

Reg. No. :

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**Question Paper Code : 81176**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Fifth Semester

Computer Science and Engineering

CS 3551 – DISTRIBUTED COMPUTING

(Common to : Computer Science and Design / Computer Science and Engineering  
(Artificial Intelligence and Machine Learning) / Computer Science and Engineering  
(Cyber Security) / Computer and Communication Engineering / Artificial  
Intelligence and Data Science / Information Technology)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the types of distributed computing systems.
2. What is asynchronous execution in distributed computing? Give example.
3. Give the importance of logical clocks.
4. Name any two snapshot algorithms and its uses.
5. Write the ways to detect deadlock in distributed computing environment.
6. State the uses of broadcast algorithms.
7. What is redo and undo of a transaction?
8. List different types of possible failures of a transaction.
9. Define cloud computing.
10. State the uses of load balancing in cloud computing.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss on global state of a distributed system.

Or

(b) Write short notes on

- (i) Models of communication networks. (5)
- (ii) Types of distributed communications in distributed computing. (8)

12. (a) Give an account on message ordering paradigms in distributed computing.

Or

(b) Explain with respect to distributed computing

- (i) Group communication. (5)
- (ii) Scalar and vector time. (8)

13. (a) Elaborate on Lamport's algorithm, its characteristics and applications.

Or

(b) Explain the following

- (i) Models of deadlock. (5)
- (ii) Token based algorithm. (8)

14. (a) Discuss about check pointing algorithm for recovery with example.

Or

(b) Explain in distributed computing

- (i) Agreement in a failure free systems. (8)
- (ii) Need for consensus. (5)

15. (a) Describe about cloud deployment models.

Or

(b) Elucidate the following distributed computing concepts.

- (i) Virtualization. (7)
- (ii) Monitoring. (6)

PART C — (1 × 15 = 15 marks)

16. (a) Explain analysis, design and challenges of Indian railways distributed computing environment.

Or

- (b) Explain the process of deployment of a social media messaging mobile application using cloud computing.
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