PC2832

[6352]-56

S.E. (Information Technology)
DATABASE MANAGEMENT SYSTEM
(2019 Pattern) (Semester- IV) (214452)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

    1)   *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*

    2)   *Figures to the right indicate full marks.*

    3)   *Neat diagrams must be drawn whenever necessary.*

    4)   *Make suitable assumption whenever necessary.*

Q1) a) Explain different DDL and DML commands with example. **[6]**

    b) What is view in SQL? Explain with example. **[6]**

    c) What is stored procedure? Explain stored procedure with suitable example. **[6]**

<p align="center">OR</p>

Q2) a) Write a short note on **[6]**

        i)   Embedded SQL

        ii)   Dynamic SQL

    b) List out different aggregate function? Explain with example. Consider a relational database Supplier(sid, sname, city) Parts(pid, pname, color, weight) Catalog(sid, pid, quantity) **[6]**

    c) Write SQL queries for the following: **[6]**

        i)   Find the names of parts whose color is 'red'.

        ii)   Find the names of all parts whose weight is less than 25kg.

        iii)   Sort the suppliers by ascending order of city.

        iv)   Find the average weight of all parts.

        v)   Display part details of green color part with its quantity.

Q3) a) Explain insertion, deletion, and modifications anomalies with proper example. **[6]**

    b) State and Explain Armstrong's axioms and its properties. **[6]**

    c) Define query processing. What are the steps involved in query processing? **[5]**

<p align="center">OR</p>

Q4) a) Explain with example Materialized evaluation and pipelining. **[5]**

b) State the need of normalization? Explain 1NF, 2NF and 3NF with example **[7]**

c) What is closure of functional Dependency? Given functional dependencies for the relation R = (A, B, C, D, E, F), Find closure of FD set by applying Armstrong's Axioms. $A \rightarrow B$, $A \rightarrow C$, $CD \rightarrow E$, $CD \rightarrow F$, $B \rightarrow E$ **[5]**

Q5) a) What is transaction? Explain ACID properties of transaction. **[6]**

b) What is deadlock? Explain how deadlock detection and prevention is done. **[6]**

c) Write short note on: Two phase locking protocol **[6]**

OR

Q6) a) What is Serializable schedule? Explain with suitable example the types of Serializable schedules. **[6]**

b) What is concurrency control? Explain time stamp based concurrency control. **[6]**

c) Write short note on: Shadow paging **[6]**

Q7) a) Explain: Parallel database and distributed database architecture **[6]**

b) Write short note on: **[6]**
   i) NOSQL database
   ii) Internet Database

c) What are advantages and disadvantages of centralized database? **[5]**

OR

Q8) a) Explain Client server architecture in detail. **[6]**

b) Write short note on: **[6]**
   i) Cloud database
   ii) SQLlite Database

c) Discuss design issues of distributed database architecture. **[5]**

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