

**B.Tech. - VIEP - COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

Term-End Examination

June, 2016

BICSE-017 : PARALLEL ALGORITHMS

Time : 3 hours

Maximum Marks : 70

Note : Answer any **seven** questions. All questions carry equal marks.

1. How does concurrency differ from parallelism ? Discuss the concept of data parallelism and control parallelism, with the help of suitable examples. 10

2. Explain the following in detail : 5+5=10
 - (a) Sieve of Eratosthenes
 - (b) PRAM model for parallel computation

3. Explain the concept of Dynamic Load Balancing on multi-computers. Give suitable examples. 10

4. What are parallel algorithms ? How do they differ from concurrent algorithm ? Discuss in detail the notations for expressing parallel algorithms. 10

5. Explain the hypercube SIMD model and shuffle exchange SIMD model in detail. 5+5=10
6. Describe the fast Fourier transform with a suitable example. What is the utility of this transformation in parallel computing? 10
7. Write the algorithms for any *two* of the following: 5+5=10
- (a) Parallel quick sort
 - (b) Hyper quick sort
 - (c) Merge sort
8. Differentiate between the following: 5+5=10
- (a) Jacobi-Over-Relaxation and Successive-Over-Relaxation
 - (b) Jacobi algorithm and Gauss-Seidel algorithm
9. Explain Ellie's algorithm with the help of a suitable example. 10
10. Write short notes on any *two* of the following: 5+5=10
- (a) Minimum Cost Spanning Tree
 - (b) Parallel Branch and Bound Algorithm
 - (c) Parallel Alpha-Beta Search
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