Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–II • EXAMINATION – WINTER 2015

Subject code: 620006 **Date :04-12-2015**

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)**	What is Transaction? List various states of a transaction. Explain why each State transition may occur.	**07**
	(b)	Describe briefly Relational Algebra. Explain various Relational algebra operators giving example.	**07**
Q.2	**(a)**	Explain Serializability.	**07**
	(b)	Differentiate between Deferred Database Modification and Immediate Database Modification recovery techniques.	**07**
		OR	
	(b)	Differentiate between Discretionary Access Control and Mandatory Access Control method.	**07**
Q.3	**(a)**	**1**. List various phases of Two Phase Locking protocol. Give benefit and disadvantages of strict two phase locking protocol.	**04**
		2. Discuss log based recovery.	**03**
	(b)	What is Query Processing? List various stages of query Decomposer. Explain in brief Query Analysis.	**07**
		OR	
Q.3	**(a)**	**1**. Explain concept of Wait-die and Wound-wait deadlock prevention schemes.	**04**
		2. Discuss Timestamp ordering protocol.	**03**
	(b)	Discuss various cost components of Query optimization and explain cost function for Select.	**07**
Q.4	**(a)**	What is distributed Databases? List desired properties and functions of Distributed databases.	**07**
	(b)	Explain parallel databases with advantages and disadvantages.	**07**
		OR	
Q.4	**(a)**	Define Deadlock. Discuss deadlock prevention and detection method.	**07**
	(b)	Explain Object Oriented DBMS with advantages and disadvantages.	**07**
Q.5	**(a)**	Explain Atomicity and Durability property of transaction giving an example and show implementation of this property using shadow paging method.	**07**
	(b)	What is database security? Discuss various threats to database security.	**07**
		OR	
Q.5	**(a)**	Differentiate between Database Buffering and Log Record Buffering techniques.	**07**
	(b)	What is Query Optimization? Explain heuristic query optimization**.**	**07**

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