

Total No. of Questions : 8]

SEAT No. :

P3331

[5461]-591

[Total No. of Pages : 2

B. E. (Computer Engineering)
HIGH PERFORMANCE COMPUTING
(2015 Pattern) (Semester - I) (410241)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

- Q1)** a) State and explain basic working principle of Super Scalar Processors. [6]
b) Explain basic working of VLIW Processor. [6]
c) Elaborate four subclasses of the Parallel Random Access Machine (PRAM). [8]

OR

- Q2)** a) Differentiate Static and Dynamic mapping techniques for load balancing. [6]
b) Write a short note on All-to-one reduction with suitable example. [6]
c) Explain any four methods for containing interaction overheads. [8]

- Q3)** a) Explain Parallel Matrix-Vector Multiplication algorithm with example. [8]
b) Explain the Performance Metrics for Parallel Systems. [8]

OR

- Q4)** a) Explain Parallel Matrix-Matrix Multiplication algorithm with an example. [8]
b) Interpret the effect of Granularity on Performance of parallel execution. [8]

- Q5)** a) Compare an algorithm for sequential and parallel Merge sort. Analyze the complexity for the same. [8]
b) Modify Depth First Search for parallel execution and analyze its complexity. [8]

OR

P.T.O.

- Q6)** a) Discuss the issues in sorting for parallel computers. [8]
b) Explain Dijkstras shortest path algorithm. [8]
- Q7)** a) Explain parallelism in Best First Search algorithm. Give an appropriate example. [8]
b) Design a simple CUDA kernel function to multiply two integers. [6]
c) List APIs for dealing with CUDA device memory. [4]

OR

- Q8)** a) Describe CUDA Architecture in details with neat diagram. [8]
b) Write advantages and limitations of CUDA. [5]
c) Give five applications of CUDA. [5]

