Register Number

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110
(An Autonomous Institution, Affiliated to Anna University, Chennai)
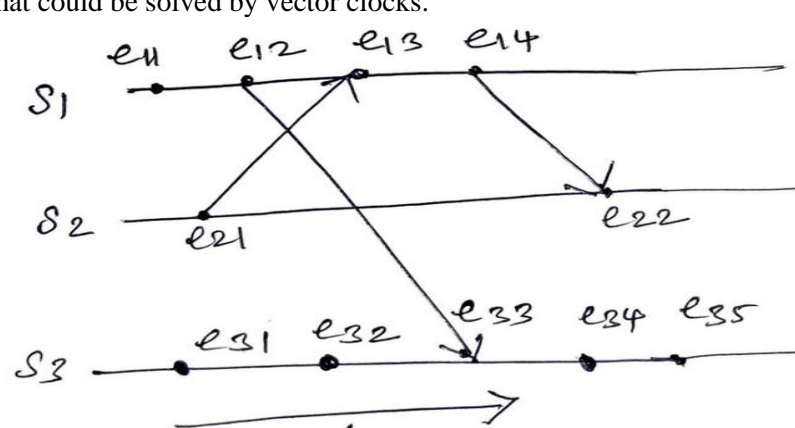## Department of Computer Science and Engineering
Continuous Assessment Test – I
Question Paper

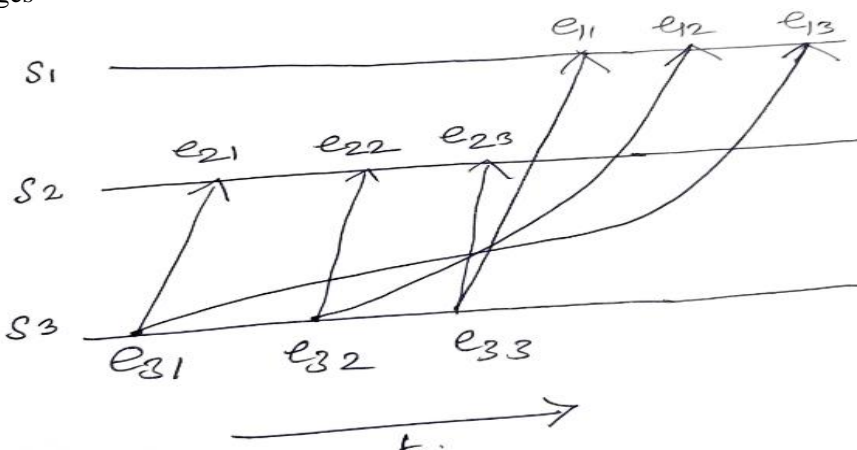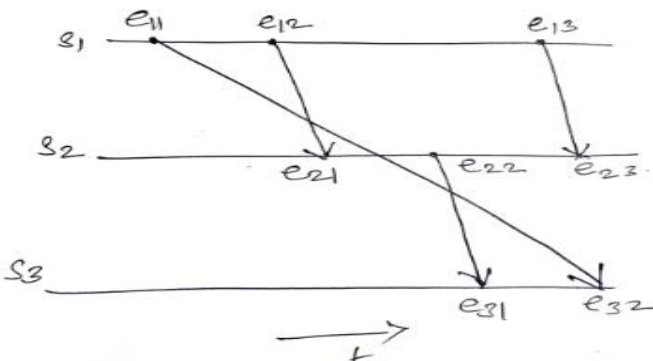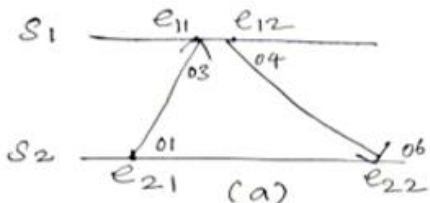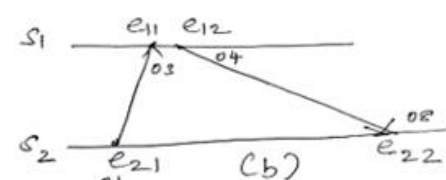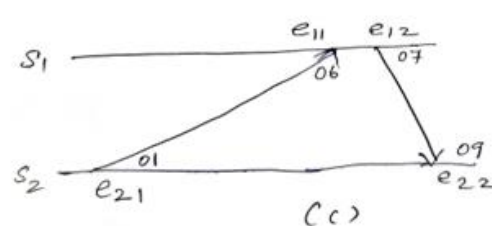| Degree & Branch	BE & Computer Science and Engineering		Semester	VII
Subject Code & Name	UCS1701- Distributed Systems		Regulation:	2018
Academic Year	2022-2023 ODD	Batch 2019-2023	Date 15-09-2022	FN / ~~AN~~
Time: 08:15 – 09:45 AM (90 Minutes)	Answer All Questions		Maximum: 50 Marks	

Part – A (6×2 = 12 Marks)

KL2	1. Outline the two important key issues of distributed systems.	CO1
KL1	2. Define concurrent events.	CO1
KL2	3. Outline the properties of "*happened- before relationship*".	CO1
KL3	4. Apply the logic of vector clock and comprehend the timestamp (3,4,2) at the system S2.	CO2
KL1	5. Define Cut.	CO1
KL3	6. Identify the reason for allowing the transit messages while recording global states.	CO2

Part – B (3×6 = 18 Marks)

KL2	7. Explain clock skew and clock drift with suitable examples and graphs.	CO1
KL2	8. Explain the types of global states and illustrate it using a time space diagram by marking them with appropriate cuts.	CO2
KL3	9. Apply Lamport's logical clock and vector clock algorithms for the given time-space diagram. Identify any set of events which portray the limitation of Lamport's logical clock, that could be solved by vector clocks.	CO2

Part – C (2×10 = 20 Marks)

KL3	10. For the given time-space diagram, apply suitable algorithm for the causal ordering of messages	CO2
	(OR)	
KL3	11. For the given time-space diagram, apply suitable algorithm for the causal ordering of messages	CO2
KL3	12. Apply Chandy Lamport's algorithm for global state recording in a fully connected bidirectional graph with three processes and demonstrate the method with necessary diagrams. *Note: Include random transactions between the processes during the run of the algorithm.*	CO2
	(OR)	
KL3	13. Apply physical clock synchronization algorithm for the following three cases and identify the case which gives relatively closer synchronization. Justify your answer.	CO2