No. of Printed Pages : 2

BICSE-017

B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

00655

June, 2019

BICSE-017 : PARALLEL ALGORITHMS

Time : 3 hours *Maximum Marks : 70*

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

1. How do super computers differ from personal computers ? Explain the PRAM model of parallel computation. Also discuss the various performance measures of PRAM algorithms. *10*

2. Explain the Flynn's taxonomy classification for serial and parallel computer architecture. Include suitable block diagrams in your explanation. *10*

3. What do you understand by 'load balancing' ? How is dynamic load balancing performed on multicomputers ? Discuss with suitable diagram. *10*

4. Write Parallel Quick Sort algorithm. Prove that the time complexity of parallel sorting algorithm is of Order $O(\log_2 n)$, where n is the number of elements to be sorted. *10*

5. Write Gauss-Seidel algorithm. Explain how Gauss-Seidel algorithm exhibits faster convergence than the Jacobi algorithm. *10*

6. Discuss the process of static scheduling of UMA multiprocessor, with suitable example. *10*

7. Explain Ellie's algorithm. What are the applications of Ellie's algorithm ? How is Ellie's algorithm different from Manber & Lander's algorithm ? *10*

8. Differentiate between the following (give suitable examples) : *10*

   (a) Control parallelism and Data parallelism

   (b) Multiprocessors and Multicomputers

   (c) Alpha-beta search and Parallel alpha-beta search

   (d) Speed up and Sealed speed up

9. Write short notes on the following : *10*

   (a) SIMD Model

   (b) Fast Fourier Transform

   (c) Pipelining and Data Parallelism

   (d) Parallel Branch and Bound Algorithm

10. Compare private memory and shared memory model for parallel sieve of Eratosthenes algorithms. *10*
