Total No. of Questions : 6]

SEAT No. :

P5781

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BE/Insem./Oct.-583

B.E. (Computer Engineering)

HIGH PERFORMANCE COMPUTING

(2015 Pattern) (Semester - I)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Attempt questions Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Draw neat & Labelled diagrams if necessary.***
3) ***Assume suitable data if necessary.***
4) ***Figures to the right indicate full marks.***

Q1) a) Explain with suitable diagram SIMD, MIMD architecture. **[4]**

b) Explain the impact of Memory Latency & Memory Bandwidth on system performance. **[6]**

OR

Q2) a) Describe Uniform-memory-access and Non-uniform-memory-access with diagrammatic representation. **[6]**

b) Describe the scope of parallel computing. Give applications of parallel computing. **[4]**

Q3) a) Explain any three data decomposition techniques with example. **[6]**

b) Give the characteristics of tasks. **[4]**

OR

Q4) a) Give the characteristics of GPUs and any two applications of GPU processing. **[4]**

b) Explain any three parallel algorithm models with suitable example. **[6]**

P.T.O.

Q5) a) Explain Broadcast and Reduction example for multiplying matrix with a vector. **[6]**

b) Explain the concept of Scatter & Gather. **[4]**

OR

Q6) a) Compare the one-to-all broadcast operation for Ring, Mesh and Hypercube topologies. **[6]**

b) Explain the prefix-sum operation for an eight-node hypercube. **[4]**

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