



Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

End Semester Examination

May 2019

Max. Marks: 60

Duration: 3 Hrs

Class: T.E.

Semester: VI

Course Code: IT61

Branch: Information Technology

Name of the Course: Distributed Systems

Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Q No.		Max. Marks	CO
Q.1 (a)	Discuss the edge-chasing algorithm. Give examples to show that it could detect phantom deadlocks.	4	CO2
(b)	What is CUDA? When to use CUDA?	4	CO5
(c)	In distributed systems how to analyze the event based and shared data space architecture with example.	4	CO1
Q.2 (a)	What is RMI? How to apply parameter passing techniques such as passing object by reference or by value in RMI with suitable diagram?	6	CO2
OR			
	A client makes the remote procedure calls to server. The client takes 5 milliseconds to compute the arguments for each request, and the server takes 10 milliseconds to process each request. The local operating system processing time for each send or receive operation is 0.5 milliseconds, and network time to transmit each request or reply message is 3 milliseconds. Marshalling or unmarshalling takes 0.5 milliseconds per message. Calculate the time taken by the client to generate and return from two requests: i) if it is single threaded, and ii) if it has two threads that can make requests concurrently on single processor. You can ignore context switching time.	6	CO2
(b)	Construct with neat diagrams and give example of different forms of communication, such as persistent asynchronous , persistent synchronous, transient asynchronous, receipt based transient synchronous , delivery based transient synchronous and response based transient synchronous communication.	6	CO2
Q.3(a)	In Apache web server how multithreading is applied justify with example.	6	CO2
OR			

	What are the different reasons for code migration? With the help of diagram how client dynamically configure the server.	6	CO2
(b)	What is global state of distributed system? with the help of diagram explain the distributed snapshot algorithm.	6	CO3
Q.4 (a)	What are the functions of different distributed computing system models and how these models are used in distributed systems explain with diagrams?	6	CO1
(b)	Explain how election is done when any particular system crashes using bully algorithm and ring based algorithm?	6	CO3
OR			
	Explain the working of distributed mutual exclusion algorithm with example. Give the disadvantages of distributed mutual exclusion algorithm.	6	CO3
Q.5 (a)	Draw the CORBA architecture and Discuss how CORBA provides language independent, platform independent for writing distributed object oriented applications.	6	CO4
(b)	What are the reasons of replication? Explain strict data centric consistency model.	6	CO3
OR			
	With the help of example how Berkeley's algorithm and averaging algorithm are used for clock synchronization.	6	CO3