Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER VIII(OLD)– • EXAMINATION – WINTER 2017

Subject Code: 180701 Date: 07-11-2017

Subject Name: Distributed Systems

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 the main features of ATM technology.	**07**
	(b)	1. Which are the major differences between WWW 1.0 and 2.0?	**03**
		2. What are the four advantages of workstation-server model over the workstation model?	**04**
Q.2	**(a)**	Explain circuit switching and packet switching. Mention the differences between circuit switching and packet switching.	**07**
	(b)	Discuss the different aspects of transparency need to be supported by distributed operating system.	**07**
		OR	
	(b)	What are broadcast and converge cast? Explain broadcast and converge cast via a spanning tree on a network.	**07**
Q.3	**(a)**	Explain with example the significance of exactly-once semantics to handle duplicate request messages.	**07**
	(b)	1. Briefly explain the concept of stateful and stateless servers with diagram.	**05**
		2. Why stateless server is more beneficial over the stateful server in the event of a failure?	**02**
		OR	
Q.3	**(a)**	Explain various buffering schemes used in interprocess communication.	**07**
	(b)	1. Discuss the methods used to handle complicated RPCs that involve long duration calls or large gaps between calls.	**04**
		2. Discuss batch-mode RPC.	**03**
Q.4	**(a)**	1. What are the differences between RMI and RPC?	**04**
		2. What are the differences between bully election algorithm and ring election algorithm?	**03**
	(b)	Explain implementation of logical clocks using counters.	**07**
		OR	
Q.4	**(a)**	1. What are the necessary and sufficient conditions for a deadlock to occur?	**04**
		2. Explain the significance of wait-for graph with respect to deadlock.	**03**
	(b)	Explain the message-forwarding mechanisms used to forward the messages to the migrant process's new location.	**07**
Q.5	**(a)**	Explain asynchronous broadcast along with its algorithm.	**07**
	(b)	What are the differences between sender-initiated and receiver-initiated load sharing algorithms?	**07**
		OR	
Q.5	**(a)**	1. Discuss the factors that influence the block size of distributed shared memory.	**04**
		2. Define the following terms: absolute name, generic name, descriptive name.	**03**
	(b)	Explain the causal consistency model for a distributed shared memory system.	**07**

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