

(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.