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# B. TECH.
## THEORY EXAMINATION (SEM–VI) 2016-17
## PARALLEL ALGORITHM

*Time : 3 Hours* *Max. Marks : 100*

*Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.*

## SECTION – A

**1. Attempt all parts of the following question:** **10 x 2 = 20**

(a) What is Speed-up?
(b) What is SIMD?
(c) What is a hyper cube connection?
(d) How long does Bitonic sorting require on PRAM?
(e) How long does the parallel version of Prim's minimum spanning tree finding algorithm require or a graph with $n$ nodes using $p$ processors
(f) What is task-throughput?
(g) What is the complexity of prefix sum in pram model?
(h) What is common CRCW PRAM?
(i) What is data-parallel computation?
(j) Difference between permutation and combination.

## SECTION – B

**2. Attempt any five of the following questions:** **5 x 10 = 50**

(a) Describe the Butterfly Model with suitable diagram
(b) Explain PRAM Computational model. Along with brief explanation of EREW and CREW computational model.
(c) What are the various performance measures of parallel algorithm? Discuss various performance measures with example.
(d) Discuss Bitonic merge in detail with suitable example.
(e) What do you mean by cost-optimality? Discuss any one cost optimal algorithm in detail.
(f) Explain parallel Branch and Bound search?
(g) Differentiate between the hypercube and Shuffle-Exchange network parallel computational model.
(h) What do you mean by parallel sorting networks? Also discuss the enumeration sort algorithm?

## SECTION – C

**Attempt any two of the following questions:** **2 x 15 = 30**

3 (i) What is Amdahl Effect? Explain. Also discuss Amdahl's Law.
(ii) Depth and Breadth first search algorithm for graph

4 Parallel Alpha Beta search.

5 What is data parallelism? Explain difference between Data Parallelism Vs Task Parallelism and Data Parallelism and Model Parallelism

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