KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
FOR THE DIPLOMA IN BUSINESS INFORMATION TECHNOLOGY
DIT 1007 DATABASE MANAGEMENT SYSTEMS

Date:11ᵗʰ April, 2022
Time: 8.30 am – 10.30am

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Define the following terms as used in databases. (5Marks)
   i) Field
   ii) Database,
   iii) Data model,
   iv) Conceptual schema
   v) Entity

b) Distinguish between the following database concepts.
   i) Internal schema and external schema (2 Marks)
   ii) DML and DDL (2 Marks)
   iii) Database schema and database state (2 Marks)
   iv) Composite attribute and multi-valued attribute (2 Marks)
   v) Entity type and an entity set (2 Marks)

c) Describe the backup and replication ability of database management systems (5Marks)

d) i) Discuss Five characteristics of the database approach (5 Marks)
   ii) Explain how the database approach differs from traditional file systems (5 Marks)

QUESTION TWO (20MARKS)

a) Describe Three models used in database design (6Marks)

b) Describe the phases involved in the development process of a database (6Marks)

c) As a database system expert, you have been approached for advice by a company intending to implement a database system
   i) What advice would you give that the company will be compelled to invest in the system? (4 Marks)
   ii) What constraints should the company be cautious about for a successful implementation? (4 Marks)

QUESTION THREE (20MARKS)

a) Describe the criteria for second normal form (2NF) in database design (5Marks)

b) Explain Six roles performed by a database administrator (6 Marks)

c) Describe Three types of database administration (9 Marks)

QUESTION FOUR (20MARKS)

a) Describe Five features of Relational Database Management Systems (5Marks)

b) Analyze Five benefits associated with the use of data warehouse in an organization (5Marks)

c) Explain Five capabilities that should be provided by a DBMS (10 Marks)

QUESTION FIVE (20 MARKS)

a) Explain three reasons why security of data in a database is becoming an increasing concern.(6Marks)

b) Most DBMS products use a data dictionary (also called the system catalogue) to hold meta-data. Give five examples of the type of data held in the data dictionary and explain five purposes of the catalogue (10Marks)

c) With respect to the relational data model, describe entity integrity and referential integrity constraints and their importance in database design. (4Marks)