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06CS54

# Fifth Semester B.E. Degree Examination, June/July 2011
# Database Management Systems

Time: 3 hrs. Max. Marks:100

**Note:** ***Answer FIVE full questions selecting at least TWO questions from each part.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

## PART – A

1 a. Discuss the main characteristics of the database approach and how it differs from traditional file system. **(08 Marks)**

b. Discuss criteria used to classify database management system. **(06 Marks)**

c. Define the terms : DDL, DML and DCL. Give examples. **(06 Marks)**

2 a. What is the concept of a weak entity used in data modeling? Define the terms owner entity type, weak entity type, identifying relationship type and partial key. **(08 Marks)**

b. A company database needs to store information about employees (identified by ssn, with salary and phone as attributes) departments (identified by the dno, with dname, and budget as attributes), and children of employees (with name and age as attributes). Employees work in departments; each department is managed by an employee; a child must be identified uniquely by name when the parent (who is an employee; assume that only one parent works for the company) is known. We are not interested in information about a child once the parent leaves the company. Draw an ER diagram that captures this information. **(12 Marks)**

3 a. Discuss the entity integrity and referential integrity constraints. Why is each considered important? **(05 Marks)**

b. Discuss the various types of JOIN operations. Why is theta join required? **(05 Marks)**

c. List the operations of relational algebra and the purpose of each. **(10 Marks)**

4 a. Write SQL syntax with example for the following SQL statements :
i) CREATE TABLE ii) SELECT – statement
iii) UPDATE command iv) ALTER TABLE **(08 Marks)**

b. What is a view in SQL, and how is it defined? Discuss the problems that may arise when one attempts to update a view. **(06 Marks)**

c. List the data types that are allowed for SQL2 attributes. **(06 Marks)**

## PART – B

5 a. How does SQL allow implementation of the entity integrity and referential integrity constraints? Explain. **(10 Marks)**

b. Explain the following : i) Embedded SQL ii) Database stored procedure. **(10 Marks)**

6 a. Summarize the correspondences between ER model constructs and the relational model constructs. **(05 Marks)**

b. What is a functional dependency? Who specifies the functional dependencies that hold among the attributes of a relation schema? **(05 Marks)**

c. Define first, second and third normal forms by taking an example. **(10 Marks)**

7 a. What is meant by the attribute preservation condition on decomposition? **(06 Marks)**

b. Discuss the null value and dangling tuple problems. **(06 Marks)**

c. Define fourth normal form. Why is it useful? **(08 Marks)**

8 a. Explain the following with suitable example :
i) The lost update problem ii) The temporary update (or dirty read) problem. **(10 Marks)**

b. Why is the two-phase locking protocol? How does it guarantee serializability? **(10 Marks)**

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