OR

10. a) Explain about data-parallel model. 7

b) Explain about parallel programming environment and tools. 7

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Roll No G.....

CS - 605

B.E. VI Semester

Examination, December 2014

Advance Computer Architecture

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt one question from each unit. Each unit have equal marks.

ii) Assume data/value if required.

Unit - I

1. a) Describe at least four characteristics of MIMD. ıltiprocessors that distinguish them from multiple mputer systems. 7

b) Distinguish between static and dynamic connection networks. 7

OR

2. a) Distinguish between omega and cross bar networks. 7

b) Write short note on multistage connection networks. 7

Unit - II

3. a) Explain the difference between superscalar and VLIW architectures in terms of hardware and software requirements. 7

   b) Compare the instruction-set architecture in RISC and CISC processors in terms of instruction formats addressing modes, and cycles per instruction. 7

OR

4. a) Explain about Arbitration, transaction and interrupt. 7

   b) Explain the following terms associated with cache design. 7

      i) Write through versus write back caches

      ii) Factors affecting cache hit ratios

Unit - III

5. Consider the following pipeline reservation table:- 14

	1	2	3	4
S_1	×			×
S_2		×		
S_3			×	

   a) What are the forbidden latencies?

   b) Draw the state transition diagram.

   c) Determine the optimal constant latency cycle and the minimal average latency.

   d) Let the pipeline clock period be Z = 2 ns.

   Determine the throughput of this pipeline.

OR

6. a) Write Tomasulo's algorithm. 7

   b) Describe about branch handling techniques. 7

Unit - IV

7. a) Explain the following terms related to vector processing. 7

      i) Vector and scalar balance point.

      ii) Vectorization compiler.

   b) Explain about directory based protocols. 7

OR

8. a) Describe message routing schemes in multi computer network. 7

   b) Discuss the design space for granularity and connectivity of SIMD systems. 7

Unit - V

9. a) Describe about function and logic model. 7

   b) Discuss features of parallelism. 7