Roll No .....

MCIT - 202

M.E./M.Tech., II Semester

Examination, July 2015

Distributed Computing

Time : Three Hours

Maximum Marks : 70

Note : i) Total No. of Questions 8.
ii) Attempt any five questions.

1. a) Discuss briefly key challenges that one needs to address in the design and development of distributed applications.
   b) What do you mean by internetworking? Explain about the various interconnection technologies?

2. a) Write a simple RMI program that demonstrates the invocation of remote object services, for example, when a client sends a message "ping", the server responds with "pong".
   b) What are design issues of group communication?

3. a) Explain the file server interface and the directory server interface in a distributed file system design.
   b) Explain freezing mechanism and address space transfer mechanism used in process migration.

4. a) Explain the types of failures caused when implementing a token passing approach in mutual exclusion.
   b) Explain the terms user threads and kernel threads, using these define the various types of multi-threading models with example.

5. a) A distributed system has 3 nodes N_1, N_2 and N_3 each having its own clock tick 800, 810 and 795 times per millisecond. The system uses external synchronization mechanism in which all three nodes receive the real time every 30 seconds from an external time source and read just their clocks. What is the maximum clock skew that will occur in this system?
   b) Write some of the advantages of process migration.

6. a) Describe DTS. How DTS is used to synchronize the clocks of a network of computers running DCE?
   b) Describe the DFS file system model.

7. a) Briefly describe various concurrency control algorithms for atomic transactions.
   b) What is consistency model? Discuss various types of consistency models.

8. Write short note (Any Four) :
   a) Distributed Multimedia systems
   b) Process management in MACH system
   c) RPC
   d) Mutual exclusion in distributed environment
   e) Digital signatures

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