

Nov-Dec -2010

T.E. Comp.

Sem - I

[3863] - 454

T.E. (Computer Engg. Common to IT) (Semester - I) Examination, 2010  
DATABASE MANAGEMENT SYSTEMS  
(2008 Course) (New)

Time : 3 Hours

Max. Marks : 100

*Instructions:* 1) Answers to the **two** Section 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) Explain data structures required in database system. 4  
b) Compare relational data model, Hierarchical Data Model and Network Data Model. 4  
c) Consider a university database that keeps track of students, their majors, their transcripts and their registrations, as well as of the university's course offerings. The database also keeps track of the sponsored research projects of faculty and graduate students. Draw an **Extended E-R diagram** which should be consist of aggregation, generalization and specialization and constrains on specialization. 9

OR

2. a) Explain Multi-user DBMS architectures in details. 4  
b) Explain the different constrains on specialization/generalization with suitable example. 4  
c) Draw ER diagram for banking enterprises which should be consist of entity sets, attributes, relationships, mapping cardinality and keys, aggregation, specialization, role and generalization. 9

3. a) Explain different types of joins in SQL with suitable example. 4  
b) Write a short note on Embedded SQL. 4

Consider the relational schema given below 9

Employee (person\_name, street, city)

Works (person\_name, company\_name, salary)





Company (company\_name, salary)

Manages (person\_name, manger\_name)

Write an efficient relational algebra expression for

- 1) Find the names of all the employees who live in the same city and same street as do their manager.
- 2) Find the name of all employees who do not work for the “ABC corporation”.
- 3) Find the names of all the employees who earn more than every employee of “XYZ corporation”.

OR

4. a) Explain Explicit Cursor and REF cursor in PL/SQL with suitable example. 4
- b) Explain Assertion and Triggers with suitable example. 4
- c) 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. 9

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)

Write SQL queries for following questions :

- 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.
- 4) Find the names and address of customers who have a loan for an amount exceeding 3 times their current balance.
- 5) Find the names of customers with both an account and a loan at Perryridge branch.

