Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2170714 **Date:02/02/2021**

Subject Name:Distributed DBMS

Time:10:30 AM TO 12:30 PM **Total Marks: 56**

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	What is Distributed DBMS? Enlist problem areas in Distributed DBMS environment and explain any one in detail.	**03**
	(b)	What is deadlock? How to avoid deadlock in database management system.	**04**
	(c)	What do you mean by relational DBMS? Describe functional layers of RDBMS in brief.	**07**
Q.2	**(a)**	Explain peer-to-peer distributed DBMS with respect to Autonomy, Distribution and Heterogeneity.	**03**
	(b)	What are the correctness rules of fragmentation? Explain in detail.	**04**
	(c)	What is Transparency in distributed database design? List and explain the different layers of transparency in brief.	**07**
Q.3	**(a)**	Enlist query optimization issues and explain any one in detail.	**03**
	(b)	Describe System R query optimization algorithm.	**04**
	(c)	Explain partitioning algorithm in vertical fragmentation.	**07**
Q.4	**(a)**	Explain search space generation in query optimization process.	**03**
	(b)	Describe distributed INGRES query optimization algorithm.	**04**
	(c)	Differentiate top-down and bottom-up approaches for distributed database design. Explain top-down design process with necessary figure.	**07**
Q.5	**(a)**	Explain ACID properties of transaction.	**03**
	(b)	Explain query decomposition in distributed query processing system.	**04**
	(c)	What do you mean by view management? How view management is to be performed in centralized and distributed DBMS.	**07**
Q.6	**(a)**	Explain centralized semantic integrity control with example.	**03**
	(b)	What do you mean by individual assertion? Explain individual assertion with example.	**04**
	(c)	Explain mapping of global query to local query processing in distributed query processing system.	**07**
Q.7	**(a)**	Explain the following terms: Commit, Checkpoint and Abort.	**03**
	(b)	Explain transaction failure and site failure in distributed DBMS.	**04**
	(c)	Draw communication structure of distributed 2PL and describe in brief.	**07**
Q.8	**(a)**	What is the use of DAG representation of complete schedule? Explain with example.	**03**
	(b)	List the different types of lock used for concurrency control. Explain compatibility matrix of lock modes.	**04**
	(c)	Explain two phase commit protocol.	**07**

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