GUJARAT TECHNOLOGICAL UNIVERSITY
MCA INTEGRATED– SEMESTER III- EXAMINATION –SUMMER-2022

Subject Code: 4430604   **Date: 17/06/2022**
Subject Name: Database Management System
Time: 02:30 PM to 05:00 PM   **Total Marks: 70**

Instructions:
1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	**(a) Explain the following terms:**	**07**
	1. Relational Database	
	2. Transaction failure	
	3. Encryption	
	4. Atomicity	
	5. Distributed Database	
	6. Rollback	
	7. Deadlock	
	(b) What is query processing? Explain Evaluation plans in detail	**07**
Q.2	**(a)** Write ACID property for transaction management	**07**
	(b) Explain Shadow Paging concept for transactions in detail?	**07**
	OR	
	(b) Discuss Types of Lock and deadlock concept.	**07**
Q.3	**(a)** Explain serializability.	**07**
	(b) Explain Deadlock Prevention Techniques like Wait-Die, Wound-Wait	**07**
	OR	
Q.3	**(a)** Explain two-phase locking protocol with its advantages	**07**
	(b) Discuss any six transformation rules for query optimization and also discuss steps of Heuristic Optimization algorithm.	**07**
Q.4	**(a)** Explain grant and revoke privileges with example for discretionary access control.	**07**
	(b) Explain differed database modification and immediate database modification and list difference between them.	**07**
	OR	
Q.4	**(a)** Explain Forward recovery, Backward recovery, Media recovery in detail.	**07**
	(b) Discuss various threats to database security.	**07**
Q.5	**(a)** What is database security? explain firewall in detail	**07**
	(b) Explain types of failures occur in database in detail.	**07**
	OR	
Q.5	**(a)** Give difference between Parallel Database and Distributed Database.	**07**
	(b) Explain Statistical Database Security in detail.	**07**

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