Saraswat Vidyalaya's
Sridora Caculo College of Commerce & Management Studies
BCA Semester III End Examination, November 2022

CAC-110 DATABASE MANAGEMENT SYSTEMS

Duration : 2 hours   **Total Marks :** 60   **Total no. of Pages :** 04

Instructions: *i) All questions are compulsory.*
ii) Figures to the right indicate full marks.

Q.1.A State whether **True/ False.** Justify your answer.   **(5x1 = 05)**

I.   5NF is also known as Project-Join Normal form.

II. In an E-R diagram, entities are represented using rectangles.

III. Declarative DMLs require a user to specify what data is needed without specifying how to get those data.

IV. A database schema is the skeleton structure that represents the physical and logical view of the entire database.

V.   DKNF is a normal form used in database normalization which requires that the database contains no constraints other than domain constraints and key constraints.

Q.1.B Answer the following.   **(5x1 = 05)**

I.   List down types of Data Users.

II. What is the process of extracting useful data from the databases?

III. Give any two responsibilities of Database Administrator.

IV. Write a query to delete the Employee table completely.

V.   Write a query to delete a row from the Employee table whose e_id is 3.

Q.2 Answer the following.

    A. Give an example of the following: **(02)**

        (i) Derived Attributes   **(ii)** Composite Attributes

    B. Define the following :   **(03)**

      a.Tuple

      b. Data Redundancy

      C. Attribute

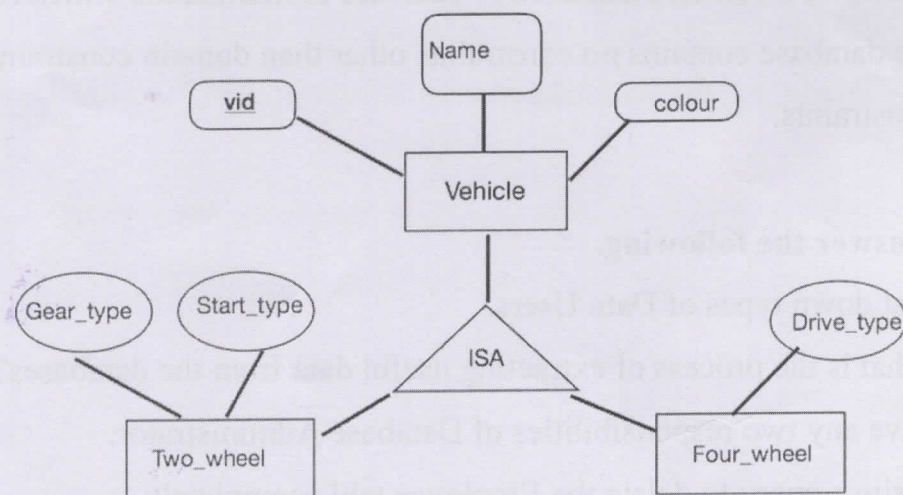   **C.** Discuss the three-level architecture of DBMS.   **(05)**

      Explain the various types of Data Independence.

Q.3 Answer the following.

    A. Explain the Cardinality of a relationship.   **(02)**

    B. Compare the features of Relational, Network & Hierarchical   **(03)**

      data models.

    C. Convert the following ERD into database tables in the best possible   **(05)**

      way.

Q.4 Answer the following.

A. Distinguish between the terms serial and serializable schedule. (02)

B. State and explain the advantages & disadvantages of Database (03)
Management System.

C. What do you understand by the term "TRANSACTION" in a (05)
database? Define ACID properties with suitable examples.

Q.5 Answer the following.

A. Giving an example, explain how you would distinguish between (02)
a super key and a candidate key.

B. What is a Distributed Database? Explain the different types (03)
of DDBMS.

C. Draw relationship diagram considering data normalization concepts (05)
and answer the following:

(i) The entity T1 is defined with attributes Empcode(unique),
name, street, city, state, and pincode.
For any pincode, there is only one city and state.
Also, for any given street, city and state, there is just one pincode.

Is the T1 relation in 2nd Normal Form? Or is the T1 relation in 3rd normal
form? Convert it into the best possible normal form.

(ii) Consider the following functional dependencies in a database.

Date _of_Birth -->Age   Age->Eligibility

Name->Roll_number   Roll_number->Name

Course_number->Course_name   Course_number->Instructor

(Roll_number, Course_number)->Grade

Is the relation (Roll_number, Name, Date_of_birth, Age) in First, Second or Third Normal forms? Why or why not?

Q.6 Answer the following.

A. Define Functional Dependency with the help of an example.   (02)

B. What is ODBC? Explain features of ODBC.   (03)

C. Write a short note on "Emerging Trends in DBMS".   (05)