Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3170721 Date:19-12-2023

Subject Name: Parallel and Distributed Computing

Time: 10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Write goals of parallelism.	**03**
	(b)	Draw multiprocessor architecture	**04**
	(c)	Write merge sort algorithm for parallel architecture.	**07**
Q.2	**(a)**	List classification of computing systems based on the number of instruction and data streams that can be processed simultaneously	**03**
	(b)	Compare parallel system with distributed system	**04**
	(c)	List and explain various issues of design of distributed system	**07**
		OR	
	(c)	List and explain issues of parallel computing.	**07**
Q.3	**(a)**	How can we ensure consistency in distributed system?	**03**
	(b)	List and explain various types of distributed systems	**04**
	(c)	What is consensus? How can we implement it in distributed system?	**07**
		OR	
Q.3	**(a)**	How atomicity can be implemented in distributed system?	**03**
	(b)	List goals of distributed system	**04**
	(c)	In Distributed system how two processes can communicate with each other? Explain any one mechanism in detail.	**07**
Q.4	**(a)**	With the help of example explain asynchronous communication.	**03**
	(b)	List advantages of Hadoop.	**04**
	(c)	Draw and explain Apache Hadoop Architecture	**07**
		OR	
Q.4	**(a)**	With the help of example explain asynchronous communication.	**03**
	(b)	List advantages of CUDA over traditional general-purpose computation	**04**
	(c)	Write a note on OpenMP	**07**
Q.5	**(a)**	List various Parallel Algorithm Models.	**03**
	(b)	Draw shared memory architecture	**04**
	(c)	What is contention? How it can be managed in parallel system?	**07**
		OR	
Q.5	**(a)**	Explain POSIX thread.	**03**
	(b)	Explain pipeline model	**04**
	(c)	Give one example which uses divide and conquer technique to optimize execution in parallel system.	**07**

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