

Printed Pages : 3



ECS701

(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, 2014-15  
**DISTRIBUTED SYSTEM**

Time : 3 Hours]

[Total Marks : 100

Note : Attempt All Questions. All Question carry equal marks.

1. Attempt any four of the following: [5x4l
  - a) What are the inherent limitation of distributed shared system and shared memory?
  - b) How resource sharing is done in distributed system?
  - c) What is a distributed system? Explain with an example.
  - d) What do you mean by causal ordering of messages?
  - e) How does Vector clock overcome the disadvantages of Lamport clock? Explain with an example.
  - f) What do you mean by global state? Differentiate between consistent and strongly consistent global state?

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[ Contd...

2. Attempt any four of the following: [5×4]

- a) Differentiate between token and non-token based algorithms?
- b) What are deadlock handling strategies in distributed systems? What is control organization for distributed deadlock detection? Discuss an algorithm which can remove phantom deadlocks?
- c) Explain the classification of distributed mutual exclusion.
- d) What are the performance metrics for distributed mutual algorithms? Explain with example.
- e) Explain any one Token and non-token based algorithm.
- f) Explain Remote object reference and remote interface.

3. Attempt any two of the following: [10×2]

- a) Write short notes on the following
  - (i) Fault tolerant services
  - (ii) Highly available services
- b) Compare and contrast between different concurrency control techniques for transaction.
- c) What do you mean by two phase locking? How is it different from strict two phase locking? Explain.

4. Attempt any four of the following : [10×2]
- a) What do you mean by agreement protocols? List all the agreement protocols and the differences between them.
  - b) Explain Lamport Shostak Pease algorithm. Solve it for when no of processors are 5 and no of faulty processors is one.
  - c) Answer the following :
    - i) Show that byzantine agreement cannot be reached among four processors when two are faulty.
    - ii) Explain the difference between Ho-Ramamoorthy two phase and one phase algorithm. Explain with example.
5. Attempt any two of the following : [10×2]
- a) Explain two phase commit protocol. Is it centralized or decentralized protocol? Design a de-centralized two-phase commit protocol where no site is a co-ordinator.
  - b) How check point is useful in the recovery procedure in distributed systems? Explain with an example. Also explain the domino effect.
  - c) Which protocol do you suggest when there is a network partition? Explain its variants as well.