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10MCA34

### Third Semester MCA Degree Examination, June/July 2013

## Database Management Systems

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1
  - a. Define database and the characteristics of database approach. (08 Marks)
  - b. With a neat diagram, explain the architecture of DBMS. (08 Marks)
  - c. Explain briefly schema change statements in SQL. (04 Marks)
- 2
  - a. Explain with an example the structure of basic query in SQL. (10 Marks)
  - b. Discuss the algorithm of ER-to-Relational mapping. (10 Marks)
- 3
  - a. With a suitable example, explain the aggregate functions in SQL. (06 Marks)
  - b. What are attribute data types in SQL? (04 Marks)
  - c. Explain the anomalies due to interleaved execution. (10 Marks)
- 4
  - a. What is normalization? Why normalization is required? (06 Marks)
  - b. What are views? Specify some problems when views are updated. (06 Marks)
  - c. Write a note on crash recovery. (08 Marks)
- 5
  - a. Consider the following relational schema. Write the SQL queries for the following:
    - WORKS (Emp\_name, Comp\_name, Salary, Ph\_num)
    - LIVESIN (Emp\_name, Street, city)
    - LOCATED\_IN (Comp\_name, City)
    - MANAGER\_OF (Mgr\_name, Emp\_name)
    - i) Find the names of the employees, who live and work in the same city.
    - ii) Find the names of the employees, who do not work for the company "SBM".
    - iii) Find the names of the employees and their salary, whose manager is "Fleming".
    - iv) Delete all employees, who work for the company "SBM". (10 Marks)
  - b. With an example, explain PROJECT command. (10 Marks)
- 6
  - a. What are the set operations in SQL? Explain. (10 Marks)
  - b. Explain ACID properties. (10 Marks)
- 7
  - a. Define functional dependency. Write all its inference rules. (10 Marks)
  - b. Give brief note on different types of JOINS. (10 Marks)
- 8
  - Write short notes on:
    - a. Triggers in SQL
    - b. 2PL Protocol
    - c. ARIES
    - d. Three-schema architecture (20 Marks)

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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.