Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII (old) - EXAMINATION – SUMMER 2018

Subject Code:180702 **Date:30/04/2018**

Subject Name:Parallel Processing

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.**

Q.1	**(a)**	Elaborate any two decomposition techniques with proper illustration(s).	**07**
	(b)	What is meant by Latency and Bandwidth of memory. Briefly discuss various ways to minimize latency and to improve bandwidth of memory.	**07**
Q.2	**(a)**	Enlist and explain various PRAM models.	**07**
	(b)	Discuss the following terms and explain the importance related to parallel algorithm design: - Decomposition - Concurrency - Granularity.	**07**
		OR	
	(b)	Explain different performance metrics for parallel systems. Explain Speedup in detail.	**07**
Q.3	**(a)**	Enlist and discuss different parallel algorithm models in detail.	**07**
	(b)	Explain sending and receiving messages using MPI.	**07**
		OR	
Q.3	**(a)**	Explain Bitonic sort with example.	**07**
	(b)	Explain Blocking Non-Buffered Send/Receive and Blocking Buffered Send/Receive for message passing operation.	**07**
Q.4	**(a)**	Write steps for All-to-All Personalized communication on Mesh and Ring Network.	**07**
	(b)	Explain thread creation, termination and cancellation in detail in shared-address-space supported parallel systems.	**07**
		OR	
Q.4	**(a)**	List Various Network Topologies. Explain Crossbar and Multistage Networks.	**07**
	(b)	Explain invalidate protocol used for cache coherence in multiprocessor system.	**07**
Q.5	**(a)**	Explain Cannon's algorithm for matrix multiplication.	**07**
	(b)	Explain odd-even sort in parallel environment and comment on its limitation(s).	**07**
		OR	
Q.5	**(a)**	Discuss Prim's parallel algorithm and compare its complexity with the sequential algorithm for the same.	**07**
	(b)	Briefly explain parallel algorithm of Quick sort with example for shared address space parallel computer.	**07**

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