

Roll No.

Total No. of Pages : 02

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B.Tech. (Information Technology) (Sem-5)
DATABASE MANAGEMENT SYSTEMS

Subject Code : BTIT502-18

M.Code : 78257

Date of Examination : 21-11-2023

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. Answer briefly :

- a) What is TRC? How it is different from DRC?
- b) Discuss hashing.
- c) Explain the function of each of the clauses in the SELECT statement.
- d) What is Query equivalence?
- e) Explain DDL.
- f) Explain the role of SQL server.
- g) Differentiate between 1NF and 2NF.
- h) What is SQL injection?
- i) Explain object oriented data model.
- j) What is database recovery?

SECTION - B

2. Draw a detailed ER diagram for a car rental agency database, keeping track of current rental location of each car, its current condition and history of repair and customer information for a local office, expected return date, return location, car status (ready, being-repaired, Currently_rented, being_cleaned). Select attributes from your intuition about the situation, draw the diagram, with a particular entity or relationship in the ER model.
3. List the ACID properties of the transactions. During execution, a transaction passes through several states, until it finally commits or aborts. List all possible sequences of states through which a transaction may pass.
4. Explain the concept of DAC, MAC, RBAC models in detail.
5. Given the table R (A,B,C,D) with FDs $AB \rightarrow C$ and $BD \rightarrow A$. What are all the candidate keys for this table?
6. Discuss the main activities associated with each step of the logical database design methodology. Differentiate between network model and hierarchical model.

SECTION - C

7.
 - a) Explain the term of primary key, candidate key and super key. Explain with the help of examples.
 - b) Under what conditions must a foreign key not be null? Explain with the help of example.
8. Discuss ACID properties and how they relate to the concurrency control and recovery mechanisms? Give examples to illustrate your answer.
9. How concurrency is controlled using timestamp-based protocol? As a modification of timestamp - based protocol discuss the Thomas' Write Rule.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.