WMST201/CPSC101 Connecting with Computer Science W1 2009

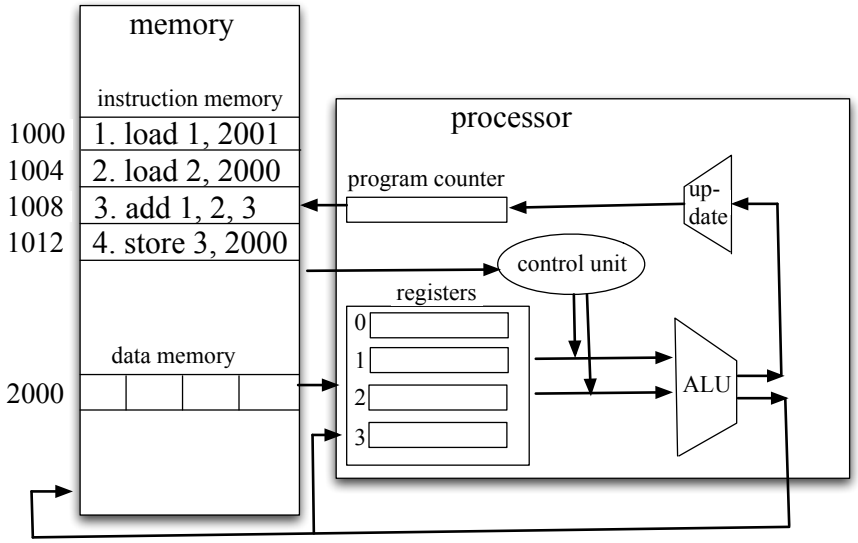
Quiz 4

Name:

Student ID Number:

Try all three questions on the quiz; the third is on the back of this page. You have 15 minutes in total. Make sure you give yourself time for each part. Good luck!

1. In the figure below, instructions are placed in memory starting at location 1000. In the table below the figure, show what are the contents of the four registers, the program counter and the memory locations 2000, 2001, and 2002 after each of the given instructions (numbered from 1 to 4) are executed in order. The initial values, before any instruction is executed, are given in the first row of the table.



instruction number	program counter	registers 0	1	2	3	memory locations 2000	2001	2002
	1000	4	3	5	3	6	3	4
1								
2								
3								
4								

2. Consider the following definition of a computer: a device that can store data and can receive, store, and execute a list of instructions. The instructions should come from a well-specified

set that supports the use of variables and includes instructions for control of flow as well as arithmetic operations on data.

(a) What is an example of an instruction for control of flow?

(b) Briefly give *two* reasons why the simple calculator illustrated in part (a) of the figure below is not a computer, according to the above definition.

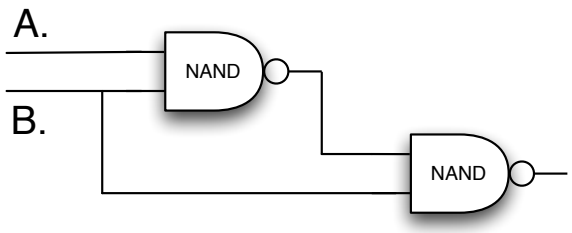
3. The function of a NAND gate is specified by the input/output table on the left.

Input A	Input B	Output (NAND)
0	0	1
0	1	1
1	0	1
1	1	0

Input A	Input B	Output
0	0	
0	1	
1	0	
1	1	

In the table on the right above, fill in the entries in the Output column so that the table describes the circuit in part (b) of the figure below.

(a)



(b)