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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION

KCS 207 - INTRODUCTION TO DATABASE SYSTEMS

Date: 14TH DECEMBER 2022
Time: 2:30PM – 4:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Define a database? (2 Marks)
- b) List and briefly explain any four data types (4 Marks)
- c) List and explain any four uses of reports in Microsoft Access. (4 Marks)
- d) Explain database management system giving **three** examples. (5 Marks)
- e) List **two** functions of a report in Ms Access. (2 Marks)
- f) Explain three functions of forms in Ms-Access. (3 Marks)
- g) Write down the query statement to display employees' details from a payroll database employed between the year 2004 and 2010 and earn between 90000 and 240000. (5 Marks)
- h) Explain the term calculated queries. Give three examples. (5 Marks)

QUESTION TWO (20 MARKS)

- a) The Kenya Airways manager has approached you to assist them in constructing a centralized database.
 - i) State and explain any two advantage of having a database for the organization. (4 Marks)
 - ii) Identify two entities of your database and in each entity identify two of its respective attributes. (4 Marks)
 - iii) Explain the two main types of views inherent in the tables of your database. (2 Marks)
 - iv) Discuss two types of relationship inherent in your database. (2 Marks)
- b) Describe the following terms:
 - i) Data replication (2 Marks)
 - ii) Data fragmentation (2 Marks)
 - iii) Data allocation (2 Marks)
 - iv) Transaction transparency (2 Marks)

QUESTION THREE (20 MARKS)

- a) i) Differentiate between Bound and Unbound Control as generated in MS Access forms. (2 Marks)
- ii) Discuss three roles of a database management system. (6 Marks)
- b) Using two relevant examples describe Discretionary security mechanism and Mandatory security mechanism. (8 Marks)
- c) A major objective of the ANSI-SPARC architecture is to provide data independence. Explain: The TWO kinds of data independence (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Input mask is important in describing the entry of a given field in MS Access. Apart from input mask, describe other three field properties that can be applied in a field to improve the integrity of the values to be entered. (8 Marks)
- b) With the aid of a diagram, discuss the phases of query processing. (12 Marks)

QUESTION FIVE (20 MARKS)

- a) Sensitivity of data is a measure of the importance assigned to the data by its owner, for the purpose of denoting its need for protection. Highlight the FIVE factors that cause data to be classified as sensitive. (5 Marks)
- b) Security considerations do not only apply to the data held in a database. Breaches of security may affect other parts of the system, which may in turn affect the database. Briefly explain what breaches databases security measures are taken to avoid such breaches. (5 Marks)
- c) The database administrator (DBA) is the central authority for managing a database system. The DBA has a DBA account in the DBMS, sometimes called a system or super user account, which provides powerful capabilities that are not made available to regular database accounts and users. Explain the privileges the DBA commands. (4 Marks)
- d) Distinguish between the following terms:
 - i) Authorization and Authentication (3 Marks)
 - ii) Recovery and Journaling (3 Marks)