Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–I(New course)• EXAMINATION – WINTER- 2015

Subject Code: 3715106 **Date: 05/01/2016**

Subject Name: Parallel Programming

Time:2:30 pm to 5:00 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)**	Discuss concept of parallelism.	**07**
	(b)	Discuss Gustafsonôs law for scaled problems.	**07**
Q.2	**(a)**	Summarize all the forms of parallelism that can be exploited at different processing levels of a computer system, including both multiprocessor and unprocessed approaches Indicate example computers that have achieved various forms of parallelism.	**07**
	(b)	Explain Parallel architecture.	**07**
		OR	
	(b)	Write short note on parallelism vs Pipelining.	**07**
Q.3	**(a)**	Compare distributed memory model for parallel programming in terms of various parameters.	07
	(b)	Prove that a k-stage linear pipeline can be at most k times faster than that of a non-pipelined serial processor.	**07**
		OR	
Q.3	**(a)**	Write short note on cluster computing.	**07**
	(b)	Define Granularity. How it is useful in parallel computing. What is coarse grained and fine grained parallelism? Which one is the best?	**07**
Q.4	**(a)**	A large multiprocessor usually allows a larger size of the problem to be undertaken in a reasonable execution time. Justify it using Gustafsonôs law.	**07**
	(b)	What is static and dynamic scheduling?	**07**
		OR	
Q.4	**(a)**	What is the role of interconnection of network in multiprocessor and multicomputer system?	**07**
	(b)	Discuss cluster architecture with proper support diagram.	**07**
Q.5	**(a)**	Differentiate between data parallelism and task parallelism.	**07**
	(b)	What is blocking and non blocking Message passing.	**07**
		OR	
Q.5	**(a)**	Discuss evaluation of CPU performance.	**07**
	(b)	How message passing is done with or without SYSTEM BUFFER?	**07**

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