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MCA (Revised)
Term-End Examination
December, 2011

MCSE-011 : PARALLEL COMPUTING

Time : 3 hours

Maximum Marks : 100

Note : Question number 1 is compulsory. Attempt any three questions from the rest.

1. (a) Explain the following inter connection networks. 8
(i) Systolic Array
(ii) Hyper Cube
- (b) Explain various visualisation tools employed in performance Analysis. 8
- (c) Explain the pipeline processing and describe pipeline processing architecture. 8
- (d) Explain two types of combinational comparators. 8
- (e) Explain the concepts of message passing programming. 8

2. (a) Explain three work sharing constructs of open Mp. 10
- (b) Explain the Gustafson's law for measuring speed up performance with the help of an example. 10

3. (a) Discuss relative merits and demerits of various laws for measuring speed up performance vis-a-vis to a parallel computer algorithm system. 10
- (b) Define structural classification based on different computer organisation. 10

4. (a) Write short notes on the following : 10
 - (i) Spin lock mechanism for synchronisation.
 - (ii) Synchronous and Asynchronous message passing.
- (b) Explain the concept of permutation Network with an example. 10
 Discuss perfect shuffle permutation and Butterfly permutation.

5. (a) What are the problems faced by super scalar architecture ? How are these problems removed in VLIW architecture ? 10

- (b) Explain Bens Network. Show the inter connections of Bens Network for the following permutations. 10

$$P = \begin{bmatrix} 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 2 & 3 & 4 & 0 & 1 & 6 & 7 & 5 \end{bmatrix}$$
