

## CS 3853 Computer Architecture Quiz 2b Fall 2013

This is a closed book exam. You may not use a computer, but you may use a calculator.

Answer all question on this sheet in the space required.

Each problem is worth 3 points:

- 1 point for turning in the paper  
2 points for showing some reasonable work  
3 points for showing work and putting a box around the correct answer

- 1) A new ALU design speeds up integer operations by 60%. If integer operations now take 30% of the time on the new machine, what is the overall speedup?
- 2) A new ALU design speeds up integer operations by 60%. If integer operations took 40% of the time on the old machine, what is the overall speedup?
- 3) Suppose that all machine-level instructions take 4 cycles to execute except for loads which take 9 cycles. When task A is run, 30% of the instructions executed are loads. What is the average CPI for this task?