

Total No. of Questions : 8]

P3116

SEAT No. :

[Total No. of Pages : 2

[5154]-683

B.E. (Computer Engineering)
HIGH PERFORMANCE COMPUTING
(2012 Pattern) (Semester -II) (410450) (End Sem.)

Time : 2 ½ Hour]

[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), (Q.7 or Q.8)].
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume Suitable data if necessary.

- Q1) 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]

- 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]

P.T.O.

- Q7)** a) Write a short note on (Any Two) [15]
i) Parallel Depth-First-Search.
ii) Search Overhead Factor.
iii) Power Aware Processing.
- b) Elucidate Thread Organization in detail. [5]
- OR
- Q8)** a) Write a short note on (Any Two) [15]
i) Distributed Memory.
ii) Optical Computing.
iii) Green Computing.
- b) Intricate sorting issues in parallel computers. [5]

