15621

MCA 4th Semester Examination

Distributed Operating System (NS)

MCA-E41

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 : Candidates are required to attempt five questions in all selecting one question from each of the Sections A, B, C & D. Section-E is compulsory.

SECTION - A

1. What is distributed system? How does distributed operating system differ from a network operating system? Also discuss the issues in designing distributed operating systems.   (12)

2. (a) What are the desirable features of message passing system?   (6)

    (b) What is a datagram? Explain the mechanism of handling multiple datagrams in IPC.   (6)

SECTION - B

3. (a) Distinguish between different RPC communication protocols. Suggest one example where each protocol is used.   (8)

    (b) What is callback RPC? How does a server handle callback to the client?   (4)

4. What is consistency? Discuss various consistency models used in distributed shared memory systems.   (12)

[P.T.O.]

SECTION - C

5. What is clock synchronization? What are various issues in clock synchronization? Discuss centralized algorithms for clock synchronization.   (12)

6. Discuss the algorithms used for deadlock detection in distributed systems. Also describe the scenarios where each deadlock detection algorithm is preferred.   (12)

SECTION - D

7. (a) Explain the techniques for handling fault tolerance in Distributed File Systems.   (6)

    (b) Discuss the desirable features of a food DFS.   (6)

8. Explain various object locating mechanisms.   (12)

SECTION - E

9. (a) Differentiate between process-pool and workstation-server models for distributed systems.   (2)

    (b) What is null buffer? Explain.   (1)

    (c) Compare shared memory and distributed memory architectures.   (2)

    (d) RPCs execute well in heterogeneous environments. Justify.   (1)

    (e) Explain how SNTP differs from NTP.   (1)

    (f) Discuss process migration.   (1)

    (g) What is false sharing? Under what conditions is it likely to occur?   (1)

    (h) What is Ostrich algorithm? Explain.   (1)

    (i) Why does the bullet server have uncommitted and committed files?   (1)

    (j) List the major reasons for replication.   (1)