

Roll No.

Total Pages : 03

BT-3/D-19

33082

DATABASE MANAGEMENT SYSTEM

CSE-205-N/IT-201N

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) What do you mean by mapping ? Discuss the role of mapping in three-layer architecture of DBMS as proposed by ASNI-SPARC. How does this architecture achieve data independence ?
(b) Who is DBA ? Discuss the responsibilities of DBA.
8+7=15
2. (a) With example explain various mapping cardinalities, total and partial participation constraint in ER model.
(b) Briefly explain the following with example :
 - (i) Foreign key
 - (ii) Entity and entity type
 - (iii) Simple and single-valued attributes. **8+7=15**

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Unit II

3. (a) Explain select, project, union, product and join operations of relational algebra with example.
(b) What do you mean by views ? How are views created and dropped ? **8+7=15**
4. (a) Write the meaning, purpose and syntax of the following SQL statements :
 - (i) Create
 - (ii) Update
(b) What are aggregate functions in SQL ? List any *three* aggregate functions.
(c) What are triggers ? Write the syntax to create a trigger for each row. **3×5=15**

Unit III

5. What is Normalization ? Discuss the need of normalization. Explain the normal forms based on full and partial functional dependency and multivalued dependency. **15**
6. (a) Discuss the main heuristics that are applied during query optimization to improve the processing of the query.
(b) Consider schedule S with transaction T1 and T2. T1 transfer Rs. 150 from account A to C and T2 adds Rs. 50 into account A. Prepare concurrent schedule with two phase locking protocol. **8+7=15**

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Unit IV

7. (a) What is a deadlock and how is it different from a standard block situation ?
(b) Discuss the strategies to protect against media failures. **8+7=15**
8. (a) What are serial and serializable schedules ? Give example.
(b) Write a detailed note on concurrency control by timestamps. **8+7=15**