D:-27.06.22
2nd half

GURU NANAK INSTITUTE OF TECHNOLOGY

An Autonomous Institute under MAKAUT

2022

DISTRIBUTED OPERATING SYSTEM

CS605B

TIME ALLOTTED : 3 Hrs **FULL MARKS : 70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

1. Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

		Marks	CO No.
(i)	Distributed System is a- a) Loosely coupled system b) Tightly coupled system c) Both a and b d) Neither a nor b	1	CO1
(ii)	The expression a→b means- a) b happens before a b) a and b happens in the same time c) a happens before b d) None of the above	1	CO1
(iii)	Which one is election algorithm- a) Bully algorithm b) Ring algorithm c) Both a and b d) Neither a nor b	1	CO3
(iv)	Inter process communication takes place via a) Shared memory b) Message passing c) centralized memory d) Both A and B	1	CO2
(v)	An RPC (remote procedure call) is initiated by the: a) server b) client c) both (a) and (b) d) neither (a) nor (b)	1	CO2
(vi)	Path pushing algorithm is a a) Election algorithm b) Distributed Mutual exclusion algorithm c) Synchronization algorithm d) Distributed deadlock detection algorithm	1	CO3

(vii)	In distributed system each processor has its own a) local memory b) clock c) both local memory and clock d) none of the mention	1	CO4
(viii)	Which one is the distributed file system- a) Sun NFS b) CODA File system c) OSF DCE d) All of the above	01	CO4
(ix)	Desirable features of a distributed file system a) Location Transparency b) User mobility c) High availability d) All the above	1	CO3
(x)	If one site fails in distributed system a) the remaining sites can continue operating b) all the sites will stop working c) directly connected sites will stop working d) none of the mentioned	1	CO4
(xi)	Which one is not an element of RPC mechanism- a) The Client b) The Server c) The RPCRuntime d) Control Part	1	CO2
(xii)	Which one is not a distributed shared memory implementation algorithm? a) The central server algo b) Ring algo c) The migration algo d) The Full Replication algo	1	CO1

GROUP – B
(Short Answer Type Questions)

(Answer any ***three*** of the following) **3 x 5 = 15**

			Marks	CO No.
2.	a)	Define distributed computing system with a suitable example.	3	CO1
	b)	What is multidatagram message?	2	CO2
3.		What are the different types of transparency in distributed operating system?	5	CO1
4.		Discuss the Lamport's Logical clock algorithm.	5	CO3
5.	a)	Draw the distributed shared memory architecture.	2	CO5
	b)	Discuss The central server algo for implementation of distributed shared memory.	3	CO5

6. a)	Differentiate between Loosely coupled and Tightly coupled systems.	3	CO1
b)	What is Naming in distributed file systems?	2	CO2

GROUP – C
(Long Answer Type Questions)

(Answer any ***three*** of the following) **3 x 15 = 45**

		Marks	CO No.
7. a)	Discuss RPC implementation mechanism with proper diagram.	7	CO2
b)	Distinguish between stateful server and stateless server.	2	CO2
c)	Explain RPC Call message and Reply message format.	6	CO2
8. a)	What is deadlock? What are the four necessary conditions for deadlock?	4	CO3
b)	Explain the following algorithms- i) Ring algorithm ii) The migration algo	6	CO3
c)	What do you mean by i) Blocking send and non-blocking send ii) Blocking and non-blocking receive.	5	CO3
9. a)	What is mutual exclusion?	2	CO3
b)	Explain the working principal of Ricart-Agrawala algorithm to solve the problem of mutual exclusion.	7	CO4
c)	How Bully algorithm is used to select coordinator for centralized algorithm to achieve mutual exclusion?	6	CO3
10. a)	Discuss the different model of distributed system.	5	CO4
b)	Explain different file models for distributed file system.	5	CO4
c)	How the modification of a file on clients' node can be simultaneously cached on multiple node?	5	CO4
11.	Write short notes (**any three**)		
a)	Distributed Shared Memory(DSM)	5	CO5
b)	Distributed Deadlock Detection	5	CO1
c)	Features of good message passing system.	5	CO2
d)	The Election algorithm	5	CO3
e)	Marshalling Arguments and results	5	CO1