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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CSE) (2011 Onwards) (Sem.-5)
RELATIONAL DATABASE MANAGEMENT SYSTEM-I

Subject Code : BTCS-502

Paper ID : [A2098]

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 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) Write briefly :

- a) What are ACID properties?
- b) Explain how to find closure of a set of attributes.
- c) What is referential integrity constraint?
- d) Explain 3NF with example.
- e) List relational algebra operators with examples.
- f) Explain schema and subschema.
- g) Differentiate between logical and physical schema.
- h) What are attributes?
- i) What is trigger?
- j) What are the weaknesses of SQL?

SECTION-B

- 2) Develop a ER Model for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents. Assume appropriate attributes and state any assumptions you make.
- 3) Explain :
 - a) Network Model
 - b) Relational Model.
- 4) Why is the concurrency control needed? Discuss with examples.
- 5)
 - a) What are nested queries? Explain with the help of an example.
 - b) Why decomposition is important? Also explain the types of decomposition.
- 6) Implement following relation using SQL query
Student (stud_no, stud_name, sub1, sub2, totalmark, percentage)
Create the table, add 5 records and display the data.

SECTION-C

- 7)
 - a) Discuss exclusive and shared lock. How Locks result into deadlock and how deadlock can be handled?
 - b) Define functional dependency. Explain trivial and non-trivial FD with example.
- 8)
 - a) Suppose that we decompose the schema $r(A,B,C,D,E)$ into $r_1(A,B,C)$ and $r_2(A,D,E)$
Show that this decomposition is a lossless decomposition if the following set F of functional dependencies holds :
$$A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A$$
 - b) Does the data dictionary have any role to play in query processing? Describe with the help of an SQL query requiring JOIN operation, selection and projection.
- 9)
 - a) Describe 4NF with the help of an example. Would you prefer BCNF over 4NF? Justify your answer.
 - b) What is serialisable schedule? How can it be found whether a given schedule is serialisable or not?