KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
SECOND YEAR, SECOND SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(MATHEMATICS)

Date: 11th April, 2022
Time: 11.30pm –1.30pm

KCS 207 - INTRODUCTION TO DATABASE SYSTEMS

INSTRUCTIONS TO CANDIDATES

ANSWER **QUESTION ONE (COMPULSORY)** AND **ANY OTHER TWO** QUESTIONS

QUESTION ONE (30 MARKS)

a)   Define the two "integrity rules" as used in database systems

(4 marks)

b)   Retrieve the records from the tables;

    i)   Retrieve the entire contents of the student table.   (2 marks)

    ii)   Retrieve the list of names, address, branch, city of all the students.   (2 marks)

    iii)   List all the students whose state are Delhi.   (2 marks)

c)   Define the following terms:
    i)   Data

    ii)   Information

    iii)   DBMS   (6 marks)

d)   Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient, a log of the various tests and examinations conducted.

(6 marks)

e)   DBMS typically provides a number of services, highlight five of the services.

(5 marks)

f)   What's the difference between a primary key and a unique key?

(3 marks)

QUESTION TWO (20 MARKS)

a)   Discuss the Components of the ER Diagram   (6 marks)

b)   Define the term Data Independence and explain the two levels of data independence in databases.

(8 marks)

c)   Find out the names, client-no of all the clients.   (6 marks)

   i)   Retrieve the entire contents of the CLIENT-MAST table.

   ii)   List all the clients who are located in NEW DELHI.

   iii)   Find the client-no, names, addressl, address2 of the client who have bal-due is greater.

QUESTION THREE (20 MARKS)

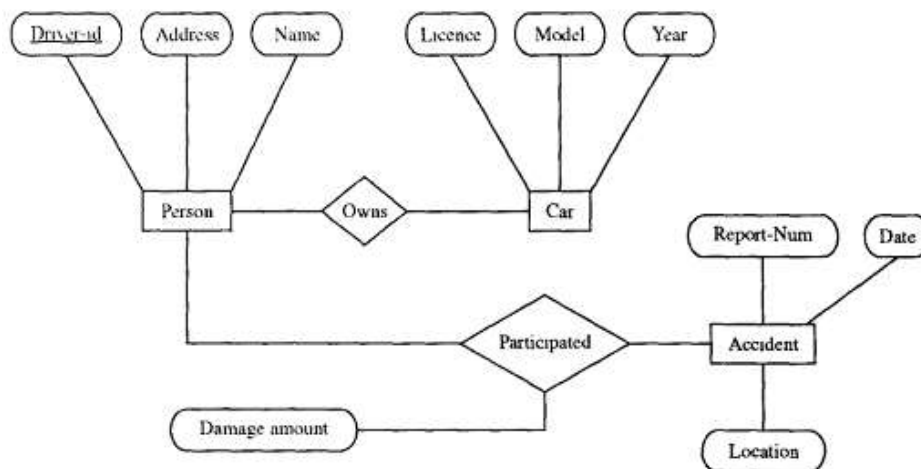a)   Differentiate between Database system and file system.

                                                                                             (12 marks)

b)   Explain the components of Database System.

                                                                                             (8 marks)

QUESTION FOUR (20 MARKS)

a)   Describe the three levels of data abstraction?   (6 marks)

b)   What are the five properties of the Relational tables?   (5 marks)

c)   Explain the Three-Level Database Architecture.   (9 marks)

QUESTION FIVE (20 MARKS)

a)   Design a relational database corresponding to E-R diagram given   (8 marks)

b)   Discuss the four properties that are called the ACID properties of Transactions.

                                                                                             (8 marks)

c)   Define the term Data Model listing three types of models

                                                                                             (4 marks)

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