

**B.E. INFORMATION TECHNOLOGY FOURTH YEAR FIRST SEMESTER – 2024**

**DISTRIBUTED COMPUTING**

Time : Three hours

Full Marks: 100

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**CO1(20):** (a) Explain Distributed MIS algorithm for a (a) Star Graph (b) Ring Graph and (c) Complete Graph. (12)

(b) Explain Local and Global clock. (3)

(c) Discuss on the number of message passing of a leader election algorithm for a ring network. (5)

**CO2 (20):** (a) What do you mean by global state and local state in distributed network. (5+5)

(b) How snapshot recording help to achieve termination (10)

**CO3(15):** a. What are the differences between Centralized and Distributed Mutual Exclusion? (7)

b. How mutual exclusion achieved in distributed setup? (8)

OR

a. Explain the different types of mutual exclusion Algorithms. (8)

b. Explain the procedure how the clocks affect mutual exclusion. (7)

**CO4 (15):** a. Explain weight for graph for Distributed Deadlock Detection with an example. (5)

b. What is AND and OR model, explain with example. (5)

c. What is the purpose of edge caching algorithm. (5)

OR

a. What is a cycle and a knot? How these effect deadlock? (4+3)

b. How Chandy-Misra-Haas Algorithm detects deadlock? What is its performance metrics? (5+3)

**CO5 (15):** a. How cache consistency is achieved in distributed environment. (8)

b. How file modification notification is send in distributed systems? (7)

[ Turn over

OR

- a. To eliminate network traffic, what techniques are used to put the cache. (10)
- b. Explain the purpose of file replication. (5)

**CO6(15):** a. How concurrency control ensures transactions are serializable. (8)

b. How atomic commit is guaranteed in distributed transaction. (7)

OR

- a. What are the challenges for atomic commit protocol? (7)
  - b. How agreement is achieved through consensus algorithm? (8)
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