CSE

Reg. No. :

Question Paper Code : 50435

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Sixth Semester

Computer Science and Engineering

CS 8603 – DISTRIBUTED SYSTEMS

(Common to: Artificial Intelligence and Data Science)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define distributed system.

2. What are the main differences between a parallel system and a distributed system?

3. Define asynchronous execution.

4. What are the two phases in obtaining a global snapshot?

5. Identify the three basic approaches for implementing distributed mutual exclusion.

6. Outline the wait-for graph (WFG).

7. What do you mean by checkpoint?

8. What are the difference between the agreement problem and the consensus problem?

9. List the advantages of unstructured overlays.

10. What is memory coherence?

PART B — (5 × 13 = 65 marks)

11. (a) Tabulate the Interaction of the software components at each processor in the distributed system.

Or

(b) Examine in brief about the two basic models of process communications synchronous and asynchronous.

12. (a) Discuss the operation of Privilege-based algorithms with a neat diagram.

Or

(b) Identify how individual local checkpoints can be combined with those from other processes to form global snapshots that are consistent.

13. (a) Recognize a distributed mutual exclusion algorithm as an illustration of the clock synchronization scheme.

Or

(b) Analyze the Correctness criteria of the deadlock detection algorithm.

14. (a) Indicate the several interesting features of the Manivannan-Singhal quasi-synchronous check pointing algorithm.

Or

(b) Compare the results and lower bounds on agreement on solving the consensus problem under different assumptions.

15. (a) Comprehend the classification of data indexing mechanisms in a P2P network.

Or

(b) List the seven advantages of distributed shared memory.

PART C — (1 × 15 = 15 marks)

16. (a) Discriminate the Lamport's bakery algorithm in detail by providing the same algorithm.

Or

(b) Infer the use of causal order in updating replicas of a data item in the communication system.

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