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Total No. of Questions: 09

Total No. of Pages: 02

B. Tech. (CSE) (Sem. 5)
RDBMS – I
Subject Code: BTCS-502
Paper ID: A2098

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS 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 have to attempt any **FOUR** questions.
3. Section C contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION A

1.
 - a) How can values of a table in ACCESS modified?
 - b) What is the use of group function in SQL?
 - c) What is the need of putting constraints in queries?
 - d) Why is a primary key required?
 - e) What are UPDATE and APPEND queries used for in SQL?
 - f) What is the use of DELETE query in SQL?
 - g) How is access control enforced over a database?
 - h) What are the various ways in which a database can be secured?
 - i) What do you understand by serializability of schedules?
 - j) Classify different kind of DBMS and discuss one application of each DBMS.

SECTION B

2. An orchestra database consists of the following relations:
CONDUCTS (conductor, composition)
REQUIRES (composition, Instrument)
PLAYS (Player, Instrument)

Give the relational calculus queries for the following:

- a) List the compositions and the players.
- b) List the compositions which require the 'violin' and the 'congo'

3. Write short notes:

- a) Multivalued Dependency.
- b) Concurrency control.

4. What do you mean by integrity constraints? Explain the two types of constraints.

- 5. a) What is rollback operation and why it is required?
- b) Explain how timestamp based concurrency protocol schemes are implemented.

6. How can two tables be logically joined using SQL? How is group by query used?
Give example for explain.

SECTION C

7. Consider the following relational schema:

Doctor (DName, Reg_no) Patient (Pname, Disease) Assigned To (Pname, Dname)

Give expression in both Tuple calculus and Domain calculus for each of the queries:

- a) Get the names of patients who are assigned to more than one doctor.
- b) Get the names of doctors who are treating patients with 'Polio'.

- 8. a) What are the common facilities that every DBMS should provide? Discuss.
- b) What are the various advantages of SQL? When are null values used?

9. What is normalization? Explain the process of relation refinement with the help of normalization by taking suitable example. (You may go up to 3NF)