Code No.: R22CS741PE | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - December- 2025
DISTRIBUTED SYSTEMS
(CSE)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1. a)	What are the characteristics of Distributed systems?	[1M]
b)	List the problems of distributed systems.	[1M]
c)	What is flat file service interface?	[1M]
d)	Draw the Operating System Architecture.	[1M]
e)	Write short notes on Distributed debugging.	[1M]
f)	When does a transaction abort?	[1M]
g)	Define two-phase commit protocol for nested transactions.	[1M]
h)	State the nested transactions.	[1M]
i)	Define IP multicast.	[1M]
j)	Define Logical clock.	[1M]

PART-B **(50 Marks)**

2.	What is distributed system? Discuss about the challenges for constructing distributed system.	[10M]
	OR	
3.a)	Discuss how distributed systems are more scalable than the centralized systems.	[5M]
b)	Explain in brief the communication between distributed objects.	[5M]
4.a)	Explain the components and operation of a distributed file system.	[5M]
b)	Discuss the role of invocation and communication in file services.	[5M]
	OR	
5.a)	Discuss process and thread management in distributed environments.	[5M]
b)	Explain the layers of operating-system support in distributed systems.	[5M]
6.a)	With neat sketch explain Routing Overlays in detail.	[5M]
b)	Explain clock synchronization and logical time in distributed systems.	[5M]
	OR	
7.a)	Explain the architecture and functioning of peer-to-peer systems with suitable examples.	[5M]
b)	Briefly explain the bully algorithm in Election.	[5M]
8.a)	What are the locking rules for nested transitions?	[5M]
b)	Explain about two phase commit protocol.	[5M]
	OR	
9.	Discuss in brief about the two problems associated with aborting transactions and also discuss the way to overcome them.	[10M]
10.a)	Explain the system model for replication and the role of group communication.	[5M]
b)	Discuss fault-tolerant services with suitable examples.	[5M]
	OR	
11.a)	Explain Sequential consistency in Distributed Shared Memory.	[5M]
b)	What are the requirements for the design of distributed file **system**?	[5M]

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