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**Fifth Semester B.E. Degree Examination, Dec.2013 / Jan. 2014**  
**Database Management Systems**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting atleast TWO question from each part.**

**PART – A**

1.
  - a. Explain Three – level schema architecture, with a neat diagram. (08 Marks)
  - b. Define Data model. Briefly explain Object based and Record based data models. (08 Marks)
  - c. What are the functions of Database administrator (DBA). (04 Marks)
  
2.
  - a. Define the following terms, with an example for each :
    - i) Mapping cardinalities    ii) Strong entity    iii) Degree of a relation    iv) Ternary relationship    v) Foreign key. (10 Marks)
  - b. Design E – R diagram for keeping track of information about COMPANY database taking into account at least four entities. (10 Marks)
  
3.
  - a. Explain Binary relational algebra operations, with example. (08 Marks)
  - b. Consider the following relations and write relational algebra expressions :
 

SUPPLIER (S-id, S-name, S – address)

PARTS (P-id, P – name, colour)

CATALOG (S-id, P-id, cost)

    - i) Retrieve the name of all the suppliers who supply yellow parts.
    - ii) Retrieve the name of the suppliers, who supply both Blue and Black parts.
    - iii) Retrieve the name of the suppliers who supply all parts. (12 Marks)
  
4.
  - a. With respect to SQL, explain with example : i) The DROP command    ii) The ALTER command. (08 Marks)
  - b. Consider the following tables, write the SQL statements for the following queries:
 

CATALOG (book-id, title, au-id, p-id, Catg-id)

AUTHOR (au-id, name, city, country)

PUBLISHER (p-id, name, city, country)

CATEGORY (cat-id, description)

MEMBER (m-id, name, address, city, state)

ORDER - SUMMARY (O-no, m-id, o-date, amount)

ORDER – DETAILS (O-no, book-id, quantity)

    - i) Display details of all the members who have placed an order for the book 'CODING'.
    - ii) Display the name of all the books for which an order has been placed.
    - iii) Display the name of all the authors who have more than 2 books in catalog. (12 Marks)

**PART – B**

5.
  - a. With example, explain aggregate functions in SQL. (10 Marks)
  - b. Explain INSERT, DELETE and UPDATE statements in SQL. with example. (06 Marks)
  - c. What is a VIEW? What are the advantages of view? (04 Marks)

- 6 a. Explain Informal design guidelines for relation schemas. (08 Marks)  
b. What is normalization? Explain the First, the Second and the Third normal forms. with example. (12 Marks)
- 7 a. Explain Multivalued dependencies and Fourth Normal form. (10 Marks)  
b. Explain Join dependencies and Fifth Normal form. (10 Marks)
- 8 a. Explain the ACID properties of transaction. (08 Marks)  
b. Explain : (12 Marks)  
i) Crash recovery      ii) Serializability      iii) Deadlock.

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