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Question Paper Code : X10324

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021
Sixth Semester
Computer Science and Engineering
CS8603 – DISTRIBUTED SYSTEMS
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Why do we need a distributed system ?
2. List out the distributed system challenges.
3. Name the various message ordering paradigms used in distributed systems.
4. Define causal order execution.
5. What are the different models of deadlocks ?
6. What is the purpose of the wait-for-graph (WFG) ? Give an example for WFG.
7. What do you mean by local checkpoints ?
8. What is the drawback of a checkpoint based rollback recovery approach ?
9. List out the characteristics of P2P systems.
10. What is the difference between shared memory and distributed memory ?

PART – B **(5×13=65 Marks)**

11. a) i) How do you classify a parallel system and brief them ? **(8)**
    ii) Compare Synchronous versus asynchronous execution. **(5)**

(OR)

b) What are the functions must be addressed while designing and building a distributed system ? Explain.

12. a) Illustrate the necessary and sufficient conditions for causal ordering.

(OR)

b) Discuss in detail about Snapshot algorithms for FIFO channels.

13. a) Discuss in detail the requirements that mutual exclusion algorithms should satisfy and discuss what metric we use to measure the performance of mutual exclusion algorithms.

(OR)

b) List out the four classes of distributed deadlock detection algorithms and explain any two of them.

14. a) What are the key assumptions underlying while designing agreement algorithms and brief them ?

(OR)

b) Describe the issues involved in a failure recovery with the help of a distributed computation.

15. a) What do you understand about Content-Addressable Networks (CAN) ? Explain how it is useful in P2P networks.

(OR)

b) Describe in detail about Distributed Shared Memory (DSM) and its application.

PART – C **(1×15=15 Marks)**

16. a) What are the significant factors affecting the interacting processes in a distributed systems ? How the interaction model deals with the difficulty of setting time limits in a distributed system ? Explain.

(OR)

b) External synchronization ensures internal synchronization. But the vice versa does not stand true. Justify. Explain Lamport's algorithm in brief.

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