Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–II EXAMINATION – SUMMER 2015

Subject Code: 2725605 **Date: 30/05/2015**

Subject Name: Distributed Computing

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 distributed system? What are its advantages? Compare different distributed computing models.	**07**
	(b)	Explain ring election algorithm and compare it with bully election algorithm.	**07**
Q.2	**(a)**	Why mutual exclusion is more complex in distributed system. Explain any one mutual exclusion algorithm and also write down comparison of all mutual exclusion algorithms in distributed system.	**07**
	(b)	Explain Cristianôs clock synchronization algorithm with an example. Write down use of synchronized clocks.	**07**
		OR	
	(b)	Define causal ordering. Explain how logical clocks are implemented in distributed systems.	**07**
Q.3	**(a)**	Explain Event synchronization in distributed system.	**07**
	(b)	Write the paradigms used for distributed applications and explain any three of them.	**07**
		OR	
Q.3	**(a)**	Explain Data representation and Data encoding.	**07**
	(b)	Discuss various issues to design distributed system.	**07**
Q.4	**(a)**	What is process migration? What are the main steps involved in process migration? Explain how address space transport mechanism is carried out.	**07**
	(b)	What is Object Location? How object locating is carried out in Distributed System? Discus different object-locating mechanisms.	**07**
		OR	
Q.4	**(a)**	Discuss the issues in designing load balancing algorithms.	**07**
	(b)	What is Name Cache? What are its types? Explain how it is implemented in distributed system.	**07**
Q.5	**(a)**	Explain different types of authentication used in distributed system.	**07**
	(b)	Highlight the additional security problems which an OS designer will deal with in a distributed system as compared to that in a centralized system. Is it possible to ensure the same degree of security in both systems? Justify.	**07**
		OR	
Q.5	**(a)**	What is access matrix? How can the following issues be handled in distributed system that uses the access matrix model for security: (a) Deciding the entries in the access matrix (b) Validating access to objects by subjects (c) Allowing subjects to switch domains in a controlled manner	**07**
	(b)	Explain process migration in heterogeneous system.	**07**

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