GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER - I • EXAMINATION - WINTER 2012

Subje	ect code: 715106N	Date: 12-01-2013	
Subje	ect Name: Parallel Programming		
Time	: 02.30 pm – 05.00 pm	Total Marks: 70	
Instructions:			
2.	Attempt question 1 which is compulsory and answer any Make suitable assumptions wherever necessary. Figures to the right hand indicate the marks.	four from the rest qu	estions.
	Explain following MPI collective communication functions/ i. MPI_SCATTER ii. 2.MPI_ALLGATHER iii. 3.MPI_REDUCE iv. 4.MPI_BROADCAST List and explain the main elements of grid infrastructure.	•	[8 Marks]
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	Explain in brief Synchronization constructs in OpenMP. Write Factorial Program by using MPI Point to Point Comm		[7 Marks] [7 Marks]
	Write a program in CUDA for addition of array elements. Define Speedup, Efficiency and Super Linear speedup.		[8 Marks] [6 Marks]
b.	Describe two Parallel Algorithms paradigms. Explain MPI Structure data type with example. What is Luster and explain its architecture with the help of described the structure of the structure o	[[4 Marks] [3 Marks] [7 Marks]
b.	Explain Gustafson's law regarding parallel application speed Write name of the routines dealing with MPI threads. Write the four reasons to use HPC cluster & briefly explain	[4 Marks] 4 Marks] 6 Marks]
	Explain the Group and Communicator Concept with diagram Explain any four RAID architecture with the help of a diagram		[6 Marks] [8 Marks]
Q. No. a. b. c.	Write the name of basic terminology when dealing with MP Explain DAS, NAS and SAN architecture with the help of d What do you mean by Process Management in Operating Sy	iagram [[3 Marks] [8 Marks] [3 Marks]
b.	8 Explain situations where super linear speedup can be achieve Explain Non-blocking Point to Point Communication with d Write a Note on MPI Collective Communication.	iagram. [[4 Marks] [6 Marks] [4 Marks]