

4. Explain the following terminologies associated with SIMD computers.
- Cube routing function
 - Mesh-connected illiac network
 - Shuffle exchange and omega networks.
5. a) State and explain the architectural configuration of multiprocessors. Explain loosely coupled and tightly coupled multiprocessors.
- b) Describe the following terminologies associated with pipeline computers:
- Dynamic Pipeline
 - Pipeline efficiency
 - Forbidden latencies
 - Greedy cycle
6. a) What is vector processing? Give some examples of vector processing. Also discuss some primitive vector processing instructions.
- b) Write an $M(j, k)$ sorting algorithm, explain with example.
7. a) What is the Basic block scheduling? Explain the Local and Global optimization with suitable example.
- b) Explain in detail the distributed shared memory architecture highlighting the directory based cache coherence protocol. Substantiate your explanation with suitable example and state diagrams.
8. Write short notes on:
- System Deadlocks and Protection
 - Asynchronous Parallel Algorithms
 - Stochastic Scheduling Models.

MCIT - 203**M.E./M.Tech., II Semester**

Examination, June 2014

Advance Computer Architecture*Time : Three Hours**Maximum Marks : 70*

Note : Attempt any five questions. All questions carry equal marks.

- Give the classification criteria of parallel computers suggest by (i) Handler (ii) Flynn (iii) Feng and also classified the computers on the basis of these criteria.
 - What do you understand by delayed branch approach of jump instruction in the instruction pipeline discuss with suitable examples.
- Write an $O(n^2)$ algorithm for SIMD Matrix Multiplication and draw the successive contents of the output array in memory.
 - Explain in detail the need for synchronization and how it is achieved in a multiprocessor? Discuss the associated implementation issues.
- Explain the following terms associated with message passing programming of multi computers:
 - Synchronous vs asynchronous message passing schemes
 - Blocking vs non-blocking communication
 - Name addressing vs channel addressing schemes for message passing.
 - Lost-message handling and interrupt message handling.