15644

M. Tech 3rd Semester Examination

Distributed System

CSE1-E06

Time : 3 Hours   **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each section A, B, C & D. Section E is compulsory.

SECTION - A

1. Explain the concept of Distributed System with its proper applications. What are its goals and also describe its general architecture.   (20)

2. How do you justify the self management in distributed processes? Specify its need by taking example of Globule and Jade.   (20)

SECTION - B

3. Construct a solution to reliable, totally ordered multicast in a synchronous system, using a reliable multicast and a solution to the consensus problem.   (20)

4. (a) What are the main issues in designing a transparent RPC? Is it possible to achieve complete transparency of an RPC mechanism?   (10)

   (b) Give the format of RPC call and Reply messages. (10)

[P.T.O.]

SECTION - C

5. (a) Describe the design requirement for a system to synchronize the clocks in distributed system? Justify your answer by taking proper example.   (10)

   (b) What are vector clocks? What are advantages of vector clock over Lamport's clock.   (10)

6. A file system allows links from one directory to another. In this way a directory can include a subdirectory. In this context, what is the essential criterion that distinguishes a tree structured directory system from a general graph structured system?
                                                        (20)

SECTION - D

7. How distributed operating systems are different? Discuss the characteristics that distinguish them from operating systems in the light of operating systems you have studied.   (20)

8. (a) What are the different types of caching? How Web proxy cache is different from any other caching.   (10)

   (b) Write the short note on Apache Web server.   (10)

SECTION - E

9. Answer short answer type questions:

   (a) Explain the group communication mechanism.

   (b) What are the desirable features of good naming system?

   (c) RPC in NFS

   (d) Write short note on Fault Tolerance.   (4×5=20)