University of Hyderabad, Department of Computer and Information Sciences

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Parallel Computing
Minor-I

Max. Marks: 20 **Date: September 15th, 2010**
Duration 60 min.

Note: 1. Attempt **all** questions with precise answers.
2. Draw neat diagrams, if needed.

Q.1 If $n = 2^m$ numbers stored in an array A of dimension (2n-1) from A[n], A[n+1],..., A[2n-1], write a PRAM algorithm to compute prefix sum such that at the end A[i] stores A[1]⊕ A[2]⊕....⊕A[i]. **[4]**

Q.2 Explain de Bruijn Network of processors in terms of four criteria discussed in the class. **[4]**

Q.3 Define: **[4]**
i. Efficient parallel algorithm
ii. Optimal parallel algorithm
iii. Brent's theorem
iv. Gustafson's law.

Q.4 Show that p-processors PRIORITY PRAM can be simulated by a p-processor EREW PRAM with the time complexity increased by a factor of (log n). **[4]**

Q.5 What is the difference between: **[4]**
i. A Process and a Thread?
ii. Control and Data Parallelism

------Best of Luck------