

## CMPUT 229 - Quiz # 2 - Winter 2012

Name:

**Question 1 (100 points):** When compiled with a compiler  $A$ , a computer program executes  $2 \times 10^9$  instructions and requires 2 seconds to complete in a computer with a processor executing a frequency of 2  $GHz$  ( $1\text{ }GHz = 1 \times 10^9\text{ }Hz$ ).

A new compiler  $B$  was developed. When compiled with compiler  $B$  the same program executes 2 times faster in the same machine and the CPI of the code generated by compiler  $B$  is 0.5.

a. [50 points] What is the CPI for the code generated by compiler  $A$ ?

b. [50 points] How many instructions the code generated by compiler  $B$  executes?