

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026***Fifth Semester***Artificial Intelligence and Data Science****CS3551 - Distributed Computing****(Common to Information Technology & Computer Science and Engineering)***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	List the primitives for distributed communication.	L1	1	2
2.	Define a distributed system.	L1	1	2
3.	What is the role of NTP?	L1	2	2
4.	Differentiate between scalar clock and vector clock.	L2	2	2
5.	List the distributed mutual exclusion algorithms.	L1	3	2
6.	Outline Lamport's algorithm.	L2	3	2
7.	What is checkpointing?	L1	4	2
8.	How would you perform coordinated checkpointing?	L1	4	2
9.	Summarize cloud computing challenges.	L2	5	2
10.	What is replication in cloud computing?	L1	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Discuss the fundamentals of distributed systems, including definition, motivation, and system components.	L2	1	8
	ii Describe the communication models in distributed systems.	L2	1	8
	Or			
	b Explain the different types of distributed system architectures.	L2	1	16
12.	a i Illustrate the working of logical clocks in distributed systems.	L2	2	8
	ii Summarize message ordering paradigms in distributed systems.	L2	2	8
	Or			
	b Demonstrate a snapshot algorithm for global state recording in distributed systems.	L2	2	16

13.	a	i	Apply mutual exclusion algorithms to solve resource sharing problems.	L3	3	8
		ii	Organize the various deadlock models.	L3	3	8
			Or			
	b		Develop a distributed mutual exclusion mechanism.	L3	3	16
14.	a	i	Categorize different recovery mechanisms.	L4	4	8
		ii	Classify fault tolerance mechanisms in distributed systems.	L4	4	8
			Or			
	b		Analyze issues in failure recovery and checkpointing.	L4	4	16
15.	a		Construct a cloud service platform integrating compute and storage services.	L4	5	16
			Or			
	b		Design a cloud-based application architecture.	L4	5	16