

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID :110701**

Roll No.

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**B.Tech.**

(SEM. VIII) THEORY EXAMINATION 2013-14

**DISTRIBUTED SYSTEMS**

*Time : 3 Hours*

*Total Marks : 100*

**Note :- Attempt all questions.**

1. Attempt any **four** parts of the following : (4×5=20)
  - (a) What do you mean by Distributed System ? Explain the inherent limitations of distributed system.
  - (b) What do you mean by causal ordering of messages ? Write a suitable algorithm for causal ordering of messages.
  - (c) What is Lamport's Logical clock ? Explain the limitations of Lamport's logical clock.
  - (d) Explain Vector clocks ? Explain implementation rules used for implementing vector clocks.
  - (e) What is Global State ? Explain Different types of Global States ?
  - (f) Explain advantages and disadvantages of Distributed System.
  
2. Attempt any **four** parts of the following : (4×5=20)
  - (a) Differentiate between Token and Non Token based Algorithms with example.
  - (b) What do you mean by Mutual Exclusion in Distributed System ? Explain performance measures used for evaluating Mutual Exclusion Algorithm.



- (c) Differentiate between Resource and Communication Deadlock. Explain Path Pushing algorithm in brief.
  - (d) Differentiate between Centralized Distributed Deadlock Detection Strategies.
  - (e) Explain Resource and Communication Deadlock. Explain Path Pushing algorithm in brief.
  - (f) Explain Edge Chasing Algorithm Deadlock Detection Algorithm in detail.
3. Attempt any **two** parts of the following : (2×10=20) ( )
- (a) What are Agreement Protocols ? Differentiate between Byzantine Agreement Problem, Consensus Problem, and Interactive Consistency Problem.
  - (b) What do you mean by Distributed File System ? Explain 3 mechanisms used for implementing Distributed File System.
  - (c) What do you mean by Distributed Shared memory ? Explain 2 algorithms used for implementing Distributed Shared Memory.
4. Attempt any **two** parts of the following : (2×10=20)
- (a) What is Checkpoint ? Explain one Checkpoint algorithm in detail.
  - (b) Differentiate between Forward and Backward Recovery Technique. Explain Orphan Message and Domino Effect with example.
  - (c) Explain Dynamic Voting Protocol in detail.
5. Attempt any **two** parts of the following : (2×10=20)
- (a) Explain optimistic concurrency control protocol in detail.
  - (b) Differentiate between Flat and Nested transactions. Explain 2 phase commit protocol in detail.
  - (c) Write short notes on the following :
    - (i) Transaction with replicated data.
    - (ii) Group communication.