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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