

Total No. of Questions : 8]

SEAT No. :

PA-1248

[Total No. of Pages : 3

[5925]-271

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicates full marks.
- 4) Assume suitable data, if necessary.
- 5) Use of scientific calculator is permitted.

Q1) a) What are different types of joins in SQL? Explain with suitable example. [6]

- b) Consider the following Relations. It defines the schema of the database application for a bank. It manages the branches and customers of the bank. Customers take loans (borrow money) or open accounts (deposit money) at one or more branches. [8]

Branch (B_No, B_name, B_city, asset), Customer (C_No, C_Name, C_citystreet)

Loan(Loan_no, B_name, amount), Account (Acc_No, B_name, Balance)

Borrower (C_No, Loan_No), Depositor (C_No, Acc_No)

Answer the following queries in SQL :

- 1) Find the names and address of customers who have a loan.
 - 2) Find the total amount of balance of all the accounts
 - 3) List all the customers who are borrowers
 - 4) Find all the accounts of “shivaji nagar” branch of Pune city.
- c) What is trigger? State and explain two categories of Triggers. [4]

OR

P.T.O.

- Q2) a)** Explain with suitable example SQL aggregate functions. [6]
b) Consider the following database. [6]

Doctor (Doctor_no, Doctor_name, Address, City).

Hospital (Hospital_no, Name, Street, City).

Doc_Hosp (Doctor_no, Hospital_no, Date).

Construct the following Queries in SQL.

- 1) Find out all Doctors who have visited to Hospital in same city in which they live.
 - 2) Find to which Hospital “Dr. Joshi” has visited.
 - 3) Count no. of Doctors visited to “Shree Clinic” on 1st March 2014.
- c)** What is Cursor? State and explain two categories of Cursors and their syntax. [6]
- Q3) a)** Define Database normalization. Explain any two normal form with the suitable example. [8]
b) Why is query optimization important for databases? [5]
c) Explain role of “Selection” operation in query processing. [4]

OR

- Q4) a)** State & Explain Armstrong’s axioms & its properties. [6]
b) Define Boyce Codd normal form. How does it differ from 3NF? Why is considered a stronger form of 3NF. [6]
c) What is query processing? Explain query processing steps with neat sketch. [5]
- Q5) a)** What is transaction? Explain ACID properties of transaction. [6]
b) What is deadlock? Explain how deadlock detection and prevention is done. [8]
c) What is the need of two phase locking protocol? Explain. [4]

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. [8]
c) Write short note on : Shadow paging. [4]

- Q7)** a) Differentiate between centralized and client server architecture. [6]
b) State and explain key elements of parallel database. [6]
c) Explain Distributed database architecture with neat sketch. [5]

OR

- Q8)** a) Explain the concept of speed up and scale up in case of parallel databases. [8]
b) Explain cloud database in detail. Also explain architecture along with components. [9]
