Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

School of Computer Science and Engineering

Mid - Term Examinations - November 2024

Semester: V | **Date**: 06-11-2024

Course Code: CSE2052 | **Time**: 02.00pm to 03.30pm

Course Name: Distributed System | **Max Marks**: 50

Program: B. Tech. | **Weightage**: 25%

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Qx2M=10M**

1	Define Distributed system.	2 Marks	L1	CO1
2	List out the key elements of Distributed Systems.	2 Marks	L1	CO1
3	Define inter process communication.	2 Marks	L1	CO2
4	List RPC Elements	2 Marks	L1	CO2
5	Define reliable communication.	2 Marks	L1	CO2

Part B

Answer ALL Questions. Each question carries 10 marks. **4QX10M=40M**

6	**a.**	Define heterogeneity.	2Marks	L1	CO1
	b.	Describe the Disadvantages of Distributed Systems?	3Marks	L2	CO1
	c.	Classify the different types of failures and how are they dealt in distributed systems?	5Marks	L3	CO1

Or

7	**a.**	List the characteristics of distributed system?	2Marks	L1	CO1

	b.	Describe the major issues in designing a distributed operating system?	3Marks	L2	CO1
	c.	Determine different types of transparencies required in distributed systems?	5Marks	L3	CO1
8	**a.**	Define Failure Transparency.	2Marks	L1	CO1
	b.	Consider statement "distribution transparency may not be in place for pervasive systems. ". Revive this statement with suitable example.	3Marks	L2	CO1
	c.	If a client and a server are placed far apart, we may see network latency dominating overall performance. Examine how can we tackle this problem?	5Marks	L3	CO1
		Or			
9	**a.**	Define concurrency in Distributed Systems.	2Marks	L1	CO1
	b.	Explain evolution steps involved in Distributed Systems timeline.	3Marks	L2	CO1
	c.	A search engine is a web server that responds to client requests to search in its stored indexes and (concurrently) runs several web crawler tasks to build and update the indexes. Illustrate What are the requirements for synchronization between these concurrent activities?	5Marks	L3	CO1
10	**a.**	Define Message passing system.	2Marks	L1	CO2
	b.	Discuss a typical message structure in message passing system.	3Marks	L2	CO2
	c.	List out desirable features of message passing system elaborately discuss about each feature.	5Marks	L3	CO2
		Or			
11	**a.**	Define layering in networking.	2Marks	L1	CO2
	b.	Differentiate IPC and RPC.	3Marks	L2	CO2
	c.	"Apply the concept of Remote Procedure Call (RPC) to explain how two systems can communicate over a network. Illustrate the process with a diagram, and provide a real-world example where RPC is used."	5Marks	L3	CO2

12	**a.**	Define distributed shared memory	2Marks	L1	CO2
	b.	Discuss on DSM with suitable diagram	3Marks	L2	CO2
	c.	"Using the concept of Distributed Shared Memory (DSM), analyze how you would design and implement a DSM system for a distributed application. Address key issues and suggest solutions for each.	5Marks	L3	CO2

Or

13	**a.**	Define Marshalling.	2Marks	L1	CO2
	b.	List out the issues in designing a good message passing system.	3Marks	L2	CO2
	c.	Apply the concept of RPC messages to design the communication protocol between a client and a server in a distributed system. Explain how the request and response messages would be structured and how errors or exceptions would be handled.	5Marks	L3	CO2