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 :
         i) Crash recovery   ii) Serializability   iii) Deadlock.   (12 Marks)

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