SSN COLLEGE OF ENGINEERING, KALAVAKKAM – 603 110
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
B.E. Computer Science and Engineering
CS6601   DISTRIBUTED SYSTEMS

Date: 17.01.2018, 8.00-9.30 AM   UNIT TEST – 1   Max. Marks: 50
Academic Year: 2017-2018 EVEN   **Batch: 2015-2019**
Semester: 6.   Faculty: **Mr. H.Shahul Hamead & Ms. Y.V.Lokeswari**

PART – A (5X2 =10 Marks)

1. How does the absence of Global clock affect the distributed system   **(K2, CO1)**
2. Define Distributed System   **(K2, CO1)**
3. What is a Middleware? Give some examples   **(K2, CO2)**
4. Give an example of Distributed computing as a utility?   **(K2, CO1)**
5. Mention any two applications of distributed systems   **(K2, CO1)**

## PART – B   (24 Marks)

6. **Illustrate the working of Chandy Lamport's Global state recording protocol with step by step traces having at least 3 processes and 2 incoming channels for the initiator process.** **(K3, CO4) (16)**

OR

7. **Elucidate the design challenges in distributed systems.**   **(K2, CO1) (16)**

8. **What is drawback of physical clock? Explain Cristian's algorithm for synchronizing physical clock.** **(K2, CO4) (8)**
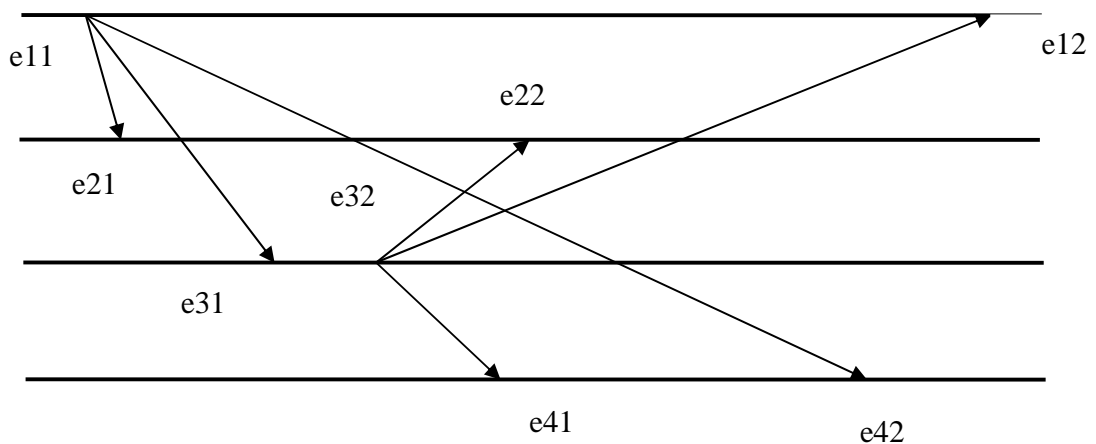
OR

9. **What is a Cut? Draw the following space-time diagram, number the events and mark the following cuts separately.** **(K2, CO4) (2)**
   a. Inconsistent Cut.   (2)
   b. Consistent Cut.   (2)
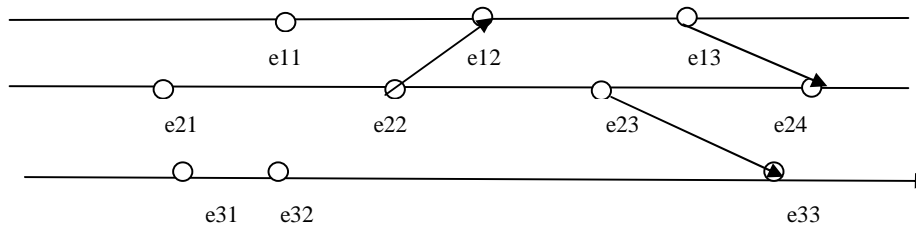   c. Strongly Consistent Cut.   (2)
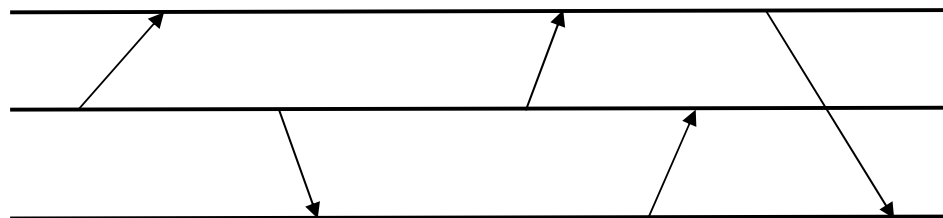
10. **For the following Time Space diagram, ensure the causal ordering of messages using Broadcast message ordering protocol.** **(K3, CO4) (16)**

(P.T.O)

OR

11. Consider the following Time Space diagram, and answer the following questions.
(K3, CO4)

a) Compute Lamport's Logical Clock values for all the events (2)
b) Compute Vector clock values for all the events (4)

c) Show that the limitations of Lamport's clock can be resolved using vector clocks by choosing any appropriate events (4)

d) What does the set of clock values $C(i,j,k)$ at any event represents for Process P_j in Vector Clock ? (2)

e) Identify and prove a pair of concurrent events in the above space-time diagram. (4)

Prepared By   Reviewed By

H. Shahul Hamead   HOD / CSE

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