



SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: D1

Programme Name & Branch : BTech-IT
Course Code and Course Name : BITE 402L-Distributed Computing
Faculty Name(s) : Dr.S.Prasanna, Dr.Bhavani.S, Dr.Sudha.M
Class Number(s) : VL2024250503047,3054,3036
Date of Examination : 30.01.2025
Exam Duration : 90 minutes
Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes (CO)
 1. Identify the core concepts of distributed systems: the way in which several machines orchestrate to correctly solve problems in an efficient, reliable and scalable way.
 2. Analyse the core architectural concepts to meet the challenges in implementing distributed systems.
 3. Examine important approaches in distributed systems to support synchronization and fault tolerance.

Q.No.	Question	Max Marks	CO	BL
1.	A user arrives at an Airport that he has never visited previously, carrying a smart PDA that is capable of wireless networking. In the context of this real time scenario, to what extent the needs of openness differ from those of heterogeneity outline the possible interaction model with an assumption of time bound interaction, with no bounds on time and for time bound service what are the possible timing failures.	10	CO1	BL2
2.	A global e-commerce firm utilizes a distributed system to oversee its activities in various areas. This system consists of the following components: • A front-end web server that processes user inquiries. • A back-end database that is mirrored across regional servers. • A payment gateway system that works seamlessly with several external payment providers. To facilitate efficient operations, the distributed system needs to uphold transparency in several dimension. To ensure smooth operations, the distributed system must maintain transparency in various aspects. Provide a detailed explanation of each type of transparency with examples.	10	CO2	BL1
3.	Explain the key elements of multi-tier architectural model and	10	CO3	BL1



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGE Act, 1956)

REG.NO.:

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2024-2025

SLOT: D1

	design the three-tier architecture model for the online bookstore platform and address the role of each component in the system. Also, with neat sketch illustrate how the elements interact with each other to facilitate the overall functionality and performance of the distributed computing?			
4.	Explain the concepts of External Data Representation (XDR), marshalling, and unmarshalling. Provide a real-time example to illustrate the marshalling and unmarshalling processes in a distributed system, including the use of XDR and list the challenges associated with marshalling and unmarshalling.	10	CO1	BL3
5.	A travel agency aims to establish a distributed system that enables customers to remotely search for available flights and book tickets. This system will include a central server responsible for storing flight information and managing bookings. Outline the steps to set up the server and register it with the RMI registry. How a client can connect to the server, look up flights to "Paris," and reserve a ticket if a flight is accessible. Describe the RMI architecture with a simple diagram showing the interaction between the client and server.	10	CO	BL2