P3422

SEAT No. :

[5670] -698

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

Time :2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Answer Four questions Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
2) *Neat diagram must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume suitable data if necessary.*
5) *Justify your answer with an example wherever necessary.*

Q1) a) Explain term of all-to-all broadcast on linear array, mesh & Hypercube topologies.   **[8]**

   b) Explain mapping techniques for local balancing.   **[6]**

   c) Explain N-wide superscalar architecture   **[6]**

OR

Q2) a) Explain the methods for containing Interaction overheads.   **[8]**

   b) Write short note on circular shift on a mesh.   **[6]**

   c) List application of parallel programming   **[6]**

Q3) a) Explain sources of overhead in parallel program.   **[8]**

   b) Explain the performance Metrics for parallel system.   **[8]**

OR

Q4) a) Write a note on minimum & cost optimal execution time.   **[8]**

   b) Explain parallel Matrix-vector multiplication algorithm with example. **[8]**

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Q5) a) What are the issues in sorting on parallel computers with example? **[8]**

b) Modity DFS for parallel execution & analyze its complexing. **[8]**

OR

Q6) a) Explain dijkastra algorithm in parallel formulations **[8]**

b) Explain communicaion strategies for parallel BFS. **[8]**

Q7) a) Draw & explain CUDA architecture in detail **[8]**

b) List APIs for dealing with CUDA device memory. **[5]**

c) Explain different kinds of CUDA memory. **[5]**

OR

Q8) a) Explai how the CUDA-C program executes at kernel level with example.**[8]**

b) How synchronization manage in CUDA with example. **[5]**

c) Give five application of CUDA. **[5]**

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