

[5254]-673

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

Time : 2 ½ Hours]

[Max. Marks : 70]

Instructions to the candidates:

- 1) First two questions are compulsory. Answer three questions.(Q3 or Q4), (Q5 or Q6), (Q7 or Q8).
- 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 basic working principal of VLIW processor. [6]

- Q2) a) Explain Randomized block distribution and hierarchical mappings. [6]
 b) Write note on : Topologies and Embedding. [4]

- Q3) a) Implement Producer Consumer Problem using Mutex synchronization primitives in Pthreads. [7]
 b) Describe Barrier Synchronization for shared address space Model [8]

OR

- Q4) a) Describe Logical Memory Model of a Thread? [7]
 b) Why synchronization in important? Enlight Thread APIs to for Mutex Synchron. [8]

- Q5) a) Explain sorting network with suitable diagram. [7]
 b) Explain single source shortest path algorithm with suitable example. [8]

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OR

- Q6) a) Describe different techniques for Latency Hiding. [7]
 b) How Latency Hiding is different than Latency Reduction? [8]

- Q7) a) Write a short note on (any two) [15]
 i) Petascale Computing.
 ii) Nano Technology.
 iii) Power Aware Processing.

- b) Elucidate Thread Organization in detail. [5]

OR

- Q8) a) Write a short note on (Any two) [15]
 i) Discrete optimization problems.
 ii) Parallel Best - First - Search.
 iii) Quantum Computers.

- b) Intricate sorting issues in parallel computers. [5]

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