Reg. No.

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (COMPUTER SCIENCE & ENGINEERING)
END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: DISTRIBUTED COMPUTING SYSTEMS [CSE 401]
REVISED CREDIT SYSTEM
(25/11/2016)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:
- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data may be suitable assumed.

1A.	Explain the failure model of a distributed system.	**5M**
1B.	With a diagram explain the role of different modules in the implementation of RMI	**3M**
1C.	Consider a simple server that carries out client requests without accessing other servers. Explain why it is generally not possible to set a limit on the time taken by such a server to respond to a client request. What would need to be done to make the server able to execute requests with in a bounded time?	**2M**
2A.	Explain the actions that are taken to handle different types of process to resource binding and resource to host binding during process migration.	**5M**
2B.	Explain how client side caching is implemented in NFS to achieve better performance	**3M**
2C.	A null RMI delays the caller for 2.0 milliseconds. In the same RMI system, each 1K of user data adds an extra 1.5 milliseconds. A client wishes to fetch 32K of data from a file server. Should it use one 32K RMI or 32 1K RMIs?	**2M**
3A.	Explain how DNS addresses the following name service requirements i) Arbitrary number of names ii) Long life time iii) High availability	**5M**
3B.	Explain with a diagram Needham-Schroeder authentication protocol.	**3M**
3C.	With an example explain merging of two name spaces in GNS.	**2M**
4A.	With a diagram explain how Network Time Protocol is used to maintain synchronization between a host and a time server.	**4M**
4B.	With a diagram explain Token Ring algorithm for mutual exclusion. Compare the performance with centralized mutual exclusion algorithm.	**4M**

4C. Suppose that two processes detect the demise of the coordinator simultaneously and both decide to hold an election using the bully algorithm. What happens? **2M**

5A. Explain following content replication and placement types of replica..
  i)   Server initiated replicas   ii) Client initiated replicas.

5M

5B. With a diagram explain monotonic read consistency data store. **3M**

5C. It is often argued that weak consistency models impose an extra burden for the programmers. Why? **2M**

6A. Discuss the problems arise when the basis 2- Phase Commit protocol is used in a system due to the failure of the coordinator and the participants. **5M**

6B. Explain Independent and coordinated check pointing methods. **5M**