Seat No.:	Enrolment No.
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VIII.EXAMINATION – WINTER 2016

	•	ct Code: 180702 Date: 20/10/2016 ct Name: Parallel Processing	
T	•	02:30 PM to 05:00 PM Total Marks: 70	
	1	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a)	Define: Parallel Processing. Also explain Communication Models for Parallel Platforms.	07
	(b)	Explain Mutual Exclusion and Condition Variable with proper example.	07
Q.2	(a) (b)	Explain Recursive and Data Decomposition Techniques in detail. Discuss various Parallel Algorithm Models. OR	07 07
	(b)	Explain One-to-All Broadcast and All-to-One Reduction operations.	07
Q.3	(a) (b)	Explain Scatter and Gather communication operation. Explain following functions of MPI: MPI_Send (), MPI_Comm_size (), MPI_Comm_rank (). OR	07 07
Q.3	(a) (b)	What is isoefficiency function? Derive equation of isoefficiency of function. Explain various MPI Collective Communication and Computation Operations.	07 07
Q.4	(a) (b)	What are Threads? Draw and explain Logical Memory Model of a Thread. What is the role of Comparator in Sorting? Explain Odd-Even Transposition sort algorithm with example.	07 07
Q.4	(a)	OR Explain following functions of POSIX Threads:	07
	(b)	pthread_create (), pthread_join (). What is Bitonic Sequence? Explain Bitonic Sort with example.	07
Q.5	(a) (b)	Explain Cannon's Algorithm for Matrix Multiplication. Explain Dijkstra's Single Source Shortest Path Algorithm. OR	07 07
Q.5	(a) (b)	Explain Prim's Minimum Spanning Tree Algorithm. With respect to Dense Matrix Algorithms, draw and explain Matrix-Vector Multiplication with Rowwise 1-D partitioning.	07 07
