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06CS54

Fifth Semester B.E. Degree Examination, December 2012
Database Management Systems

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions atleast*
TWO questions from each part.

PART – A

1 a. Define the following terms :
i) Database ii) Canned Transactions iii) Data model iv) Meta data v) Database designer.
(10 Marks)

   b. List advantages of DBMS over traditional file systems. Briefly explain them.   **(10 Marks)**

2 a. Define the following, with an example
i) Weak entity type ii) participation constraints iii) cardinality ratio iv) Ternary relationship
v) recursive relationship.   **(10 Marks)**

   b. List the summary of the notations for ER diagrams. Include symbols used in ER diagrams and their meaning.   **(10 Marks)**

3 a. Discuss the characterisation of a relation, with example.   **(06 Marks)**

   b. Define referential integrity constraint. Explain the importance of referential integrity constraint.   **(06 Marks)**

   c. Briefly discuss the different typer of update operations on relational database. Show an example of a violation of the referential integrity in each of the update operations. **(08 Marks)**

4 a. Given the schema
EMP(Fname, Lname, SSN, Bdate, Address, Sex, salary, super SIN, Dno.)
DEPT(Dname, Dnumber, Mgr SSN, Mgrestartdate)
DEPT_LOC(Dnumber, Dloc), PROJECT(Pname, Pnumber, Ploc, Dnum), works_on (ESSN, Pno, Hours) DEPENDENT (ESSN, Dep_name, Sex, Bdate, relation) give the relation algebra expression for the following :
List female employees from Dno = 20 earning more than 50000
List 'CSE' department details
Retrieve the first name, last name and salary of all employees also work in department no 50
Retrieve the name of the manager of each department
Retrieve the name and address of all employees who work for the sport department
Retrieve the names of employer who have no dependents.   **(12 Marks)**

   b. Explain the ALTER TABLE command? Explain how a new constraint can be added and also an existing constraint can be removed, using suitable examples.   **(08 Marks)**

PART – B

5 a. Explain the syntax of a SELECT statement in SQL. Write the SQL query for the following relation algebra expression $\pi_{Bdate, \ Address}$ (σ_{fname} = 'John' AND Minit = 'B' AND Lname = 'SMITH' (Employee))   **(06 Marks)**

   b. Explain DROP command, with an example.   **(04 Marks)**

   c. Write a note on aggregate functions in SQL, with example.   **(10 Marks)**

6 a. What is functional dependency? Write an algorithm to find a minimal cover for a sets of functional dependencies. **(10 Marks)**
   b. What is embedded SQL? With an example, illustrate how would you connect to a data base, fetch records and display. Also explain the concept of stored procedures, in brief. **(10 Marks)**

7 a. Define multivalued dependency. Explain 4NF, with an example. **(10 Marks)**
   b. Define JOIN dependency. Explain 5NF, with an example. **(10 Marks)**

8 a. Briefly discuss the two phase locking protocol used in concurrency control. **(10 Marks)**
   b. Write a short note on :
       i)   Transaction support in SQL
       ii) Write ahead los protocol. **(10 Marks)**

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