Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II (Old course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 1720201 **Date:12/05/2015**

Subject Name: Distributed Operating Systems

Time: 02:30 pm to 5:00 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)**	Why designing a distributed operating system is more difficult than designing a centralized operating system? Which are the issues related to design of a distributed operating system?	**07**
	(b)	Discuss Workstation-Server model with diagram. Also mention its advantages over Workstation model.	**07**
Q.2	**(a)**	What are the main reliability issues in designing a message-passing system? Describe a suitable mechanism for handling each of these issues.	**07**
	(b)	Describe blocking and nonblocking types of IPC. Which is easier to implement and why? Discuss their relative advantages and disadvantages.	**07**
		OR	
	(b)	What are the main issues in designing a transparent RPC mechanism? Is it possible to achieve complete transparency of an RPC mechanism? Justify your answer.	**07**
Q.3	**(a)**	Differentiate between stateful and stateless servers. Though stateful servers are more efficient than stateless servers, why do some distributed applications prefer to use stateless servers?	**07**
	(b)	Discuss release consistency model of DSM.	**07**
		OR	
Q.3	**(a)**	Discuss binding of a client with a server at compile time, link time and call time.	**07**
	(b)	Which are the factors that influence the selection of block size of a DSM? What are the advantages of using page size as the block size?	**07**
Q.4	**(a)**	How do clock synchronization issues differ in centralized and distributed computing systems? Explain passive time server centralized clock synchronization algorithm.	**07**
	(b)	What is deadlock? State the necessary conditions for a deadlock to occur in a system. Give suitable examples to prove that if any one of the four conditions is absent, no deadlock is possible.	**07**
		OR	
Q.4	**(a)**	What is happened-before relation? Explain Lamportôs concept of logical clocks for ordering of events.	**07**
	(b)	Discuss deadlock avoidance strategy of handling deadlocks in distributed system.	**07**
Q.5	**(a)**	Discuss various state information exchange policies.	**07**
	(b)	What are the differences between replication and caching? What are the benefits of replication of data in a distributed system?	**07**
		OR	
Q.5	**(a)**	Discuss various address space transfer mechanisms with their advantages and disadvantages	**07**
	(b)	Name the main hardware and software components of Amoeba and describe their functions.	**07**