University of Mumbai

QP – 93307

Examinations - Summer 2022
Program: Computer Engineering
Curriculum Scheme: Rev 2016
Examination: BE Semester VIII
Course Code: CSC802 and Course Name: Distributed Computing

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Resources and clients transparency that allows movement within a system is called-
Option A:	Mobility transparency
Option B:	Concurrency transparency
Option C:	Performance transparency
Option D:	Replication transparency
2.	In Data centric model-
Option A:	results of only read operations can be replicated to various stores located nearby immediately
Option B:	results of only write operations can be replicated to various stores located nearby immediately
Option C:	results of read and write operations can be replicated to various stores located nearby immediately
Option D:	results of read and write operations can be replicated to all stores
3.	Following is a type of failure that usually can occur in RPC systems-
Option A:	The server crashes after receiving a request and client cannot locate the server
Option B:	Client Cannot Locate the Server
Option C:	The server crashes after receiving a request
Option D:	Server crashes
4.	Which of the following algorithm is Token Based Algorithm for Mutual Exclusion
Option A:	Lamport Algorithm
Option B:	Ricart–Agrawala's Algorithm
Option C:	Suzuki-Kasami's Broadcast Algorithms
Option D:	Maekawa's Algorithm
5.	What is task assignment approach?
Option A:	in which each process is viewed as an individual task.
Option B:	in which each process is viewed as a collection of related tasks
Option C:	in which each process is viewed as a collection of distinct tasks
Option D:	in which each process is viewed as a coordinator of other's tasks
6.	In a distributed file system, mapping between logical and physical objects is-
Option A:	Transparency
Option B:	Client interfacing
Option C:	Migration
Option D:	Naming

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7.	In a distributed file system, when a file's physical storage location changes	
Option A:	file name need to be changed	
Option B:	file name need not to be changed	
Option C:	file's host name need to be changed	
Option D:	file's local name need to be changed	
8.	Which of the following is concurrency transparency	
Option A:	Hide differences in data representation and how a resource is accessed	
Option B:	Hide that a resource may be shared by several competitive users	
Option C:	Hide that a resource may be moved to another location while in use	
Option D:	Hides that the resource has multiple copies	
9.	In the Bully algorithm, process which is elected as the coordinator is the one having –	
Option A:	Lowest Timestamp value	
Option B:	Lowest process ID	
Option C:	Highest timestamp value	
Option D:	Highest process ID	
10.	Which of the following is the Passive Server Physical Clock Synchronization algorithm	
Option A:	Berkley's Algorithm	
Option B:	Cristian's Algorithm	
Option C:	Lamport's Algorithm	
Option D:	Bully Algorithm	

Q2.	
A	Solve any Two (5 marks each)
i.	Discuss in brief the different architectural models in Distributed System?
ii.	What is coordinator process? Explain algorithms used for the selection of coordinator.
iii.	Explain desirable features of Global Scheduling Algorithm
B	Solve any One (10 marks each)
i.	What is the need for Code Migration? Explain the role of Process to resource and Resource to Machine binding in Code Migration.
ii.	Write short note on File caching schemes.

Q3.	
A	Solve any Two 5 marks each
i.	Discuss the different issues and steps involved in a good Load Balancing algorithm.

ii.	What are different Data Consistency Models? (Any 5)
iii.	What are physical clocks? Explain any one Physical Clock Synchronization Algorithm.
B	**Solve any One (10 marks each)**
i.	Explain Hadoop distributed file system.
ii.	Explain Different issues and goals related to design of Distributed System. Explain Transparency in detail.

Q4.	
A	**Solve any Two (5 marks each)**
i.	Describe different types of failure models.
ii.	Differentiate between NOS, DOS and Middleware in the design of a distributed systems?
iii.	Explain how Monotonic Read consistency model is different from Read your Write consistency model. Support your answer with suitable example.
B	**Solve any One (10 marks each)**
i.	Define remote procedure call (RPC)? Describe the working of RPC in detail.
ii.	Differentiate between Token-based algorithm and Non-Token-based algorithm. Explain in detail Raymond's Tree-Based algorithm.

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