Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Sem. – IInd - Examination – June/July- 2011

Subject code: 1720201
Subject Name: Distributed Operating System

Date:22/06/2011 **Time: 10:30 am – 01:00 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)**	(1) Pros and cons of processor pool model with example.	**03**
		(2) List out the issues related to designing of distributed operating system.	**04**
	(b)	What is meant by "ordered message delivery"? Do all applications need same semantics for this property? If yes, explain why. If no, give examples of two applications that need different semantics for this property.	**07**
Q.2	**(a)**	Explain any two applications in which Stateful Server and Stateless Server perform better.	**07**
	(b)	What is the role of "binding agent" in client server binding? Also compare compile time binding, Link time binding and call time binding.	**07**
		OR	
	(b)	Explain RPC in Heterogeneous environment with one case study.	**07**
Q.3	**(a)**	What is "stub"? How stubs are generated? Explain how the use of stubs helps in making an RPC mechanism transparent.	**07**
	(b)	A server is to be shared by multiple clients. Describe a scheme for designing the remote procedures offered by server so that interleaved or concurrent requests from the different clients do not interfere with each other.	**07**
		OR	
Q.3	**(a)**	Explain applications related to Light weighted RPC.	**07**
	(b)	Design a system for "File Management System" that uses the optimum Block size to provide maximum concurrency where consistency is not a major issue. Also explain factors affecting the block size.	**07**
Q.4	**(a)**	Strict consistency model is practically impossible. Justify the statement with example.	**07**
	(b)	State two applications in which casual consistency model performs better than sequential consistency model. Justify your answer with suitable example.	**07**
		OR	
Q.4	**(a)**	Explain data locating techniques in NRMB strategy with block table.	**07**
	(b)	An important issue in clock synchronization in Distributed computer systems is that time must never run backward. Give two examples to show why this issue is important. How can be a fast clock to be readjusted to take care of this issue?	**07**

Q.5 **(a)** Differentiate among the following properties of a Distributed file system: **07**

(i) High degree of availability
(ii) High degree of recoverability
(iii) High degree of robustness

Name a suitable mechanism that may be used for implementing each of these properties.

(b) Discuss the relative advantages of and disadvantages of using full-file caching and block caching mechanism of a distributed file systems. **07**

OR

Q.5 **(a)** Design a load balancing server and pseudo code that checks the load dynamically at every 10 sec. and reforms or arranges in required format.(Need to analyze the load of every machine periodically) **07**

(b) Explain the Address space transfer mechanism for process migration in brief. **07**

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