

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

PAPER ID : 2710

Roll No.

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B. Tech.

(SEM. VII) THEORY EXAMINATION 2011-12

PARALLEL ALGORITHMS

Time : 3 Hours

Total Marks : 100

Note :- (i) Attempt **all** questions.

(ii) Make suitable assumptions if required.

1. Answer any **two** parts : **(10×2=20)**
 - (a) (i) What do you mean by a sequential model of computation ? Explain. Discuss the advantages and disadvantages of it.
 - (ii) What is data parallelism ? Explain. Is it similar to pipelining ? Discuss.
 - (b) (i) What is Amdahl Effect ? Explain. Also discuss Amdahl's Law.
 - (ii) Discuss PRAM model of parallel computation.
 - (c) (i) Describe the Butterfly Model with suitable diagram.
 - (ii) Explain EREW and CREW computational model.

2. Answer any **two** parts : **(10×2=20)**
 - (a) What are the various performance measures of parallel algorithm ? Discuss various performance measures with example.

- (b) What do you mean by cost-optimality ? Discuss any one cost optimal algorithm in detail.
- (c) Differentiate between the hypercube and cube connected cycle parallel computational model.
3. Answer any **two** parts : **(10×2=20)**
- (a) What do you mean by parallel sorting networks ? Also discuss the enumeration sort algorithm.
- (b) Discuss Bitonic merge in detail with suitable example.
- (c) Discuss the parallel Quick sort algorithm in detail.
4. Answer any **two** parts : **(10×2=20)**
- (a) Explain parallel searching. Also discuss any one parallel searching algorithm in detail.
- (b) Describe the parallel matrix multiplication algorithm on PRAM model.
- (c) Discuss the parallel algorithm for back substitution for solving the linear equations on a UMA multiprocessor.
5. Write short notes on any **two** of the following : **(10×2=20)**
- (a) First Depth and Breadth First search algorithm for graph
- (b) Parallel branch and Bound search.
- (c) Parallel Alpha Beta search.