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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II Semester Examinations, October/November 2011
ADVANCED COMPUTER ARCHITECTURE
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. Describe the quantitative principles of computer design. [12]

2.a) Explain the encoding an Instruction set with an example.
b) Explain the operations for Media and signal processing. [12]

3.a) Draw and Explain basic structure of a MIPS FP unit using Tomasulo's algorithm and extended to handle speculation.
b) What is Data Hazard? Describe the classification of Data Hazards. [12]

4. Explain the basic compiler techniques for exploring ILP. [12]

5. Assume we have a computer where the clocks per instruction (CPI) is to when all memory accesses hit in the cache. The only data accesses are loads and stores, and these total 50% of the instructions. If the miss penalty is 25 clock cycles and the miss rate is 2 %, how much faster would the computer be if all instructions were cache hits? [12]

6.a) Draw and explain the state transition diagram for individual cache block in a director based system.
b) Differentiate between write update and write invalidate protocols. [12]

7.a) Describe the characteristics of TPC bench marks.
b) Explain the errors and failures in Real systems. [12]

8.a) What is cluster? Describe the advantages of clusters.
b) Explain the transmission media used in inter connection networks. [12]

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