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**Reg. No. :**

**Question Paper Code: 44025**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fourth Semester

Computer Science and Engineering

14UCS405 - DATABASE MANAGEMENT SYSTEMS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. \_\_\_\_\_\_\_\_\_\_represent relationship sets in ER diagram

(a) Diamonds (b) Rectangles (c) Double diamonds (d) Lines

2. \_\_\_\_\_\_\_\_occasionally access the database, but they may need different information each time.

(a) Casual end users (b) Naive or parametric end users (c) Standalone users (d) Sophisticated end users

3. \_\_\_\_\_\_\_\_\_ allows individual row operation to be performed on a given result set or on the generated by a selected statement.

(a) Procedure (b) Trigger (c) Cursor (d) None of these

4. A command to remove a relation form an SQL database

(a) Delete table <table name> (b) Drop table <table name> (c) Erase table <table name> (d) Alter table <table name>

5. If a transactions Ti has obtained \_\_\_\_\_\_\_\_\_ lock on item Q, then Ti can read, but cannot write Q

(a) Shared mode (b) Exclusive mode (c) Unshared mode (d) None of these

6. A transaction that completes its execution successfully is said to be \_\_\_\_\_\_\_\_\_\_\_\_

(a) Committed (b) Failed (c) Aborted (d) Active

7. In b-tree the number of keys in each node is \_\_\_\_ than the number of its children

(a) One less (b) Same (c) One more (d) Half

8. What is the minimum number of disks required for RAID1?

(a) 1 (b) 2 (c) 4 (d) 5

9. XML uses \_\_\_\_\_\_\_\_\_ storage, which uses varchar(max) and varbinary(max).

(a) Small object (b) Large object (c) Native (d) None of these

10. A distributed database has the advantages over a centralized database in

(a) Software cst (b) Software complexity (c) Slow response (d) Modular growth

PART - B (5 x 2 = 10 Marks)

11. A relation NADDR is defined as follows.

NADDR = (name, street, city, state, postal\_code)

where name is unique, and for any given postal code, there is just one city and state.

Identify whether the above relation is in 2NF or in 3NF

12. The employee information in a company is stored in the relation   
 Employee (name, sex, salary, deptName)

Write the SQL query for the average salary of male employees in the computer science Department.

13. Why transactions are executed concurrently?

14. Name the advantages of distributed databases.

15. Illustrate about data classification.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Draw the system architecture of DBMS and write the purpose of each block. (8)

(ii) Construct an E-R diagram for university database with all possible entities, attributes, relations, mapping cardinalities. (8)

Or

(b) State the need for normalization of a database and explain normal forms with suitable examples. (16)

17. (a) (i) What is meant by heuristic optimization? Discuss the main heuristics that are applied during query optimization. (8)

(ii) Differentiate static SQL and dynamic SQL. (8)

Or

(b) Explain the different algorithms used for selection operation and their associated cost. (16)

18. (a) Explain about the concurrency control in distributed databases. (16)

Or

(b) Discuss in detail about transaction properties and two phase commit protocol. (16)

19. (a) List the different levels in RAID and explain its features. (16)

Or

(b) (i) Describe the algorithm for updating indices for a single level index when a record is

(i) Inserted (ii) deleted

What will be the modification if there are multilevel indices? (8)

(ii) Differentiate between static hashing and dynamic hashing. (8)

20. (a) Draw the Information Retrieval framework and explain its process. (16)

Or

(b) Outline the basic concepts of data mining and data warehousing. (16)