

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Fifth Semester

Information technology

CS3551 – Distributed Computing

**(Common to Artificial Intelligence and Data Science &
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>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Distinguish between shared memory systems and message passing systems.	L2	1	2
2.	List the motivations for Distributed systems.	L1	1	2
3.	How do you define the scalar time and vector time?	L1	2	2
4.	Define the global state of a distributed system.	L1	2	2
5.	List the advantages and limitations of token based algorithms for implementing mutual exclusion.	L2	3	2
6.	What are the various deadlock detection in distributed system?	L1	3	2
7.	What is a checkpoint in the recovery system? How it is useful?	L1	4	2
8.	Outline the issues in failure recovery.	L2	4	2
9.	What is virtualization in cloud computing?	L1	5	2
10.	State the relation of compute service with storage service in cloud environment.	L2	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 Explain the design issues and challenges in the design of distributed operating systems.	L2	1	16
	Or			
	b Discuss in detail about Primitives for distributed communication.	L2	1	16
12.	a Explain Asynchronous execution with synchronous communication.	L2	2	16
	Or			
	b Illustrate the necessary and sufficient conditions for casual ordering. Elucidate on the Total and Causal order in the Distributed System with a neat diagram.	L2	2	16
13.	a Explain the requirement that mutual exclusion algorithms should satisfy and discuss what metric we use to measure the performance of mutual exclusion algorithm.	L3	3	16

Or

	b	State the Lamport's algorithm and its use and also the benefits and limitations. Compare this with any token based algorithm.	L2	3	16
14.	a	Explain the facts associated with agreement in failure-free systems of both synchronous and asynchronous systems.	L2	4	16
		Or			
	b	What are the different check pointing based recovery systems available? Explain any one algorithm with example.	L2	4	16
15.	a	Illustrate cloud storage services and application services.	L2	5	16
		Or			
	b	List the Driving Factors and Challenges of Cloud and explain in detail about Virtualization.	L2	5	16