Roll No .....

MCTA - 205

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

Examination, June 2013

Distributed System

Time : Three Hours

Maximum Marks : 70

Note : *Attempt any five questions.*

1. a) Discuss about software and hardware service Layers in distributed systems.
   b) Explain distributed application based on the Peer-to-Peer Architecture.

2. a) Describe Design Requirements for Distributed Architecture.
   b) Discuss about IP-Multicast Communication.

3. a) List out the various communication failures in handling remote objects. Why do these failures happens and give your suggestions to overcome such failures.
   b) Design a distributed notification Architecture for different devices such as laser printer, voice phone and line printer for handling events like managing four different subscribers to use them. Discuss on Roles, events of participating objects and subscribers.

4. a) Discuss in brief the architecture and principles of monolithic kernel and microkernel as well the major differences between both.

   b) How process and thread are implemented in UNIX Operating System.

5. a) Derive a simple "Clock resolution" Algorithm which can interrupt various Networked clock devices and generate a resolution for synchronizing different time stamps.
   b) Explain how Lamport's logical clock is beneficial in managing process entry to a critical section.

6. a) How does CORBA concurrency control help in avoiding dead lock.
   b) In multiversion time stamp ordering, read operations can access tentative version of objects. Give an example to show how cascading aborts can happen if all read operations are allowed to proceed immediately.

7. a) Assume four replica managers, where each can be managed by a Transaction T. T performs either read or a write operation on any Manager at a time. If any one or more manager is busy indefinitely or falls suddenly for a period of time 'f' how can this issue be resolved.
   b) If Diffie-Hellman scheme could be used for key authentication instead of RC4 stream cipher algorithm for IEEE 802.11 (Wi Fi) Group communication, provide your analysis and possible suggestions as how security can be improved.

8. Write short notes on Any four:
   i) Cryptography Pragmatics
   ii) Gossip Architecture
   iii) File Service Architecture
   iv) Two-phase commit protocol
   v) RPC

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