MAY-24-0529
CS-602 (Distributed Operating System)
B.Tech-6th (CBCS)

Time : 3 Hours   Max. Marks : 60

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 each from Section A, B, C and D. Section E is compulsory.

SECTION-A

1. a) Discuss and compare Network Operating System and Distributed Operating System.   (5)

   b) Explain the Inter-process Communication (IPC) mechanism in the Distributed Operating System.   (5)

2. a) Discuss about the implementation of an RPC mechanism.   (5)

   b) Discuss the issues in designing of Distributed Operating System.   (5)

SECTION-B

3. a) Discuss the importance of clock synchronization in distributed system.   (5)

   b) Explain the bully election algorithm with suitable example.   (5)

4. a) Discuss the role of clock synchronization algorithms in distributed system. Also discuss the working of Berkeley Algorithm.   (5)

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   b) Describe techniques and methodologies for scheduling processes of a distributed system.   (5)

SECTION-C

5. a) Describe the important issues involved in the design and implementation of distributed shared memory system. (5)

   b) What is role of Consistency model? Discuss about the Strict Consistency Model and Sequential Consistency Model for distributed shared memory systems.   (5)

6. a) What do you mean by Thrashing? What are the situations to occur Threshing and how to deal with Threshing? (5)

   b) Discuss about the page based distributed shared memory in brief.   (5)

SECTION-D

7. a) What are the important services provided by distributed file system? Discuss.   (5)

   b) Describe the commonly used file models in the distributed systems.   (5)

8. a) What are the desirable features of a good distributed file system? Discuss.   (5)

   b) Discuss the security issues in distributed file system. (5)

SECTION-E (Compulsory)

9. a) What is Distributed Operating System?

   b) Give the advantages of distributed system over the centralized systems.

                                            [P.T.O.]

c) What care should be taken while designing an RPC system for a heterogeneous environment?

d) Differentiate between logical clock and physical clock.

e) Discuss the concept of centralized approach for mutual exclusion.

f) What are the four necessary conditions for a deadlock to occur? Discuss.

g) What are the advantages of distributed shared memory?

h) Design the general architecture of distributed shared memory system.

i) What are the benefits of replication of data in a distributed system?

j) Discuss in brief about file caching scheme in distributed file system.   (10×2=20)