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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (S) (FT/PT) Examination September 2025 (2019 Scheme)

Course Code: CST402

Course Name: DISTRIBUTED COMPUTING

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		Explain different forms of load balancing.	(3)
2		List the various features of distributed system?	(3)
3		What are the basic properties of scalar time?	(3)
4		Specify the issues in recording a global state.	(3)
5		List the requirements of Mutual Exclusion Algorithm.	(3)
6		Describe how quorum-based mutual exclusion algorithms differ from the other categories of mutual exclusion algorithms.	(3)
7		State the advantages of distributed shared memory.	(3)
8		Explain no orphans consistency condition.	(3)
9		Define flat file service and directory service components.	(3)
10		List distributed file system requirements.	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Explain about the different versions of send and receive primitives for distributed communication.	(8)
	b)	Compare logical and physical concurrency.	(6)

OR

12	a)	Explain in detail about the design issues of a Distributed System	(8)
	b)	Discuss about the global state of distributed systems.	(6)

Module II

13	a)	Illustrate bully algorithm for electing a new leader with example.	(8)
	b)	Explain the rules that are defined to detect termination using distributed snapshots?	(6)

OR

14	a)	Illustrate Ricart- Agrawala algorithm for achieving mutual exclusion.	(8)

b) In Chandy-Lamport algorithm for recording global snapshots, explain how the recorded local snapshots can be put together to create the global snapshot. (6)

Module III

15 a) Discuss in detail about spanning-tree-based termination detection algorithm with example (9)

b) Compare various models of deadlocks. (5)

OR

16 a) Illustrate Suzuki–Kasami's broadcast algorithm. (8)

b) Explain Lamport's mutual exclusion algorithm in detail. (6)

Module IV

17 a) Explain about Lamport's Bakery Algorithm. (8)

b) What are the issues in failure recovery? Illustrate with suitable examples. (6)

OR

18 a) Explain about uncoordinated checkpointing and coordinated checkpointing, (8)

b) Explain different types of messages in roll back recovery (6)

Module V

19 a) Explore the key assumptions made in consensus algorithms. (7)

b) Discuss the architecture of Andrew file system. (7)

OR

20 a) Explain SUN NFS architecture. (8)

b) Discuss about the requirements of a distributed file system. (6)

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