**Total No. of Questions : 8]** **SEAT No. :**

**P7576** **[Total No. of Pages : 2**

# [6180]-91
# T.E. (Electronics /E& TC)
# DATABASE MANAGEMENT
# (2019 Pattern) (Semester - I) (304183)

***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. from following questions.***
2) ***Neat diagram must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

***Q1)*** a) Consider following schema: **[6]**

account (acct - no, branch - name, balance)

Depositor (cust - name, acct - no)

borrower (cust - name, loan - no)

loan (loan - no, branch - name, amount)

Write following queries using SQL

i) Find names of all customers who have a loan at the Swargate branch

ii) Find all customers who are having an account and loan or both.

b) Explain the difference between SQL & PL/SQL. **[6]**

c) Explain data types in SQL? **[5]**

OR

***Q2)*** a) Explain the following clause, **[6]**

i) Where

ii) Order By

iii) Group By

b) What is meant by Triggers in SQL? Explain with suitable example. **[5]**

c) Explain the basic constraints that can be spcified in SQL as part of table creation with example. **[6]**

***Q3)*** State and explain the ACID Properties. During its execution, a transaction passes through several states, untill it finally commits or aborts.

a) List all possible sequenices of states through which a transaction may pass. Explain the situations when each state transaction occurs. **[6]**

b) Explain the concept of Serializability? Explain conflict serializability with example. **[6]**

***P.T.O.***

c) Consider the Transaction (T3), Transaction (T4) are any hypothetical transactions working on data item Q. Schedule explaining the execution of T3, T4 are given below. Decide whether following schedule is conflict serializable or not? Justify your answer: **[6]**

| T3 | T4 |
|---|---|
| Read (Q) | |
| Write (Q) | Write (Q) |

OR

***Q4)*** a) What do you mean by isolation? Why it is important? Give an example. **[6]**

b) Explain the concept of concurrent execution? **[6]**

c) Explain commit and role back operation of transactions? **[6]**

***Q5)*** a) Explain in detail Oracle Architecture. **[6]**

b) What are different parallel database architectures? Explain any two with their advantages & disadvantages? **[6]**

c) Explain the terms speed-up and scale-up in parallel database? **[5]**

OR

***Q6)*** a) Write short note on:

i) Visulaization on multiore processors

ii) Evaluating parallel Query in Parallel Databases. **[6]**

b) Explain concept of multi-user DBMS architecture. **[6]**

c) Why is a shared - nothing architecture attractive for parallel database systems? **[5]**

***Q7)*** a) What is difference between synchronous and asychronous replication? **[6]**

b) Describe the phase commit (ZPC) protocal? Explain how (ZPC) protocol respond in different ways to different types of failures like site failure, coordinator failure, network partition? **[6]**

c) Explain Data Replication in Distributed Data Storage? **[6]**

OR

***Q8)*** a) Discuss in dtail about Single-Lock-Manager Approach and Distributed Lock Manage in concurrency control? **[6]**

b) What are the types of distributed databases? **[6]**

c) Explain Data Fragmentation in Distributed Data Storage? **[6]**