Code: 13A05805

R13

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

HIGH PERFORMANCE COMPUTING

(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Write about the scope of parallel computing.
(b) Write about prefetching.
(c) Write about scatter and gather operations.
(d) Write about the mapping techniques for load balancing.
(e) Write about MPI reduction operator.
(f) Explain the need for thread programming.
(g) Can bubble sort be parallelized? Explain.
(h) Write about Best - First search algorithms.
(i) Define transitive closure of a graph.
(j) Write about Tree-Based termination detection.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain trends in microprocessor architectures.

OR

3 Explain about communication costs in parallel machines.

UNIT – II

4 Write about methods for containing interaction overheads.

OR

5 Explain about All-to-All personalized communication.

UNIT – III

6 Write an MPI program to implement odd-even sort.

OR

7 Explain about composite synchronization constructs in Pthreads.

UNIT – IV

8 Explain about solving a system of linear equations.

OR

9 How to parallelize the sequential shell sort algorithm for a p-process hypercube.

UNIT – V

10 Describe and analyze the performance of a parallel formulation of Floyd's algorithm that uses 1-D block mapping and the pipelining technique.

OR

11 Write about sequential search algorithms.

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