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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?

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



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 $F = \{A \rightarrow B, B \rightarrow C, C \rightarrow D\}$. 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 \rightarrow Publisher,

Book_type Book_type \rightarrow List_price

Author_name \rightarrow 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.