B.E. sem VIII / Comp / Aug. 25 / 23.08.25

Time :(3 Hours) **Marks: 80**

N.B: 1) Question **number 1** is compulsory.
2) Attempt **any three** out of the remaining.
3) Assume suitable data if **necessary** and justify the assumptions.
4) Figures to the **right** indicate full marks.

Q 1

A	Explain how replication helps in achieving fault tolerance.	[5]
B	List and describe five challenges faced in distributed systems.	[5]
C	Elaborate key Features of Global Scheduling algorithm.	[5]
D	Explain synchronization in DFS with its challenges.	[5]

Q 2

A	Explain RPC in distributed systems.	[10]
B	Analyze the scalability of the Google File System (GFS).	[10]

Q 3

A	Compare two election algorithms and recommend the most efficient one for large-scale distributed systems.	[10]
B	Explain the concept and necessity of logical clocks in distributed systems, and describe Lamport's algorithm.	[10]

Q 4

A	Describe how Raymond's algorithm ensures mutual exclusion.	[10]
B	Explain the working of Distributed File System with its applications.	[10]

Q 5

A	Explain how load balancing benefits a distributed system.	[10]
B	Explain the Suzuki-Kasami Broadcast Algorithm for mutual exclusion.	[10]

Q 6 Write a short note on

A	Code Migration in Distributed System	[10]
B	Middleware in Distributed System	[10]