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Name:

Reg.No.

**SIXTH SEMESTER B.TECH (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2010**

IT 2K 605 - COMPUTER ARCHITECTURE



Time: 3 Hours

Maximum: 100 Marks

Answer ALL questions

I

- a) Explain the two-bit branch prediction scheme.
- b) Differentiate between Paging and Segmentation.
- c) What are the factors that limit instruction level parallelism?
- d) What are the factors favouring large page size ?
- e) Discuss compound instructions.
- f) Discuss handling of Vector Stride in Vector Computing.
- g) Classify the optimizations performed by modern compilers
- h) Explain about MPI.

(8 × 5 = 40)

- II. (a) State and explain the importance of Andahls law.
(b) Explain the concept of pipelining with multicycle operations.

Or

- (c) "The only consistent and reliable measure of performance is the execution time of real programs." Discuss the correctness of this statement.
- (d) Three enhancements with the following speedups are proposed for a new architecture. Only one enhancement is usable at a time Speedup. 1 = 30 ; Speedup 2 = .20 ; Speed up 3=15. If the enhancements can be used 25 %, 35 % and 10 % of the time for enhancement 1, 2 and 3 respectively. For what fraction of the reduced .execution time is no enhancement in use?

- III. (a) Discuss different approaches to vector computation. -
(b) What is the importance of reservation stations in Tomasulo's approach ?

Or

- (c) Explain how a compiler detects dependencies with the help of an example.
- (d) Discuss any *two* dynamic scheduling algorithms.

- IV. (a) (i) Explain any *two* techniques for reducing Cache miss rate.
(ii) Discuss various Virtual Memory Management Schemes.

Or

- (b) (i) What are the main goals of RAID technology ? Discuss different RAID organisations.
- (ii) What is meant by split transaction? Explain.

- V. (a) What is false sharing ? Explain.
(b) Explain any *two* practical issues in interconnection networks.

Or

- (c) Explain the concept of directory based Cache coherence protocol.
- (d) Explain how routing is done in switched media.

(4 × 15 = 60)