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Total No. of Pages : 3

Total No. of Questions : 09

B.Tech.(CSE/IT) (Sem.-5)

DATABASE MANAGEMENT SYSTEM

Subject Code : CS-305

Paper ID : [A0466]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.
4. Please make necessary assumptions if needed.

SECTION-A

1. Write briefly :

- a) What is foreign key ?
- b) What is logical data independence ?
- c) What is shadow paging ?
- d) What is normalization ?
- e) What is UNIQUE constraint?
- f) What is role of LTRIM in SQL?
- g) What is data privilege ?
- h) Differentiate between Privacy and Security of data ?
- i) What is integrity of data ?
- j) What is importance of GRANT and ROLLBACK commands?

SECTION-B

2. Explain with the help of examples ACID properties in DBMS.
3. Explain by taking some example difference between the terms serial schedule and serializable schedule.
4. Explain two phase locking protocols. Explain with example.
5. Compare the deferred and immediate modification versions of log based recovery scheme in terms of ease of implementation and overhead cost.
6. Discuss the architecture of DBMS in brief

SECTION-C

7. A company has decided to store in a database, information on the musicians who perform for its albums. Draw an ER diagram for your schema. The following information describes the situation on which the company database must be modeled. Indicate all key and cardinality constraints and any assumptions that are made.

The information provided is as follows :

- Each musician that records at this company has an SSN, a name, an address and phone number.
- Each instrument that is used in the songs has a name (*e.g.*, guitar synthesizer, flute) and a musical key (*e.g.*, C, B-flat, E-flat).
- Each album that is recorded on the company label has a title, a copyright date, a format (*e.g.*, CD or MC), and an album identifier.
- Each song recorded at the company has a title and an author.
- Each musician may play several instruments, and several musicians may play a given instrument.
- Each album has a number of songs on it, but no song may appear in more than one album.
- One or more musicians perform each song, and a musician may perform in a number of songs.
- Each album has exactly one musician who acts as its producer. A musician may produce several albums.

8. Given the schema :

EMP(Fname,Lname,SSN,Bdate,Address,Sex,Salary,SuperSSN,Dno)

DEPT(Dname,Dnumber,MgrSSN,Mgrstartdate)

DEPT-LOC(Dnumber,Dloc)

PROJECT(Pname,Pnumber,Ploc,Dnum)

WORKS-ON(ESSN,PNO,Hours)

Give the relational algebra expression for the following :

- a) List female employees from Dno=20 earning more than 50000.
 - b) List CSE deptt details
 - c) Retrieve the first name, last name and salary of all employees who work on department number 50
 - d) Retrieve the name of manager of all departments.
 - e) Retrieve the name and address of all employees who work for sports department.
9. Discuss various types of normalization. Explain with the help of example difference between 3rd Normal form and BCNF.