

Model Question Paper for 2022 (CBCS Scheme)

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Fifth Semester B.E. Degree Examination

DISTRIBUTED SYSTEMS (BCS515D)

TIME: 03 Hours

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE question from each module.
2. M : Marks L : Bloom's Level, C : Course Outcomes.

		MODULE - 1	M	L	C
Q1	a.	Define Distributed Systems. List and explain the significant consequences of Distributed Systems.	04	L1, L2	CO1
	b.	Discuss the key challenges in the Distributed Systems.	08	L2	CO1
	c.	Explain the Reply-Request Protocol used in the Distributed Systems for process communication.	08	L2	CO2
OR					
Q2	a.	Discuss the design issues for Remote Procedure Call (RPC).	06	L2	CO2
	b.	Illustrate the implementation of Remote Procedure Call (RPC) in a Distributed Systems environment.	06	L2	CO2
	c.	Discuss the implantation of Remote method invocation (RMI).	08	L2	CO2
MODULE - 2					
3.	a.	Review the characteristics of file systems	04	L2	CO3
	b.	Discuss the key requirements for Distributed File System.	08	L2	CO3
	c.	Explain the Distributed File Service architecture.	08	L2	CO3
OR					
4	a.	Explain the followings w.r.t Name Services: (a) Uniform Resource Identifiers (URIs) and (b) Uniform Resource Locators (URL).	06	L2	CO3
	b.	What is navigation w.r.t Name Servers? Explain the following navigations wr.t Name Servers: (a) iterative (b) multicast (c) non-recursive server-controlled and (d) recursive server-controlled.	10	L1, L2	CO3
	c.	What is Domain Name System? Explain the Domain Name System with suitable example.	04	L1, L2	CO3
MODULE - 3					
5	a.	Discuss the followings: (a) Clock Skew, (b) Clock Drift and (c) Coordinated Universal Time.	06	L2	CO4
	b.	Explain the Cristian's method for synchronizing clocks.	06	L2	CO4
	c.	What is a Logical Clock? Explain the Lamport's logical clock.	08	L1, L2	CO4
OR					
6	a.	Discuss the followings w.r.t Network Time Protocol: (a) Design aims and features (b) Modes of NTP server synchronization	12	L2	CO4
	b.	Explain the Global states and consistent cuts with suitable example.	08	L2	CO4

MODULE - 4					
7.	a.	Discuss the followings algorithms for mutual exclusion in Distributed Systems: (a) central server algorithm (b) ring-based algorithm (c) multicast and logical clocks.	12	L2	CO5
	b.	What are the properties of Reliable multicast? Explain the Reliable multicast algorithm.	08	L1, L2	CO5
OR					
8	a.	Explain the Maekawa's voting algorithm for mutual exclusion in Distributed Systems.	08	L2	CO5
	b.	What is an Election algorithm? What are its requirements? Explain the ring-based election algorithm.	12	L1, L2	CO5
MODULE - 5					
9	a.	Explain the two-phase commit protocol w.r.t distributed transactions.	10	L2	CO6
	b.	Discuss the various methods of concurrency control in distributed transactions.	10	L2	CO6
OR					
10	a.	Discuss (a) Phantom deadlocks and (b) Edge chasing w.r.t deadlock in Distributed Systems	10	L2	CO6
	b.	Explain the following approaches used in the file recovery in Distributed Systems: (a) Logging and (b) Shadow versions.	10	L2	CO6