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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CSE) (2011 Onwards) (Sem.–5)

RELATIONAL DATABASE MANAGEMENT SYSTEM–I

Subject Code : BTCS-502

M.Code : 70535

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. What are DML commands in SQL?
2. What is a multi-valued dependency?
3. What is a lock in concurrency control?
4. What are attributes?
5 Explain 'C' in 'ACID' properties?
6. What is the difference between B -Trees and B + Trees?
7. Define transaction.
8. Differentiate between Grant and Revoke.
9. Define Normalization?
10. What is a Sparse Index?

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SECTION-B

11. Draw any ER Diagram which demonstrates the following : (5)
    a. Entity
    b. Attribute
    c. Multi-valued attribute
    d. Composite attribute
    e. Derived attribute

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12. What is a precedence graph? What is a conflict serializable schedule? Can precedence graph be used to detect a conflict serializable schedule? (5)

13. Consider a relation R with attribute set {A, B, C, D} and functional dependency set F = {A→ B, B → C, C→ D}. This relation is decomposed into three sub relations {AB, BC, CD}. Check if the decomposition is dependency preserving or not. Discuss. (5)

14. Attempt the following :

    a. Explain Lost-Update Problem? (2)

    b. How can Lost-Update problem be solved? (3)

15. What are the properties of decomposition? Explain in detail with the help of examples. (5)

SECTION-C

16. Consider the following relation for published books : (10)

    BOOK (Book_title, Author_name, Book_type, List_price, Author_affil, Publisher) Author_affil refers to the affiliation of author. Suppose the following dependencies exist :

    Book_title → Publisher,

    Book_type Book_type → List_price

    Author_name → Author_affil

    a. What normal form is the relation in? Explain your answer.

    b. Apply normalization until you cannot decompose the relations further. State the reasons behind each decomposition.

17. Explain the following : (10)

    a. Update Anomaly

    b. Deletion Anomaly

    c. Insertion Anomaly

    d. Transitive Dependency

18. Answer the following :

    a. Why is indexing required for a Database? (4)

    b. Explain multi-level indexing. Is it true that all the levels of multi-level index are primary index? Discuss. (6)

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.

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