R15

Code No: 823AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA III Semester Examinations, August - 2017
DATABASE MANAGEMENT SYSTEMS

Time: 3hrs **Max.Marks:75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

5 × 5 Marks = 25

1.a) Define instance and schema. [5]
b) What is domain integrity? [5]
c) Explain about inclusion dependency. [5]
d) What are recoverable schedules? [5]
e) Explain Clustered Indexes. [5]

PART - B

5 × 10 Marks = 50

2. Describe the Structure of DBMS with neat sketch. [10]

OR

3. Discuss about the Conceptual database Design with the ER Model. [10]

4. Consider the following schema for a company database
Employee (Name, SSN, Address, Sex, Salary, Dno)
Department (Dname, Dnumber, MGRSSN, MGRSTART Date)
Dept-Locations (Dnumber, Dlocations)
Project (Pname, Pnumber, Plocations, Dnum)
Works-On (ESSN, PNo, Hours)
Dependent (ESSN, Dependent-name, Sex, Bdate, Relationship)

Give the queries in SQL:
a) Retrieve the names and address of employees who work for Department 10.
b) List all the project names on which employee "Shyam" is working.
c) Retrieve all employees in Dept. 5 whose salary is between 50,000 and 80,000.
d) Retrieve the name of each employee who works on all the projects controlled by department number 2.
e) Retrieve the names of employees who have no dependents. [10]

OR

5. Discuss about Complex integrity constraints in SQL. [10]

6. Consider the relation R, which has attributes that hold schedules of courses and sections at a university:
R = {CourseNo, SecNo, OfferingDept, Credit-Hours, CourseLevel, InstructorSSN, Semester, Year, Days_Hours, RoomNo, NoOfStudents}.
Suppose that the following functional dependencies hold on R:
{CourseNo}→{OfferingDept, CreditHours, CourseLevel}
{CourseNo, SecNo, Semester, Year}→{Days_Hours, RoomNo, NoOfStudents, InstructorSSN} {RoomNo, Days_Hours, Semester, Year}→ [Instructorssn, CourseNo, SecNo}
Try to determine which sets of attributes form keys of R. How would you normalize this relation? [10]

OR

7. Write loss-less Boyce Codd Normal Form decomposition algorithm and explain with example. [10]

8. Explain the concept of Deadlock avoidance and prevention in detail. [10]

OR

9. Describe Validation-based protocols. [10]

10. Write about the various levels of RAID with neat diagrams. [10]

OR

11. Explain and Compare Extendible Hashing with Linear Hashing. [10]

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