Total No. of Questions : 8]

SEAT No. :

P2048

[Total No. of Pages : 2

[5059] - 653
B.E. (Computer Engineering) (Semester - VIII)
HIGH PERFORMANCE COMPUTING
(2012 Pattern)

Time :2.30 Hours] *[Max. Marks :70*

Instructions to the candidates:-

1) ***First two questions are compulsory. Answer three questions (Q 3 or Q 4, Q 5 or Q 6, and Q 7 or Q 8.)***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Assume suitable data if necessary.***

Q 1) a) What are applications of Parallel Computing? **[4]**

b) Explain Granularity, Concurrency, and Dependency Graph. **[6]**

Q2) a) What are principles of Message Passing Programming. **[6]**

b) Explain Non-Blocking communications using MPI. **[4]**

Q3) a) Describe Logical Memory Model of a Thread. **[7]**

b) Why synchronization is important? Enlist Thread APIs for Mutex Synchronization. **[8]**

OR

Q4) a) Implement Merge sort using synchronization primitives in Pthreads. **[7]**

b) Illustrate importance of read-write lock for Shared address space Model. **[8]**

P. T. O.

Q5) a) What are different partitioning techniques used in Matrix-Vector Multiplication. **[7]**

b) Describe Cannon's Algorithm for Matrix multiplication with suitable example. **[8]**

OR

Q6) a) Describe different techniques for Latency Hiding. **[7]**

b) How Latency Hiding is different than Latency Reduction? **[8]**

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Q7) a) Write a short note on (Any Two) **[15]**

i) Parallel Depth-First-Search

ii) Search Overhead Factor

iii) Power Aware Processing

b) Define term HPC and Elaborate its use to Indian Society. **[5]**

OR

Q 8) a) Write a short note on (Any Two) **[15]**

i) Distributed Memory

ii) Optical Computing

iii) Green Computing

b) Share your thoughts about how HPC will help to promote "MAKE IN INDIA" initiative. **[5]**