Total No. of Questions: 09

B.Tech.(CSE) (2011 Onwards) (Sem. – 5)

RELATIONAL DATABASE MANAGEMENT SYSTEMS–I

M Code: 70535

Subject Code: BTCS-502

Paper ID: [A2098]

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION A

1. a) Define Database Schema and database state.

   b) What are weak Entities? How are they represented in database?

   c) Define Referential Integrity constraints.

   d) Define Full Functional Dependency.

   e) What is Deadlock during concurrent processing?

   f) Explain Variable Length Record.

   g) What predicate is used in Natural Join?

   h) Explain Exclusive Lock. Why we use it?

   i) What is dense index?

   j) List different DAC privilege.

SECTION B

2. Discuss three-tier architecture of the database and use of mapping between schema levels.
3. What is the difference between procedural and nonprocedural DML's?
4. Discuss different integrity constraints with example.
5. Implement following relation using SQL query where roll no is in 5 digits and each subject of 70 marks.

   Student (rollno, name, sub1, sub2, sub3, totalmarks, percentage)

   Create the table, add 5 records and display name, roll no and percentage as data
6. Discuss lost update problem with an example.

SECTION C

7. What is normalization? Explain first, second, third and BCNF Normal forms with suitable example.
8. Consider the following relational database:

   employee(employee-name, street, city)

   works(employee-name, company-name, salary)

   company(company-name, city)

   manages(employee-name, manager-name)

   Give an expression in SQL for each of the following queries:

   a) Find the names, street address and cities of residence for all employees who work for 'First Bank Corporation' and earn more than Rs. 10,000.

   b) Find the names of all employees in the database who live in the same cities as the companies for which they work.

   c) Find the names of all employees in the database who live in the same cities and on the same streets as do their managers.
9. Define data model. Explain record based data models using diagrams.