Paper Code: CS-701

Roll No. | | | | | | | | | | |

B.TECH
SEVENTH SEMESTER EXAMINATION, 2016-17
DISTRIBUTED SYSTEMS

[Time: 3 hrs.] [Max. Marks: 100]

Note: Attempt ***ALL*** questions. Assume suitable data, if required. All question carry equal marks.

1. Attempt any *four* part of the following:- **(5x4=20)**

(a) What are the architectural models of distributed system?
(b) How distributed system is different from parallel systems?
(c) What do you understand by mutual exclusion?
(d) Write down the issues in fault tolerance.
(e) What is lock? Describe the functions of lock manager.
(f) What is distributed transaction and how transactions are recovered from the failure?

2. Attempt any *two* part of the following:- **(10x2=20)**

(a) As the scope and scale of distributed systems and applications is extended, challenges are likely to be encountered. What are all these challenges in distributed systems?
(b) Explain the working of Lamport's logical clock. When already we have Lamport's logical clock why we switch to vector clock?
(c) What is distributed file system? What makes it different from conventional file system?

3. Attempt any *two* part of the following:- **(10x2=20)**

(a) Various models are used for building distributed systems. What are the classifications of distributed system model?
(b) What is the centralized approach for mutual exclusion? Explain with example and draw a diagram if needed.
(c) Explain deadlock prevention, avoidance, detection and resolution in detail.

4. Attempt any *two* part of the following:- **(10x2=20)**

(a) Describe Byzantine agreement problem, Consensus problem and explain solution to Byzantine agreement problem.
(b) What is forward and backward recovery? Explain commit protocols.
(c) Define:
    (i) Optimistic concurrency control
    (ii) Timestamp

5. Attempt any *two* part of the following:- **(10x2=20)**

(a) What is performance metric for distributed mutual exclusion algorithms? Explain Lamport mutual exclusion algorithm.
(b) What is token based and non-token based algorithms. List all of them and explain any token based algorithm.
(c) What are the applications of agreement problem? Discuss the architecture of distributed shared memory and its advantages.