

B. Tech Continuous Assessment

Tutorial -1

Total: 20 marks

Answer All Questions

1. a) Define Distributed system and list the design goals of DS [2m]
- b) List the types of transparencies. Can you achieve full distribution transparency? Justify your answer? [3m]

OR

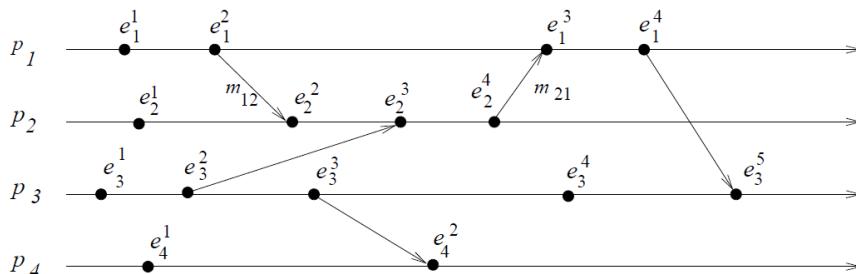
1. a) List the various techniques used for scaling in a distributed system. [2m]
- b) Which type of scaling technique leads to inconsistencies in distributed system? Why? [3m]

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2. Explain the traditional three layered architecture with Search engine model as example. Label the layers and components clearly. [5m]

OR

2. a) List the names of the 4 versions of **Send ()** primitive and draw the respective figures. [3m]
- b) Synchronous *Send* lowers the efficiency. Why? [1 m]
- c) Which primitive is useful when a large data item is being sent? Why? [1 m]

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3. a) Define a Consistent Global State. [1m]
 - b) Identify a consistent Global state and inconsistent Global state from the give figure. [3m]



OR

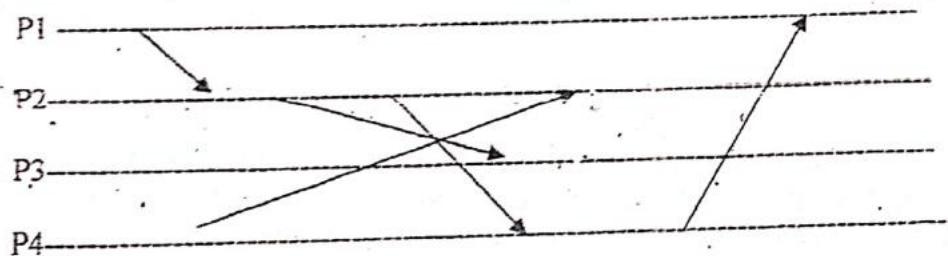
3. a) Name the Global snapshot algorithms for FIFO, Non-FIFO, and Causal ordering channels respectively. [1m]

b) State the two conditions to be satisfied while taking Global snapshot. Based on these conditions, prove the correctness of “Chandy-Lamport algorithm.” [4m]

4. a) Why clock synchronization is necessary in distributed system? [1 m]

b) Write two rules a process P_i uses to update its vector clock [1m]

c) Consider the 4 process and the various events in it. Label the events with your own choice and write the vector clock of each event correctly. (The clock of each process starts from 0) [3 m]



OR

4. a) Describe monotonicity, total ordering and Strong consistency properties in terms of Scalar time. [2m]

b) Consider the given set of processes and event with their vector timestamps. Redraw the scenario by reducing the overhead using “Singhal-Kshemkalyani’s Differential Technique.” [3m]

