



Distributed Systems (1020)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Answer **any five** questions.
5. Neat diagrams must be drawn wherever necessary.

1. a) What is a distributed system ? Explain different types of distributed systems. **10**
b) What is a system architecture ? Explain centralized, decentralized and hybrid architectures with advantages and disadvantages. **10**
2. a) Write short notes on **10**
i) Multithreaded servers.
ii) Architectures of virtual machines.
b) Explain the steps involved in doing a remote computation through RPC. What are the problem occurs in passing value parameters in a large distributed system ? **10**
3. a) Explain the mutual exclusion algorithms. What are the problems associated with mutual exclusion algorithms ? **10**
b) Explain the Lamport's logical clock synchronization algorithm in detail with example. **10**
4. a) Discuss the monotonic reads and monotonic writes client centric consistency models. **10**
b) What the is replication ? Explain the need of replication in a distributed system. **10**

5. a) What is fault tolerance ? How the state of a distributed system can be recovered by means of check pointing and message logging. 10
- b) Explain the reliable client server communication in distributed systems. 10
6. a) Explain cluster - based Distributed file systems in detail. 10
- b) Explain the NFS security architecture with neat diagram. 10
7. a) Explain the synchronization issues in distributed file systems. 10
- b) Explain the taxonomy of coordination models in distributed Coordination - based systems. 10
8. a) What is content - based routing ? Explain with the help of example. 10
- b) Write short note on. 10
- i) Flat naming
- ii) Structured naming
