Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII(OLD) EXAMINATION – WINTER 2017

Subject Code: 180702 Date: 02-			11-2017	
Subject Name: Parallel Processing Time: 02:30 pm to 5:00 pm Instructions: Total Mark			70	
		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
Q.1	(a)	What is meaning of memory latency? How memory latency can be improved by cache?	07	
	(b)	Enlist various decomposition techniques. Explain exploratory decomposition with suitable example.	07	
Q.2		Explain mutual exclusion for shared variable in Pthreads. Enlist and discuss different parallel algorithm models in detail.	07 07	
	(b)	OR Explain data locality? Explain techniques for maximizing data locality.	07	
Q.3	(a)	Explain Dijkstra's Algorithm for Single-Source Shortest Paths. What is meant by granularity of the decomposition of a given problem? Discuss the effect of granularity on performance of parallel systems.	07 07	
		OR		
Q.3		Explain all-to-all broadcast and all-to-all reduction with examples. What is isoefficiency function? Derive equation of isoefficiency function.	07 07	
Q.4	(a)	Discuss buffered non-blocking and non-buffered non-blocking send/receive message passing operations with neat sketches.	07	
	(b)	Explain odd-even transposition sort algorithm.	07	
Q.4	(a)	OR What is MPI? Explain Following MPI routines with arguments. 1. MPI_Init. 2. MPI_Sendrev. 3. MPI_Reduce	07	
	(b)	Write a note on Synchronization primitives in POSIX.	07	
Q.5	(a)	Discuss mapping of bitonic sort algorithm to a hypercube and a mesh.	07	
	(b)	Discuss Dijkstra's algorithm for single-source shortest paths. OR	07	
Q.5		What is sorting network? Explain bitonic sort. Discuss Prims's algorithm for minimum spanning tree.	07 07	
