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Fifth Semester B.E. Degree Examination, June/July 2014

Database Management Systems

Time: 3 hrs.

Max. Marks:100

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

PART – A

1. a. What is database? Explain the implicate properties of database. (08 Marks)
 b. With neat diagram, explain “three schema architecture”. (08 Marks)
 c. Define the following terms:
 i) Data model ii) Schema iii) Metadata iv) Snapshot. (04 Marks)
2. a. Explain with sketch the different phases of database design. (10 Marks)
 b. Write an ER diagram of hospital management system. Assume your own entities (minimum 4), attributes and relations. (10 Marks)
3. a. What is constraint? Give the detailed explanation of key constraints. (10 Marks)
 b. Consider the following schema and write the relational algebra expressions for the queries given below:
 Suppliers (sid : integer, sname : string, address : string)
 Parts (pid : integer, pname : string, color : string)
 Catalog (sid : integer, pid : integer, cost : real)
 i) Find the names of suppliers who supply some red parts.
 ii) Find the sids of suppliers who supply some red parts or at 221 packer street.
 iii) Find the sids of suppliers who supply some red part and some greenpart. (10 Marks)
4. a. Consider the same data given in question 3(b) and write the following queries in SQL:
 i) Find the sids of suppliers who supply some red and some green parts.
 ii) Find the pairs of sids such that the supplier with first sid charges more for some part than the supplier with second sid.
 iii) Find the pids of parts supplied by at least two different suppliers. (10 Marks)
 b. Write a note on NULL and three valued logic. (10 Marks)

PART – B

5. a. Explain insert, delete and update statements in SQL, with example. (09 Marks)
 b. How is a view created and dropped? What problems are associated with updating of views? (11 Marks)
6. a. State the informal guidelines for relational schema design. Illustrate how violation of these guidelines may be harmful. (12 Marks)
 b. What is normalization? Explain third normal form with example. (08 Marks)

- 7 a. Define multi valued dependency. Explain 4NF with an example. (10 Marks)
- b. Let $R = \{Ssn, Ename, Pnumber, Pname, Plocation, Hours\}$ and $D = \{R_1, R_2, R_3\}$, where
- $R_1 = EMP = \{Ssn, Ename\}$
- $R_2 = PROJ = (Pnumber, Pname, Plocation)$
- $R_3 = WORKS_ON = \{Ssn, Pnumber, Hours\}$.
- The following functional dependencies hold on relation R.
- $F = \{Ssn \rightarrow Ename; Pnumber \rightarrow \{Pname, Plocation\}; \{Ssn, Pnumber\} \rightarrow Hours\}$. Prove that the above decomposition of relation R has the lossless join property. (10 Marks)
- 8 Write a short note on:
- a. Two phase locking protocol.
- b. Transaction support in SQL.
- c. Write ahead log protocol.
- d. Time stamp ordering algorithm. (20 Marks)

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