

Roll No.

Total Pages : 3

BT-3/D-18

33082

DATA BASE MANAGEMENT SYSTEM

Paper : CSE-205-N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) A major objective of the ANSI-SPARC architecture is to provide data independence. Outline a neat sketch illustrating this architecture of DBMS and explain each component in detail.
- (b) Who are database users? Distinguish among different type of users. (8+7=15)
2. (a) What is role name and recursive relationship? Write different type of relationships and mapping cardinalities.
- (b) Briefly explain the following with example :
 - (i) Super key.
 - (ii) Simple and composite attributes.
 - (iii) Weak Entity. (8+7=15)

UNIT-II

3. Differentiate between relational algebra and relational calculus in DBMS? Discuss set-oriented operations of relational algebra with specimen illustrations. 15

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4. (a) Write the meaning, purpose and syntax of the following SQL statements :
 - (i) Alter
 - (ii) Drop.
- (b) Write a note on query, sub-query and nested query? Give an example.
- (c) What are procedures? Write the syntax to create a procedure. (3×5=15)

UNIT-III

5. What is normalization? Why it is required? Explain BCNF with example and Compare BCNF and 3NF along with their similarities and dissimilarities. 15
6. (a) Discuss the reasons for converting SQL queries into relational algebra queries before query optimization is done. Briefly explain cost-based optimization.
- (b) Consider a database with objects X and Y and assume that there are two transactions T1 and T2. T1 first reads X and Y and then writes X and Y. T2 reads and writes X then reads and writes Y. Write a schedule that is not serializable. Explain why your schedule is not serializable. (8+7=15)

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UNIT-IV

7. (a) What is a deadlock? Discuss several deadlock-avoidance strategies.
- (b) What do you meant by undo/redo logging?
8. (a) Explain read-only, write-only and read-before-write protocols in Serializability.
- (b) What locking mechanism does? Write the different types of locks.
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