Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:171602 **Date:18/05/2016**

Subject Name:Distributed Database Application & 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)**	Discuss DDBS environment. How it differs from centralized environment?	**07**
	(b)	State the need of normalization in database management system. Write and explain any two normal forms with appropriate example. Assume suitable data.	**07**
Q.2	**(a)**	Discuss various components of a distributed DBMS.	**07**
	(b)	(1) Explain shared disk and shared memory multiprocessor system with neat sketches.	**04**
		(2) Let R be an original relation with appropriate primary key constraint(s). R is decomposed into R_1 and R_2 using horizontal fragmentation. R_1 is further divided into R_{11} & R_{12} and R_2 into R_{21}, R_{22} & R_{23} with the help of vertical fragmentation. Which operation should be performed, join or union, to get an original R_2 from R_{21}, R_{22} and R_{23} without any loss of data? Justify your answer.	**03**
		OR	
	(b)	Write a detailed note on horizontal fragmentation.	**07**
Q.3	**(a)**	Explain MDBS architecture without a GCS.	**07**
	(b)	(1) Discuss selection operation and join operation in context of relational algebra.	**04**
		(2) Give brief discussion of network transparency.	**03**
		OR	
Q.3	**(a)**	Describe allocation problem in detail.	**07**
	(b)	(1) Briefly explain (A0, D0, H0) and (A0, D0, H1) with respect to architectural alternatives of distributed DBMSs.	**04**
		(2) Briefly explain network topology.	**03**
Q.4	**(a)**	Explain views in centralized DBMSs with example(s).	**07**
	(b)	Elaborate Client/Server reference architecture.	**07**
		OR	
Q.4	**(a)**	Discuss the following terms in detail with example: - Attribute Usage Matrix - Attribute Affinity Matrix	**07**
	(b)	Elaborate centralized and distributed authorization control.	**07**
Q.5	**(a)**	Explain layers of query processing.	**07**
	(b)	Write a note on parallel database system.	**07**
		OR	
Q.5	**(a)**	List steps of query decomposition and discuss the same in brief.	**07**
	(b)	Write a note on distributed concurrency control.	**07**

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