Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (W), Mumbai : 400058, India

(Autonomous College of Affiliated to University of Mumbai)

End Semester Examination

July 2023

Maxi Marks: 100 Duration: 3 hours

Class: M.Tech. Semester: II

Branch: COMP

Name of the course: Distributed Computing Systems

Q No		Max Marks	CO	BL
Q.1 (a)	What are the different distributed computing models? Explain with suitable diagram.	10	1	3
(b)	What is the global state of the distributed system? How to design the efficient method to design recording the global state of the distributed system?	10	1	3
Q. 2 (a)	Construct with neat diagrams and give example of different forms of communication, such as persistent asynchronous, persistent synchronous, transient asynchronous, receipt based transient synchronous, delivery based transient synchronous, and response based transient synchronous communication.	10	2	4
(b)	Why is it difficult to keep the synchronized system of physical clocks in distributed system? Justify your answer with appropriate examples.	10	2	4
Q.3 (a)	Explain the Ricart Agrawala algorithm with respect to requesting the critical section, executing the critical section and releasing the critical section. Give the correctness of Ricart Agrawala algorithm for achieving mutual exclusion.	10	3	3
(b)	What is deadlock in distributed systems? Explain the Knapp's classification of distributed deadlock detection algorithm. OR Explain the models of deadlocks on distributed systems?	10	3	3
Q.4 (a)	What are the challenges in Peer to Peer system design? How to resolve these challenges using appropriate examples?	10	4	3
(b)	Explain the data indexing and overlays with the help of examples.	10	4	3
Q5. (a)	What are the generic elements of block chain? Explain in detail working of block chain.	10	5	3
(b)	Explain in detail decentralization using block chain.	10	5	3