

(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID : ME5

Roll No.

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M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16

PARALLEL ALGORITHMS

Time : 3 Hours

Total Marks : 100

Note : Attempt all question. All question carry equal marks.

1. Attempt any two parts of the following. [10×2=20]
 - (a) Explain the concept of analysis of parallel algorithms. Is every parallel computer a supercomputer? Explain your answers.
 - (b) Discuss RAM model of serial computation and PRAM model of parallel computation. Give the similarities and differences between them.
 - (c) Describe pyramid network processor organization for parallel computers. Find and describe the expression to determine the total numbers of processors in a pyramid network of size k^2 .

2. Attempt any two of the following: [10×2=20]
- (a) Draw hypercube networks with eight nodes. Is a hypercube network with n nodes a subgraph of a hyper cube network with $2n$ nodes?
 - (b) Describe butterfly network in brief. Give a PRAM algorithm to multiply two $n \times n$ matrices, where $n = 2^k$.
 - (c) Write short notes on data parallel approach and control parallel approach.
3. Attempt any two of the following: [10×2=20]
- (a) What do you mean by parallel sorting? Do you think it is accurate to describe odd even transposition sort as a parallel bubble sort. Justify your answer.
 - (b) Describe Bitonic sequence. Discuss the Bitonic merge on Shuffle-Exchange network.
 - (c) Design a parallel version of merge sort for a multicomputer.
4. Attempt any two of the following: [10×2=20]
- (a) List the various parallel searching algorithms. Explain any one of them

