

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN COMPUTER SCIENCE

COSC 0251 : DATABASE SYSTEM II

STREAMS: DIPLOMA

TIME: 2 HOURS

DAY/DATE: MONDAY 01/11/2021

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- 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.
- Marks are awarded for clear and concise answers.

SECTION A (Answer ALL questions in this section)

QUESTION ONE (30 marks)

- a) Differentiate between homogeneous and Heterogeneous distributed databases [4marks]
- b) State FOUR back up devices that an organization can use to back up their data [4 marks]
- c) Define the following terms
- i. Database security [2 marks]
 - ii. Data replication [2 marks]
 - iii. Data back up [2 marks]
 - iv. Database management system [2 marks]
- d) State FOUR disadvantages of using a centralized DBMS [4 marks]
- e) Discuss TWO Data Definition Language (DDL) commands in SQL [4 marks]
- f) Differentiate between system and object privileges [4 marks]
- g) Explain why a three-tire database systems architecture is preferable to a two-tire [2 marks]

SECTION B (ANSWER TWO QUESTIONS IN THIS SECTION)

QUESTION TWO [20 MARKS]

- a) As a server security professional, discuss **THREE** common mistakes that create vulnerabilities in servers [6 marks]
- b) Discuss **TWO** threats to database security [4 marks]
- c) As a database administrator enumerate **FIVE** ways of protecting databases against security threats [10 marks]

QUESTION THREE [20 MARKS]

- a) Define the term distributed database management system (DDBMS) [2 marks]
- b) Discuss **FOUR** factors encouraging organizations to move to distributed DBMS [8 marks]
- c) By the aid of a well labelled diagram, discuss the three level architectural diagram of a DBMS [8 marks]

QUESTION FOUR [20 MARKS]

- a) Explain **THREE** reasons why of distributing data is be a better option than consolidating it at one point [6 marks]
- b) Define the term data fragmentation [2 marks]
- c) Explain **THREE** types of data fragmentation that can be used in distributing data [6 marks]
- d) State **THREE** advantages and **THREE** disadvantages of fragmenting a database [6 marks]

QUESTION FIVE [20 MARKS]

- a) Discuss the **THREE** types of data replication [6 marks]
 - b) Discuss **THREE** types of SQL joins [6 marks]
 - c) Discuss **FOUR** applications of database systems in today's society [8 marks]
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