

COSC 0251

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DIPLOMA IN  
COMPUTER SCIENCE

COSC 0251: DATABASE SYSTEMS II

STREAMS: DIP COMP SCI Y2S2

TIME: 2 HOURS

DAY/DATE: FRIDAY 26/03/2021

8.30 A.M. – 10.30 A.M

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**INSTRUCTIONS:**

- Answer question **ONE** and any other **TWO** questions in section B
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

**SECTION A (ANSWER ALL QUESTIONS)**

**QUESTION ONE (30 MARKS)**

- Define the following terms in Database Design
  - Database (2 Marks)
  - Distributed Data (2 Marks)
  - Entity (2 Marks)
- List Five types of database management systems (5 Marks)
- Differentiate between a client server and a distributed database system (4 Marks)
- Give reasons why it is important to always create a database user other than the root user to perform database operations (4 marks)
- List Four precautions to take while working with a web published database system (4 Marks)
- Differentiate between physical and logical schemas in database designs (4 Marks)
- Give Three benefits of database normalization (3 Marks)

**SECTION B (ANSWER ANY TWO QUESTIONS)**

**QUESTION TWO (20 MARKS)**

- a) State and Explain key functions of a database administrator (10 Marks)
- b) While giving instances where each one can be best suitably applied, show a clear difference between relational and non-relational databases (10 Marks)

**QUESTION THREE (20 MARKS)**

- a) How can one create a full text index in SQL Server? (8 Marks)
- b) Explain with the aid of a diagram three tier database architecture (12 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Explain the best practices to follow in order to avoid data loss in a company. (8 marks)
- b) With the aid of a well labelled diagram, Explain the difference between a distributed database architecture and a centralized database architecture (12 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Give a brief description of FIVE common database security threats (10 Marks)
- b) Write down the correct SQL statements for the following transactions
  - i. Creating a database called e\_kenya (3 Marks)
  - ii. Inserting data into a table called accounts with two columns (3 Marks)
- c) Give the description of the following terms in database systems
  - i. Primary Key (2 Marks)
  - ii. Foreign key (2 Marks)

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