



SRI KRISHNA INSTITUTE OF TECHNOLOGY

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#57, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bengaluru- 560090

Department of Artificial Intelligence & Machine Learning

Subject Name: Distributed Systems

Subject Code:BCS515D

SEM : V

DIV : A

Faculty: Prof. Asghar Pasha

Module-1 Question Bank

SL no	Question	CO	Level	Marks
1	List out the challenges of distributed system. Explain	CO1	L1	6
2	Explain the request-reply protocol with the operations of the request -reply protocol and message structure	CO1	L2	6
3	Briefly explain the RPC exchange protocols	CO1	L2	6
4	Explain HTTP: An example of request-reply protocol	CO1	L2	6
5	Draw neatly the message structure of HTTP request and HTTP response and explain neatly	CO1	L2	6
6	Define the remote procedure call. List out the design issues for RPC and explain in detail	CO1	L2	6
7	What are all the call semantics applicable for RPC	CO1	L2	6
8	How RPC is implemented?	CO1	L2	6
9	What is called RMI? List out the design issues of RMI and explain them	CO1	L2	6
10	Explain the garbage collection in a distributed-object system	CO1	L2	6
11	How to implement RMI?	CO1	L3	6
12	Briefly explain about the Java RMI	CO1	L2	6
13	With a schematic diagram, explain role of client and server stub procedures in RPC in the context of a procedural language	CO1	L2	6

Module- 2

1	Explain about the file system modules and file attribute record structure.	CO2	L2	6
2	List and explain the distributed file system requirements.	CO2	L2	6
3	Explain Sun NFS.	CO2	L2	6
4	Explain Andrew File System	CO2	L2	6
5	Explain the File Service Architecture with the operations of Flat file service	CO2	L2	6
6	Explain the directory service operations	CO2	L2	6
7	Explain NFS architecture	CO2	L2	6
8	Explain the following (a) Uniform Resource Identifiers(URI) (b) Uniform Resource Locators (URLs)	CO2	L2	6
9	What is called navigation w.r.t name servers? Explain the	CO2	L2	6



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	following navigators a) iterative b) multicast c) non-recursive server controlled and d) recursive server-controlled.			
10	What is domain name system? Explain DNS with example	CO2	L2	6

Module-3 Question Bank

SL#	Question	CO	Level	Marks
1	Discuss the followings: (a) clock skew (b) clock drift and (c) coordinated universal time	CO4	L2	6
2	Explain the Cristian's method for synchronizing clocks	CO4	L2	6
3	What is logical clock? Explain the Lamport's logical clock	CO4	L2	8
4	Discuss the following w.r.t Network Time Protocol: (a) Design aims and features (b) Modes of NTP server synchronization	CO4	L2	12
5	Explain the global states and consistent cuts with suitable example	CO4	L2	8

Module-4 Question Bank

SL no	Question	CO	Level	Marks
1	Discuss the following algorithm for mutual exclusion in distributed systems: (a) central server algorithm (b) ring-based algorithm (c) multicast and logical clocks	CO5	L2	12
2	What are the properties of reliable multicast? Explain the reliable multicast algorithm	CO5	L2	8
3	Explain the Maekawa's voting algorithm for mutual exclusion in Distributed Systems	CO5	L2	8
4	What is an election algorithm? What are its requirements? Explain the ring-based election algorithm	CO5	L2	12
5	Explain the Ricart and Agrawala's algorithm for mutual exclusion in Distributed Systems.	CO5	L2	8
6	Explain the bully algorithm in the elections	CO5	L2	6
7	Explain the total ordering using a sequencer and ISIS algorithm for total ordering	CO5	L2	10
8	Explain the causal ordering using vector timestamps algorithm.	CO5	L2	8
9	What is called consensus? Explain the byzantine generals problem.	CO5	L2	8
10	Explain consensus in a synchronous system	CO5	L2	6
11	Explain three Byzantine generals and four Byzantine Generals with a neat diagram	CO5	L2	8

Module-5 Question Bank

SL#	Question	CO	Level	Marks
1	With a neat diagram, explain distributed transaction and nested banking transaction.	CO3	L2	10
2	Discuss voting phase and a completion phase of two-phase commit protocol	CO3	L2	4
3	Discuss the operating in coordinator for nested transactions	CO3	L2	4
4	Illustrate locking in distributed transactions and also explain timestamp ordering currency control and optimistic concurrency	CO3	L2	10



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	control.			
5	Define deadlock. With a schematic figure, explain local and global wait-for graphs	CO3	L2	6
6	Discuss (a) Phantom deadlocks and (b) Edge Chasing w.r.t deadlock in Distributed Systems	CO3	L2	10
7	Explain the following approaches used in file recovery in Distributed Systems: (a) Logging (b) Shadow versions	CO3	L2	10