Paper Code: MCA-E15	Roll No.									

MCA
(SEM IV) EVEN SEMESTER EXAMINATION, 2015-16
DISTRIBUTED SYSTEM

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

Note: - Attempt all questions. All questions carry equal marks.

1. Attempt any two parts of the following:- **[10x2=20]**

(a) Why would you design a system as a distributed system? List some advantages of distributed systems.
(b) Give a definition of middleware and show in a small diagram where it is positioned?
(c) What do you understand by Lamport's and Vector logical clock?

2. Attempt any two parts of the following:- **[10x2=20]**

(a) Differentiate token based and non-token based algorithms for the mutual exclusion.
(b) What are the basic conditions for the presence of deadlock in a distributed system?
(c) What is the performance metric for the performance analysis of mutual exclusion algorithm?

3. Attempt any two parts of the following:- **[10x2=20]**

(a) What is the Bully algorithm for the election of coordinator process? Explain its process with the help of an example.
(b) Discuss the architecture of distributed file system. What procedure is used for mounting a name space in distributed file system?
(c) How can you order the transactions using the Optimistic Concurrency control method?

4. Attempt any two parts of the following:- **[10x2=20]**

(a) Discuss Concept of Backward and Forward recovery in Concurrent Systems?
(b) Discuss the role of check pointing in recovery techniques.
(c) Write Short notes on the following :-
(i) Dynamic voting Protocols.
(ii) Consistent Checkpoints.

5. Attempt any two parts of the following:- **[10x2=20]**

(a) How can you order the transaction using the time stamp ordering algorithm.
(b) What is database locking? Differentiate static locking scheme and the two phase locking scheme.
(c) What are commit protocols? Explain how two-phase commit protocols respond to failure to participating site and failure of coordinator.