Roll No..

MCSE-103

M.E./M.Tech. I Semester

Examination, December 2020

Advanced Computer Architecture

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

    ii) All questions carry equal marks.

1. a) Explain the Flynn's classification of parallel processing.

   b) What is the need of parallel processing? Give a classification of parallel computing structures.

2. a) What is pipelining? Explain how processing is done in the pipeline.

   b) Why does pipelining improve performance?

3. a) What are speedup, throughput and efficiency of a pipelined architecture.

   b) Compute the speedup, efficiency and throughput measures for a four stage pipeline having delays of 15, 25, 45 and 30 ns of the different stages while processing 100 jobs. Assume a latch delay of 5ns.

4. a) What is vector processing? List down some of the application areas where vector processing is important.

   b) Explain SIMD array processor along with its architectural diagram.

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5. a) What do you mean by data and control hazards? Suggest some methods to resolve them.

   b) Explain the difference between multicomputer and multiprocessor systems.

6. a) What is multiprocessor? Name two different sets of architectural models for a multiprocessor.

   b) Briefly explain loosely coupled multiprocessor system. Explain how the intra and inter processor communication takes place in loosely coupled systems.

7. a) What is interconnection network? List the schemes available for establishing an interconnection network.

   b) Write a note on load balancing in multiprocessor systems.

8. Write short notes on any two of the following.

   i) MIMD multiprocessor system

   ii) Search Algorithm

   iii) Instruction Pipeline

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