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GUJARAT TECHNOLOGICAL UNIVERSITY

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Time: 02:30 pm to 5:00 pm	Subj	ect Co	ode: 1720201 Date:12/05/2015	
Time: 02:30 pm to 5:00 pm	Subie	ct Nan	ne: Distributed Operating Systems	
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? Which are the issues related to design of a distributed operating system? Which are the issues related to design of a distributed operating system? (b) Discuss Workstation-Server model with diagram. Also mention its advantages over Workstation model. 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. (b) Describe blocking and nonblocking types of IPC. Which is easier to implement and why? Discuss their relative advantages and disadvantages. 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. 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? (b) Discuss release consistency model of DSM. OR Q.3 (a) Discuss binding of a client with a server at compile time, link time and call time. (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? Q.4 (a) How do clock synchronization issues differ in centralized and distributed computing systems? Explain passive time server centralized clock synchronization algorithm. (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. OR Q.4 (a) What is happened-before relation? Explain Lamportos concept of logical clocks for ordering of events. (b) Discuss deadlock avoidance s	-		<u>. </u>	
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	Q.5	(a)	Discuss various address space transfer mechanisms with their advantages and	07

disadvantages Name the main hardware and software components of Amoeba and describe **07** their functions.

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