Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3170721 Date:16-12-2024

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)**	List advantages and disadvantages of parallel processing.	**03**
	(b)	What is Sequential Programs in Parallel Processing?	**04**
	(c)	Classify parallel computers based on Flynn's Taxonomy.	**07**
Q.2	**(a)**	Differentiate between UMA and NUMA.	**03**
	(b)	Explain Pipeline Architecture in detail.	**04**
	(c)	Draw and explain Systolic architecture.	**07**
		OR	
	(c)	Draw and explain Multi processor architecture.	**07**
Q.3	**(a)**	How can we ensure consistency in distributed system?	**03**
	(b)	Explain the terms: scheduling and contention.	**04**
	(c)	Describe Symmetric multiprocessing (SMP) and Vector processing with example.	**07**
		OR	
Q.3	**(a)**	Give Difference between Thread and Process.	**03**
	(b)	Explain Multi Processor Architecture in detail.	**04**
	(c)	Explain divide and conquer algorithm with suitable example.	**07**
Q.4	**(a)**	Explain client server and peer-to-peer communication.	**03**
	(b)	Give Advantages and Disadvantages of Distributed computing.	**04**
	(c)	Draw and explain shared memory architecture.	**07**
		OR	
Q.4	**(a)**	List advantages of CUDA over traditional general-purpose computation.	**03**
	(b)	Explain design issues of distributed computing.	**04**
	(c)	Discuss in detail the various performance metrics in parallel computing.	**07**
Q.5	**(a)**	List and explain the different types of communication paradigms used within distributed systems.	**03**
	(b)	Write a short note on Apache Hadoop.	**04**
	(c)	What is contention? How it can be managed in parallel system?	**07**
		OR	
Q.5	**(a)**	What is Parallel graph Algorithms?	**03**
	(b)	Explain in details: POSIX Threads.	**04**
	(c)	Explain OpenMP, and POSIX Threads in Details.	**07**

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