B.E. Computer Science & Engineering (Model Curriculum) Semester-V
TEE102CS - Database Management System

P. Pages : 2

Time : Three Hours

7399

Max. Marks : 80

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Notes : 1.   All questions carry equal marks.
2.   Due credit will be given to neatness and adequate dimensions.
3.   Assume suitable data wherever necessary.

1.   a)   Draw and explain 2 -tier and 3- tier architecture of database management system.   **8**

b)   What is data independence? Explain the difference between physical and logical data independence.   **8**

OR

2.   a)   Define the following terms: **8**

i)   Data model.   ii)   Database schema.

iii)   Database state   iv)   Internal schema.

v)   Conceptual schema.   vi)   External schema.

b)   Explain different types of database users.   **8**

3.   a)   Explain basic structure of SQL queries with example along with DDL and DML.   **8**

b)   Describe the concept of Tuple relational calculus and Domain relational calculus. Along with syntax and examples.   **8**

OR

4.   a)   Explain the following SQL group functions with commands.   **8**

i)   COUNT   ii)   MIN

iii)   AVG   iv)   SUM

b)   What is a view? How the view is constructed in SQL. Explain with example.   **8**

5.   a)   Define functional dependency. Explain the rule of inferences or Armstrong's axioms with supporting rules.   **8**

b)   What are three data anomalies are likely to be the result of data redundancy? How can such anomalies be eliminated?   **8**

OR

6. a) Define BCNF (Boyce-codd normal form). How does it differ from 3NF? Why is it considered a stronger form of 3NF. **8**

b) List all functional dependencies satisfied by the relation. **8**

A	B	C
a_1	b_1	c_1
a_1	b_1	c_2
a_2	b_1	c_1
a_2	b_1	c_3

7. a) Discuss Shadow paging technique. **8**

b) Explain two-phase locking protocol. Illustrate with example. **8**

OR

8. a) Explain the state diagram of transaction. **8**

b) Define the terms: **8**

   i)   Serial schedule.   ii)   Non- serial schedule.

   iii) Serializable schedule   iv)   Conflict serializable schedule.

9. a) Describe B tree indexing. Give example. **8**

b) Give an overview of Query processing. **8**

OR

10. a) Discuss centralized database and spatial database system. **8**

b) Explain OLAP in detail. **8**

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