Important Questions of Distributed System(KCS – 077)

1. What are vector clocks? What are the advantages of vector clock over Lamport clock?

2. Explain design in use in distributed shared memory and also write algorithm for implementation of shared memory.

3. What are Agreement Protocols? What are Agreement and validity objectives of Byzantine Agreement Problems?

4. What are the goals of distributed transaction? Distinguish between flat and nested transaction along with its structure.

5. Explain Concurrency control in distributed transactions in detail .

6. Write Short note on **i)** Flat and nested transaction **ii)** 2pL and Strict 2pL.

7. What are the goals of distributed transaction? Distinguish between flat and nested transaction along with its structure.

8. What do you mean by agreement protocol? List all the agreement protocols and the difference between them.

9. What are Agreement Protocols? What are Agreement and validity objectives of Byzantine Agreement Problems?

10. Explain path pushing algorithm for distributed deadlock detection algorithm .

11. What are phantom deadlock ? Explain the algorithm which could detect phantom deadlock.

12. Explain Chandy-Lamport algorithm for consistent state recording.

13. What are distributed systems? Name two advantages and two disadvantages of distributed system over centralized ones.

14. Define Algorithm for Implementation of Distributed Shared Memory.

15. Explain Edge-Chasing Algorithms .

16. Explain Performance Metrics for Mutual Exclusion .

17. Define Algorithm for Implementation of Distributed Shared Memory.

18. Explain forward recovery and backward recovery in detail.

19. Explain optimistic concurrency control.

20. Explain main challenges of Distributed System .

21. What are phantom deadlock ? Explain the algorithm which could detect phantom deadlock.

22. Differentiate between Consensus, Interactive and Byzantine Problem.

23. Explain System Models in Agreement Protocol.

24. What is the Relationship Between Security and Fault Tolerance?

25. What is timestamp ordering ? Explain advantages and drawbacks of multiversion timestamp ordering.

26. What are Token based and non token based algorithm ? Explain Lamport's algorithm with example.

27. What is caching ? How it is useful in Distributed File System ?

28. Why is computer clock synchronization necessary ? Describe the design requirement for a system to synchronize the the clocks in a distributed system.

29. Explain the difference in centralized , distributed and hierarchical control organization for distributed deadlock detection .

30. Why is scalability an important feature in the distributed system? Discuss the some of the guidling principles for designing a scalable distributed system .

31. Explain how a non recoverable situation could arise if write locks are released after the last operation of a transaction but before its commitment .

32. Describe Majority Based Dynamic Voting protocol with example .

33. Explain briefly all of the key characteristics of a distributed system.

34. Differentiate between forward and backward recovery. Explain Orphan Message and Domino effect with example.

35. How distributed mutual exclusion is different of mutual exclusion in single computer system ? Explain Ricart Agrawala Algorithm.

36. Which protocol do you suggest when there is a network partition ? Explain it's variant as well.

37. Discuss any checkpoint and recovery algorithm that takes a consistent checkpoint and avoids livelock problems.

38 . Discuss the followings terms: i. Highly available services. ii. Sequential Consistency

39. Define fault tolerance . Describe in the brief, the methods to guard the system against the different kinds of fault.

40. What do you understand by Network file System(NFS) ? Clearly state the following features of NFS:

I. Stateless Server
II. Virtual file system.