Anna University, Chennai-25

Department of CSE, College of Engineering, Guindy.

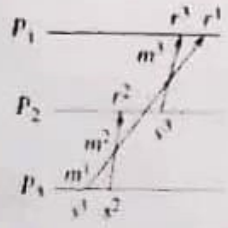
CS6303 – Distributed Systems

Mid Semester Assessment

Class : V Sem B.E., CSE
Date : 21.05.2022

Max.Marks : 50
Duration : 1 ½ hrs

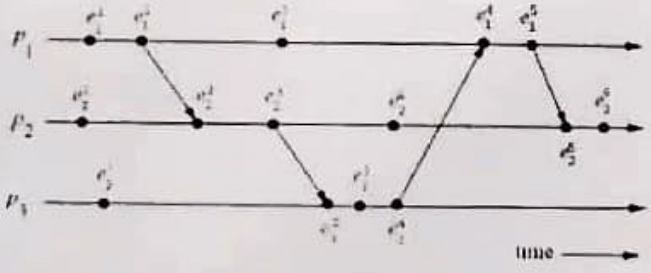
Part A (5 × 2 = 10)

1	Define Distributed Systems. State its characteristics	CO1
2	How do you differentiate a distributed systems from parallel multi-processor systems?	CO1
	Define Global State and when does it become strongly consistent	CO2
	State the various types of mutual exclusion algorithms in distributed mutual exclusion.	CO3
		CO2

Is the above state is satisfying CO? Justify your answer. Is there any crown present? if so indicate.

Part B (3 × 10 = 30)

Answer any three

6 (i)	How do you emulate message passing on shared memory and shared memory on message passing?	4	CO1
6 (ii)			CO2

a. For the above Space-Time diagram, indicate causal dependencies and its precedence. Identify concurrent relations also. 3

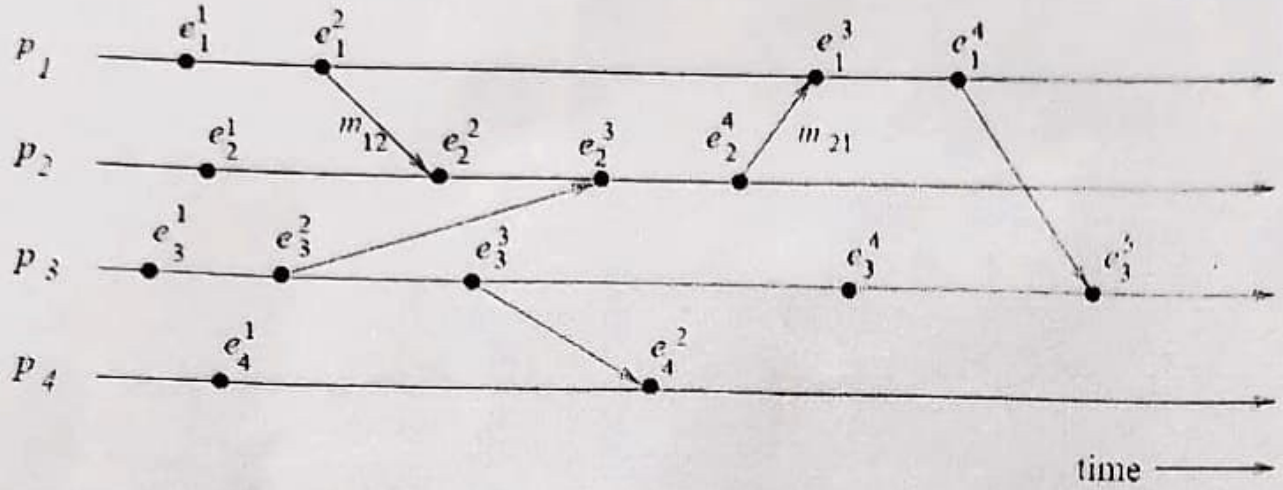
b. Find out a consistent global state and mark a 'Cut' that sustain consistency. 3

7	State and explain RST algorithm of Group communication and explain how this algorithm preserves properties of group communication	10	CO2
8	State and Explain Chandy-Lamport's snapshot algorithm with reasonable example.	10	CO2
	Explain Quorum based mutual exclusion in distributed systems using Maekawa's algorithm	10	CO3

Part C (1 × 10 = 10)

Compulsory

10 a Enumerate Scalar and Vector time for the given ST model — 5 — CO



10 b Assume that there are three sites in a distributed system where mutual exclusion by lamport is devised to control the concurrency in Critical Section. — 5

Let S1 and s2 both wants to enter into critical section and broadcasting request messages with time stamps (TS:1, S2)) and (Ts:2, S1). Later the site S3 wants to enter CS and broad cast its request. Illustrate this in state space diagram and determine how CS will be executed.