Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 3715106 **Date:20/05/2016**

Subject Name: Parallel Programming

Time:02:30 pm to 05:00 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)**	Explain the various execution models for threads.	**06**
	(b)	Explain the following MPI operations with their corresponding functions: (i) Accumulation (ii) Scatter (iii) Multi-broadcast (iv) Multi-Accumulation	**08**
Q.2	**(a)**	Describe data distribution for 2-dimensional arrays.	**07**
	(b)	What is the difference between Serial, Parallel and Grid Computing?	**07**
		OR	
	(b)	How to avoid deadlocks using without system buffers in MPI program.	**07**
Q.3	**(a)**	In terms of MPI program explain: i. Blocking and Non-Blocking operations ii. Synchronous and Asynchronous operations	**08**
	(b)	What is MPI-1 & MPI-2? Write their difference MPI-1 and MPI-2.	**06**
		OR	
Q.3	**(a)**	Describe the write policies followed by cache with their advantages and disadvantages.	**07**
	(b)	Derive the formulae for performance of Processors with a Memory Hierarchy.	**07**
Q.4	**(a)**	Explain parallel vector-matrix multiplication of linear combination.	**07**
	(b)	Explain in brief about Synchronization constructs in OpenMP.	**07**
		OR	
Q.4	**(a)**	What is Luster? Explain its architecture with the help of diagram.	**07**
	(b)	Explain DAS, NAS and SAN architecture with the help of diagram.	**07**
Q.5	**(a)**	Write a program in CUDA for addition of array elements.	**08**
	(b)	Explain the Group and Communicator Concept with diagram.	**06**
		OR	
Q.5	**(a)**	Write the four reasons to use HPC cluster & briefly explain them.	**08**
	(b)	Explain any three RAID architectures with the help of a diagram.	**06**

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