F May - June - 2011
T.E - COMP
Sem - I

[3963] – 351

T.E. (Computer Engg.) (Semester – I) Examination, 2011

DATABASE MANAGEMENT SYSTEMS

(Common to IT)

(2008 Pattern) (New)

Time: 3 Hours Max. Marks: 100

Instructions : *1) Answers to the **two** Sections should be written in **separate** books.*

*2) **Neat** diagrams must be drawn **wherever** necessary.*

*3) Assume suitable data, **if necessary**.*

*4) Section **I** : Q 1 or Q 2, Q 3 or Q 4, Q 5 or Q 6.*

*5) Section **II** : Q 7 or Q 8, Q 9 or Q 10, Q 11 or Q 12.*

SECTION – I

1. a) Compare Relational data model, Hierarchical Data Model and Network Data Model. **6**

   b) Design an E-R diagram with EER features which will model all the entities and relationships among them for the Airline Reservation System Database. **6**

   c) Explain Multi-user DBMS Architectures in details. **5**

OR

2. a) Design an E-R diagram with EER features which will model all the entities and relationships among them for the Hospital Management System Database. **9**

   b) Explain Overall Structure of DBMS. **8**

3. a) List difference between embedded SQL and Dynamic SQL. **6**

P.T.O.

b) Explain the different operations of Relational Algebra. **5**

Consider the following Relations. It defines the schema of the database application for a bank. It manages the branches and customers of the bank. Customers take loans (borrow money) or open accounts (deposit money) at one or more branches. **6**

Branch (B_No, B_name, B_city, asset), Customer (C_No,C_Name, C_city street)Loan(Loan_no, B_name, amount), Account (Acc_No, B_name, Balance) Borrower (C_No, Loan_No), Depositor (C_No, Acc_No)

Answer the following queries in each of the query languages that you know :

1) Find the names and address of customers who have a loan.
2) Find loan data, ordered by decreasing amounts, then increasing loan numbers.
3) Find the pairs of names of different customers who live at the same address but have accounts at different branches.

OR

4. a) Explain Assertion and Triggers with suitable example. **6**

b) Explain Stored procedure and stored function.

Consider the following Relations. It defines the schema of the database application for a library. **5**

Book (Book_ISBN [pk], Title, Publisher_Name [fk]) **6**

BOOK_AUTHORS (Book_ISBN [pk, fk], Author_Name [pk])

PUBLISHER(Name [pk], Address, Phone)

BOOK_COPIES (Book_ISBN [pk, fk], Branch_ID [pk, fk], Num_Copies)

BOOK_LOANS (Book_ISBN [pk,fk], Branch_ID [pk, fk], Card_Num [pk, fk], Date_Out, Date_Due)

LIBRARY_BANCH (Branch_ID[pk], Branch_Name, Address)

BORROWER (Card_Num [pk], Name, Address, Phone)

Answer the following queries in each of the SQL query languages that you know :

1) List the ISBN and title of all books written by "John Smith".
2) List the ISBN and title of all books written by "John Smith" as the only author.
3) List the Card number and name of all borrowers who checked out two or more books on 10/16/2003.
4) List the branch ID and name of all library branches that have at least one copy of all the books.