USN [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   **14ELD41**

Fourth Semester M.Tech. Degree Examination, June/July 2016
Advanced Computer Architecture

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Discuss fallacy and pitfalls of computer design.   (08 Marks)
   b. Explain data dependences and hazards.   (08 Marks)
   c. Explain static branch prediction.   (04 Marks)

2 a. Explain hardware based speculation with help of block diagram.   (08 Marks)
   b. Explain Tomasulo's algorithm with an example.   (07 Marks)
   c. Explain cross cutting issue of hardware versus software speculation. (05 Marks)

3 a. Explain six basic cache optimization rules.   (08 Marks)
   b. Explain how a protection is achieved via virtual memory.   (07 Marks)
   c. Explain RAID – 6.   (05 Marks)

4 a. Explain Poisson distribution of random variable.   (08 Marks)
   b. Define real faults and failures.   (07 Marks)
   c. Explain fallacy and pitfall of design based on faults and failure analysis. (05 Marks)

5 a. Explain how deadlocks is handled by limited buffering.   (08 Marks)
   b. Draw BG/L processing node and explain the same.   (08 Marks)
   c. Explain IA – 64 register model.   (04 Marks)

6 a. Explain FFT Kernel, Lu Kernel.   (08 Marks)
   b. Explain interprocessor communication, and critical performance issues. (08 Marks)
   c. Explain how speeding up addition is achieved.   (04 Marks)

7 a. Explain Amdahl's law.   (07 Marks)
   b. Explain carry–select adder.   (07 Marks)
   c. Explain how cache coherence in achieved.   (06 Marks)

8 a. Explain AMD opteron memory hierarchy.   (07 Marks)
   b. Explain net app FAS6000 integrated input/output system.   (06 Marks)
   c. Explain basic complier techniques for exposing ILP.   (07 Marks)

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