UTTARAKHAND OPEN UNIVERSITY, HALDWANI (NAINITAL)
उत्तराखंड मुक्त विश्वविद्यालय, हल्द्वानी (नैनीताल)

MCA 1ˢᵗ YEAR 2ⁿᵈ SEMESTER ASSIGNMENT

Last Date of Submission: 15 May, 2012

Course Title: Fundamentals of Database Management Systems   Course Code: MCA-07
Year: 2011-12   Maximum Marks: 40 Marks

Section 'A'

Section 'A' contains 08 short answer type questions of 5 marks each. Learners are required to answers 4 questions only. Answers of short answer-type questions must be restricted to 250 words approximately.

1. (a) Differentiate between COMMIT and ROLLBACK with suitable example.

    (b) Discuss the different levels of abstractions in a database management system.

2. Discuss exception handling mechanism of PL/SQL with example.

3. Define stored procedure with their function by giving suitable examples.

4. Explain normalization with the help of an appropriate example of relational schema.

5. (a) Explain the concept of generalization and specialization with the help of an appropriate example.

    (b) Discuss the concept of centralized database and distributed database.

6. Differentiate between:

    a. implicit and explicit cursor
    b. entity integrity and referential integrity
    c. Database security.
    d. Distributed databases.

7. (a) Discuss the different types of data integrity constraints.

    (b) Differentiate between Data Definition Language and Data Manipulation Language.

8. (a) What is dataware housing? Explain.

    (b) Compare the deferred modification and immediate modification technique of the log based recovery scheme for concurrent transactions? Why and how checkpoints are used to perform such log-based recovery.

Section 'B'

Section 'B' contains 04 long answer-type questions of 10 marks each. Learners are required to answers 02 questions only.

1. (a) Draw an E-R diagram to store information about the students in the university. (Make suitable assumptions)

   Transform the E-R diagram to a Relational Schema.

   (b) Create an employee database. Design a relationship between tables. Design a form for data entry in database. Then generate a salary slip for employee. (Make necessary assumption wherever required).

   (c) Design relational schema for above any one specification. Define integrity constraints .Write DDL statements to create tables.

2. Explain the following with suitable example:
   a. Equi Joins
   b. Cartesian Joins
   c. Outer Joins
   d. Self Joins

3. (a) Consider the following relational schema:

   Sailors(SailorId, SailorName, Rating, Age)

   Reserves(SailorId, BoatId, Day)

   Boats(BoatId, BoatName, Color)

   Express the following queries :

   a. Find the names of sailors who have reserved the same color boats as the sailor named 'Ram'.

   b. Find the colors of boats reserved by sailor 'Ram'.

   c. Find the names of sailors who have reserved a red or a green boat.

   d. Find the names of sailors who have reserved at least two boats.

   e. Find the names of sailors who have reserved all boats.

   f. Find the names of boats that are reserved by more than one sailor.

   (b) Consider the following relational database schema

   SUPPLIER(SupplierNo, SupplierName, SupplierCity)

   PART(PartNo, PartName, Weight, Quantity, Color)

   SUPPLY(SupplierNo, PartNo, Quantity)

   a. Give an SQL DDL definition of the above schema.

b. Express the following queries in SQL:

      (i)   Find the names of parts which are supplied by more than one supplier.

      (ii)   Find the name of suppliers who have supplied all the red colored parts.

      (iii)   Find the names of supplier who has supplied blue parts more than average

      (iv)   Number of the blue parts supplied by the supplier in the same city.

      (v)   Find the names of supplier who supply atleast two parts.

      (vi)   Delete Suppliers who have supplied no parts.

4. (a) State 3NF and BCNF. Compare 3NF and BCNF with respect to lossless join decompositions and dependency preservation with the help of an example.

(b) What is Deadlock? Discuss the different ways of preventing deadlock and detecting deadlock?