

Total No. of Questions : 8]

SEAT No. :

P2338

[Total No. of Pages : 2

[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 is important? Enlight Thread APIs to for Mutex Synch. [8]

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

**P.T.O.**

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]

