Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20424

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Sixth Semester

Computer Science and Engineering

CS 8603 — DISTRIBUTED SYSTEMS

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the features of distributed systems.
2. Differentiate between synchronous and asynchronous execution.
3. What is meant by group communication in distributed systems?
4. Write the applications of causal order.
5. Name the two types of messages used by Ricart-agrawala algorithm.
6. What are the conditions for deadlock?
7. Write the purpose of using checkpoints.
8. What do you mean by agreement problem in distributed system?
9. List the characteristics of peer to peer system.
10. Mention the three types of consistency model in DSM.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the design issues and challenges in distributed system from a system perspective.

Or

(b) Explain how a parallel system differs from a distributed system.

12. (a) Discuss in detail about Message ordering paradigms.

Or

(b) Explain the Chandy-Lamport snapshot algorithm.

13. (a) Explain Maekawa's algorithm for Mutual Exclusion in Distributed system and its drawback.

Or

(b) Discuss with suitable example to show that a deadlock cannot occur if any one of the four conditions is absent.

14. (a) Discuss the issues in failure recovery with an example.

Or

(b) List the agreement statements that should be followed in synchronous systems with failure.

15. (a) Define overlays and explain content addressable network.

Or

(b) Discuss the types of stronger consistency models. How do they differ from the weaker consistency models.

PART C — (1 × 15 = 15 marks)

16. (a) Show that in the Ricart-Agrawala algorithm the critical section is accessed in increasing order of timestamp.

Or

(b) What is consistency? Differentiate between sequential and causal consistency model. Discuss the strategies employed for replacement while the shared memory gets filled with replicated or migratory data.

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