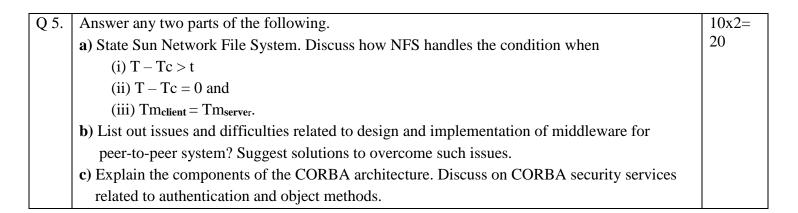
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## Ist SEMESTER EXAMINATION, 2022 – 23 Ist Year, M. Tech – Computer Science and Engineering DISTRIBUTED SYSTEMS

Duration: 3:00 hrs Max Marks: 100

Note: - Attempt all questions. All Questions carry equal marks. In case of any ambiguity or missing data, the same may be assumed and state the assumption made in the answer.

Q 1.	Answer any four parts of the following.	5x4=20
Ų.	a) Examine the different type of challenges in distributed system.	3A 1-20
	b) Define system layers used in operating system. Also explain core OS functionality.	
	c) How information is distributed in routing overlay? Point-out the main task perform by	
	routing overlay.	
	<b>d)</b> Differentiate between flat and nested distributed transaction.	
	e) Write down the requirements of digital signature. Use the concept of public keys explain	
	how digital signature can be used to certify the certain piece of information.	
	f) Explain the Chandy-Lamport's global state recording algorithm.	
Q 2.	Answer any four parts of the following.	5x4=20
	a) Compare architectural model and fundamental model.	
	<b>b</b> ) Discuss the optimistic methods for concurrency control.	
	c) Define logical clock. Why does a logical clock need to be implemented in distributed	
	systems?	
	d) Discuss the role of client and server stub procedures in RPC in the context of procedural	
	languages.	
	e) Compare and discuss the relative advantages of X.500 with GNS.	
	f) State distributed deadlock. Discuss a distributed approach for deadlock detection using edge	
	chasing algorithm.	
Q 3.	Answer any two parts of the following.	10x2=
	a) Elaborate the main purpose of Distributed object applications in RMI? Discuss the design	20
	issues for RMI.	
	b) What do you mean by mutual exclusion in distributed system? Enlist the essential	
	requirements of a good mutual exclusion algorithm? Is mutual exclusion problem more	
	complex in distributed system than single computer system? Justify your answer.	
	c) Give the design issues in distributed shared memory. State the algorithm for implementation	
	of distributed shared memory.	
Q 4.	Answer any two parts of the following.	10x2=
	a) Define the main characteristics of distributed file system. Differentiate the responsibilities of	20
	various modules of file server architecture.	
	b) State agreement protocols? Explain byzantine agreement problem, the consensus problem	
	and interactive consistency problem. Show that byzantine agreement cannot always be	
	reached among four processor if two processors are faulty.	
	c) Explain two phase commit protocol used for realizing atomicity in distributed system.	



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