CS 3853 Computer Architecture Quiz 6b 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 with the correct answer and if it is numeric, putting a box around the correct answer

The three problems refer to the following:

Suppose you have a paged virtual memory system with a page size of 32K,

a logical address of 50 bits, and a physical address of 42 bits.

It uses an 32K 4-way set associative cache that has a block size of 128 bytes.

The cache uses physical addresses.

1) How many bits of a logical address are needed for the page offset and how many are needed for the page number? Make sure you label your answers.

2) How many bits of a physical address are used for the block offset and how many are used for the index? Make sure you label your answers.

3) How many bits are needed in a cache entry for the tag?