Reg. No. : | | | | | | | | | | |

Question Paper Code: 44205

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. Relational algebra is a _____ query language that takes two relations as input and produces another relation as output of the query.

   (a) Relational (b) Structural
   (c) Procedural (d) Non Procedural

2. 3NF is based upon

   (a) Transitive dependency (b) Full functional dependency
   (c) both (a) and (b) (d) none of the above

3. 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>

4. The _____SQL component of SQL allows programs to construct and submit SQL queries at runtime.

   (a) Dynamic (b) Embedded (c) Static (d) None of these

5. _____ property keeps track of old values if failure happens, it restores the old values to make transaction rolled back.

(a) Durability (b) Atomicity (c) Isolation (d) Consistency

6. If a transactions T_i has obtained _____ lock on item Q, then T_i can read, but cannot write Q

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

7. _____indices is based on the uniform distribution of values across a range of buckets

(a) Ordered (b Hash (c) Dense (d) Sparse

8. B+tree index takes the form of a _____in which every path from the root of the tree to a leaf of the tree is of the same length.

(a) balanced tree (b) binary tree
(c) search tree (d) none of these

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

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

10. The full form of KDD is_____

(a) Knowledge database (b) Knowledge discovery database
(c) Knowledge data house (d) Knowledge data definition

PART - B (5 x 2 = 10 Marks)

11. List four significant differences between a file-processing system and a DBMS.

12. Define ACID property.

13. Why transactions are executed concurrently?

14. List the benefits and limitations of a data warehouse.

15. Define clustering.

PART - C (5 x 16 = 80 Marks)

16. (a) Draw E-R diagram for the "Restaurant Menu Ordering system", which will facilitate the food items ordering and services within a restaurant. The entire restaurant scenario is detailed as follows. The customer is able to view the food items menu, call the waiter, place orders and obtain the final bill through the computer kept in their table. The waiters through their wireless tablet PC are able to initialize a table for customers, control the table functions to assist customers, orders, send orders to food preparation staff (chef) and finalize the customer's bill. The food preparation staffs (Chefs), with their touch-display interfaces to the system, are able to view orders sent to the kitchen by waiters. During preparation, they are able to let the waiter know the status of each item and can send notifications when items are completed. The system should have full accountability and logging facilities, and should support supervisor actions to account for exceptional circumstances, such as a meal being refunded or walked out on. (16)

Or

(b) (i) Explain the different kinds of data models. (8)

(ii) Explain Boyce-Codd normal form with example and also compare BCNF and 3NF. (8)

17. (b) (i) Examine the steps involved in query processing. (8)

(ii) List out the different selection operations involved in query processing. (8)

Or

(b) (i) Describe how the dead lock occurs. How it can be prevented? (8)

(ii) Explain the transaction states with suitable diagram. (8)

18. (a) Identify the occurrence of deadlock in a system. Explain the two approaches to prevent deadlock. (16)

Or

(b) (i) Describe how the dead lock occurs. How it can be prevented? (8)

(ii) Explain the transaction states with suitable diagram. (8)

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) Explain in detail the database security. (16)

Or

(b) (i) Illustrate the advantages and disadvantages of distributed database. (8)

(ii) Describe about crawling and indexing the web. (8)

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