

**B.E. (Computer Engineering)
DISTRIBUTED SYSTEMS**

(Semester - I) (2015 Pattern) (410245 - A) (Elective - II)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable data if necessary.

Q1) a) Explain what is scalability in distributed system? What are the challenges to design scalable distributed system? [5]

b) Define transparency in distributed system with it's type. [5]

OR

Q2) a) Differentiate between central scheduler Vs distributed scheduler. [5]

b) Explain happened before relationship in a distributed system for logical clock. [5]

Q3) a) Explain fundamental models in distributed systems. [5]

b) Explain the problems in the area of physical clock synchronization. [5]

OR

Q4) a) Explain properties of consistent snapshots in distributed system. [5]

b) Explain Lai-Yang algorithm in detail. [5]

Q5) a) Explain the problems of distributed consensus in the presence of failures. [9]

b) Explain PAXO's algorithm in detail. [8]

OR

Q6) a) What is distributed transaction? How the transactions are classified? What are the properties that all transactions must satisfy? [9]

b) Explain the methods of implementing transactions. [8]

P.T.O.

Q7) a) What is an atomic multicast? Discuss the feasibility of implementing atomic multicast using unicast. [8]

b) Explain client centric consistency protocol in detail. [9]

OR

Q8) a) Write short note on IP multicast. [8]

b) Discuss in brief, main types or orderings in the context of ordered multicast. Explain how to implement any one of the ordered multicast in detail. [9]

Q9) a) Explain the challenges for distributed simulation. [8]

b) Explain the security mechanism to thwart various attacks in distributed system. [8]

OR

Q10)a) Explain in detail skip graph for P2P applications. [8]

b) Explain what is Bit-torrent and free riding. [8]

