GURU NANAK INSTITUTE OF TECHNOLOGY

An Autonomous Institute under MAKAUT

2020-2021

DISTRIBUTED SYSTEMS

MCA501

TIME ALLOTTED: 3 HOURS **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)

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

			Marks	CO No
1.	i)	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
	ii)	In distributed system, each processor has its own _____ a) local memory b) clock c) both local memory and clock d) none of the mentioned	1	CO2
	iii)	Logical extension of computation migration is _____ a)process migration b) system migration c) thread migration d) data migration	1	CO3
	iv)	If one site fails in distributed system then _____ 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	CO1
	v)	The capability of a system to adapt the increased service load is called _____ a) scalability b) tolerance c) capacity d) none of the mentioned	1	CO4

vi)	The capability of a system to adapt the increased service load is called _____ a) scalability b) tolerance c) capacity d) none of the mentioned	1	CO3
vii)	What is not a major reason for building distributed systems? a) Resource sharing b) Computation speedup c) Reliability d) Simplicity	1	CO1
viii)	What are the characteristics of Distributed Operating system? a) Users are aware of multiplicity of machines b) Access is done like local resources c) Users are aware of multiplicity of machines d) They have multiple zones to access files	1	CO1
ix)	What are the types of distributed operating system? a) Network Operating system b) Zone based Operating system c) Level based Operating system d) All of the mentioned	1	CO1
x)	What is not true about a distributed system? a) It is a collection of processor b) All processors are synchronized c) They do not share memory d) None of the mentioned	1	CO3
xi)	Processes on the remote systems are identified by _____ a) host ID b) host name and identifier c) identifier d) process ID	1	CO2
xii)	Which of the following is true concerning a global transaction? a) The required data are at one local site and the distributed DBMS routes requests as necessary. b) The required data are located in at least one nonlocal site and the distributed DBMS routes requests as necessary c) The required data are at one local site and the distributed DBMS passes the request to only the local DBMS d) The required data are at one local site and the distributed DBMS passes the request to only the local DBMS	1	CO2

GROUP – B*
(Short Answer Type Questions)
Answer any ***three*** from the following:**3×5=15**

			Marks	CO No
2.	a)	Explain with diagram passive replication and its working?	5	CO4
3.	a)	What do you mean by agreement in faulty system explain with example.	5	CO3
4.	a)	Explain Lamport's logical clocks and how it can advance.	3	CO2
	b)	State the limitation of the above law.	2	CO2
5.	a)	Explain Lamport's Algorithm for Mutual Exclusion in Distributed System.	5	CO4
6.	a)	What is cryptography?	2	CO2
	b)	What do you mean by Distributed Deadlocks? Explain in brief.	3	CO3

GROUP – C*
(Long Answer Type Questions)
Answer any ***three***from the following:**3×15=45**

			Marks	CO No
7.	a)	What are the two phases of 2PC protocol?	5	CO2
	b)	What are the messages used by 2 Phase Commit protocol?	5	CO2
	c)	What is the major disadvantage of 2PC protocol?	5	CO2
8.	a)	What is distributed systems?	2	CO1
	b)	What are the characteristics of distributed systems? Explain all in brief.	8	CO1
	c)	What are the advantages and disadvantages of distributed systems?	5	CO1
9.	a)	What are the different models of distributed systems?	5	CO1
	b)	Explain Client server and peer to peer models in details with diagram.	10	CO1
10.	a)	Compare centralized algorithms and distributed algorithms for Mutual exclusion.	6	CO3
	b)	Explain Token-Passing Approach for Mutual Exclusion.	6	CO3
	c)	Write a short note on Loosely coupled system	3	CO3
11.	a)	What is fault, error and failure?	3	CO3
	b)	Explain file service architecture in distributed system	6	CO3
	c)	Explain Release consistency and Munin in distributed system	4	CO4
	d)	What is replication?	2	CO4