

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024****Subject Code:2170714****Date:16-12-2024****Subject Name:Distributed DBMS****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) What is a Distributed Database System? Explain in brief.	03
	(b) List any two advantages and two limitations of Distributed DBMS.	04
	(c) Discuss various design issues for the Distributed DBMS.	07
Q.2	(a) Explain the following in the context of Relational algebra: 1. Selection 2. θ – Join 3. Projection	03
	(b) Discuss Correctness Rules of Fragmentation.	04
	(c) Explain Top-Down Design Process for designing distributed databases.	07
	OR	
	(c) Elaborate components of a distributed DBMS using the appropriate diagram.	07
Q.3	(a) Define Lock Granting.	03
	(b) Explain different ways of managing authentication for Distributed Access Control.	04
	(c) Discuss Views in Centralized DBMSs.	07
	OR	
Q.3	(a) Explain join ordering for query optimization.	03
	(b) Discuss Discretionary Access Control.	04
	(c) Explain the Bond Energy Algorithm with respect to vertical fragmentation.	07
Q.4	(a) Explain Fuzzy Check Points.	03
	(b) What do you mean by set-oriented assertions?	04
	(c) Discuss the Layers of Query Processing.	07
	OR	
Q.4	(a) Explain the ACID property of the Transaction.	03
	(b) Explain the cost function of query optimization.	04
	(c) Explain query decomposition and data localization layer for the distributed query processing system.	07
Q.5	(a) Discuss serializability theory in brief.	03
	(b) List various methods of concurrency control.	04
	(c) Discuss centralized two-phase locking protocol.	07
	OR	
Q.5	(a) Discuss the wait-die deadlock avoidance algorithm for a distributed system.	03
	(b) Explain the basic timestamp-based protocol.	04
	(c) Explain deadlock detection in detail.	07
