Total No. of Questions : 8]

PA-1248

SEAT No. :

[Total No. of Pages : 3

[5925]-271

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

[Max. Marks : 70

Instructions to the candidates:

Time : $2^{1/2}$ Hours]

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Near 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.

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 nager" 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 ci which they live.	ty in
		2) Find to which Hospital "Dr. Joshi" has visited.	
		3) Countries. of Doctors visited to "Shree Clinic" on 1st March 2	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 the suitable example.	with [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? is considered a stronger form of 3NF.	Why [6]
	c)	What is query processing? Explain query processing steps with sketch.	neat [5]
Q5)	a)	What is transaction? Explain ACID properties of transaction.	[6]
	b)	What is deadlock? Explain how deadlock detection and prevention done.	on is [8]
	c)	What is the need of two phase locking protocol? Explain. OR	[4]
Q6)	a)	What is Serializable schedule? Explain with suitable example the to of serializable schedules.	ypes [6]
	b)	What is concurrency control? Explain time stamp based concurr control.	ency [8]
	c)	Write short note on : Shadow paging.	[4]
[5925]-271 2			

- Differentiate between centralized and client server architecture. [6] *Q*7) a)
 - State and explain key elements of parallel database. [6] b)
 - Explain Distributed database architecture with neat sketch. [5] c) OR
- Explain the concept of speed up and scale up in case of parallel **Q8**) a) databases. [8]

Explain cloud database in detail. Also expalin architecture along with b) [9]

[5925]-271