS programs (5 marks)
- h) What is PHP? (1 marks)
- i) Give two database security threats and how to mitigate them (4 marks)

### QUESTION TWO 20 MARKS

- a) What is Normalization? (2 marks)
- b) Using a simple table illustrate the Normalization process from 1NF to 3NF (8 marks)
- c) What is a compound key (2 marks)
- d) Explain four features that simplify the process of MySQL server administration (8 marks)

**QUESTION THREE 20 MARKS**

- a) CREATE statement is an SQL command used to create tables in MySQL. Write a CREATE statement using the general SQL general syntax that creates the following table ; (10 marks)

Field	Type	Null	Key	Default	Extra
ID	int(11)	NO	PRI		
NAME	varchar(20)	NO			
AGE	int(11)	NO			
ADDRESS	char(25)	YES		NULL	
SALARY	decimal(18,2)	YES		NULL	

- b) What are functions (2 marks)
- c) Give six arithmetic operators used in numeric functions (6 marks)
- d) List two uses of functions in SQL (2 marks)

**QUESTION FOUR 20 MARKS**

- a) What do you understand by the term database design (2 marks)?
- b) Using an illustration explain the stages in database development lifecycle (18 marks)

**QUESTION FIVE 20 MARKS**

- a) Define the following terms as used in Relational DBMS (4 marks)
  - i. Field
  - ii. Record
- b) Explain the importance of Entity Relationship Modelling (6 Marks)
- c) List two major characteristics of Entities (2 marks)
- d) Describe four types of DBMS languages (8 marks)