Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 3170721   **Date: 19/06/2023**
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.**

Q.1	**(a)**	What is Parallel Computing? Give advantages of parallel computing?	**03**
	(b)	What is Sequential Programs in Parallel Processing?	**04**
	(c)	Give Scope and issues of parallel and distributed computing in Details?	**07**
Q.2	**(a)**	Explain Pipeline Architecture?	**03**
	(b)	Explain Contention in details?	**04**
	(c)	Explain Non-Uniform Memory Access (NUMA).	**07**
		OR	
	(c)	Classify parallel computers based on Flynn's Taxonomy.	**07**
Q.3	**(a)**	Give Difference between shared Vs. Distributed Memory?	**03**
	(b)	Explain Architectural Classification Schemes?	**04**
	(c)	Explain Systolic and Dataflow Architecture in Details?	**07**
		OR	
Q.3	**(a)**	Explain Multi Processor Architecture in Details?	**03**
	(b)	Give Difference between Thread and Process?	**04**
	(c)	Explain Symmetric multiprocessing (SMP) and Vector processing with example?	**07**
Q.4	**(a)**	Explain SIMD?	**03**
	(b)	Give Advantages and Disadvantages of Distributed computing.	**04**
	(c)	What is load balancing in parallel and distributed computing?	**07**
		OR	
Q.4	**(a)**	What are the types of decomposition techniques?	**03**
	(b)	Explain Consistency and Atomicity?	**04**
	(c)	List out various Distributed systems and explain any one in details?	**07**
Q.5	**(a)**	What is CUDA Explain Details?	**03**
	(b)	What is data parallel computing?	**04**
	(c)	Explain OpenMP, and POSIX Threads in Details.	**07**
		OR	
Q.5	**(a)**	What is Parallel graph Algorithms?	**03**
	(b)	List and explain the different types of communication paradigms used within distributed systems.	**04**
	(c)	Write Short Note on Apache Hadoop (DFS).	**07**

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