Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VII SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: DATA BASE MANAGEMENT SYSTEM [ELE 441]

REVISED CREDIT SYSTEM

Time: 3 Hours 08 DECEMBER 2015 MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitably assumed.

1A. What are the different types of database users who interact with database systems? **(03)**

1B. What is the goal of designing a database? Explain the overall database design and implementation process. **(03)**

1C. Create E-R diagram for the following: **(04)**

(a) Customer withdraws money from his account

(b) Students attend classes

2A. Explain the various types of constraints on relationship types of the E-R model. **(03)**

2B. Give suitable examples of relational schema and explain the concept of Super Key, Candidate Key, Primary Key and Foreign Key. **(04)**

2C. Show with a suitable example how a relationship is mapped into relation schemas. **(03)**

3A. Explain the following operations in Relational Algebra and give one example for each i) Rename ii) Cartesian product iii) Natural join iv) Division **(04)**

3B. Consider the following relational schema:

Employee (EmployeeName, Street, City)

Works (EmployeeName, CompanyName, Salary)

Company (CompanyName, City)

Manager (EmployeeName, ManagerName)

Create relational algebra expressions to :

(a) List the Name and City of employees who work under manager named "John smith".

(b) Count the number of employees working in company named "Microsoft" at its "New Delhi" location.

(c) Find the employee name who is getting lowest salary and working in "Infosys" **(03)**

3C. Give the general form of SELECT SQL query? List the data types that are allowed for SQL attributes. **(03)**

4A. Differentiate between IN operator and BETWEEN operators used in SQL statements with a suitable example. **(03)**

4B. Consider the relational schemas given in Q3B and create SQL statements to

INSERT, UPDATE and DELETE data from EMPLOYEE table.

Also write a SQL statement to find AVERAGE salary of employees and their total strength who are working with "TCS" at "BANGALORE" office. **(04)**

4C. With a neat sketch explain the SQL query optimization process. **(03)**

5A. Name the desirable properties of decomposition. **(03)**

5B. Let R= (A, B, C, D, E, F) be a relation scheme with the following dependencies: C->F, E->A, EC->D, A->B. Find the key for R? **(03)**

5C. The relation EMPDT 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. Explain which NF does this relation adhere to and why? **(04)**

6A. Explain the importance of storage and indexing in DBMS. **(03)**

6B. Define ACID property. Explain in breif about ACID properties. **(03)**

6C. Draw the neat sketch of different transaction states. **(04)**