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Sub Code: NCS701
Roll No. | | | | | | | | | | |

B.TECH
(SEM VII) THEORY EXAMINATION 2018-19
DISTRIBUTED SYSTEMS

Time: 3 Hours *Total Marks: 100*

Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. What are the web Challenges involved in distributed system.
b. Explain system model.
c. What is distributed Deadlock?
d. What do you mean by commit protocol
e. State time stamp ordering.
f. Explain the concept of shared memory
g. Define fault and failure in distributed system
h. Explain token based algorithm
i. What do you mean by agreement protocol?
j. Explain the effect of replicated data in transactions.

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. State the Classification of distributed mutual exclusion. What is requirement of mutual exclusion theorem?
b. What do you understand by Byzantine agreement problem?
c. Give the Design issues in Distributed Shared Memory state the Algorithm for Implementation of Distributed Shared Memory.
d. Explain the limitations of Distributed system with example.
e. Define forward and backward recovery. Also list the advantages and disadvantages of both.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) What is token based algorithm and non-token based algorithm in Distributed system? Explain with example.
(b) What are Distributed Systems? What are significant advantages and applications of Distributed Systems?

4. Attempt any *one* part of the following: **10 x 1 = 10**

(a) What are Lamport logical clocks? List the important conditions to be satisfied by Lamport logical clocks. Discuss the limitations of Lamport logical clocks.
(b) Explain the mechanism of building distributed file systems also explain the Design issues in Distributed Shared Memory.

5. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) How distributed mutual exclusion is different of mutual exclusion in single computer system? How the performance of mutual exclusion algorithm is measured?

(b) Discuss the following in terms of distributed system

(i) sequential consistency (ii) highly available services

6. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) Explain typical architecture of distributed file system. State the Algorithm for Implementation of Distributed Shared Memory.

(b) What is Byzantine agreement problem? Provide the Solution to Byzantine Agreement problem .

7. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) What are the different validation conditions for optimistic concurrency control? How it effects the transactions in distributed system.

(b) Explain distributed transactions. Discuss the functionality of Flat and nested distributed transactions with example.