

Score: _____

Name: _____

ECE 3055 Quiz II, Wednesday January 28

The instruction, **sub \$2, \$5, \$8** is executed on the MIPS single clock cycle datapath. Assume the registers are all loaded with the register number prior to execution and all data memory words are loaded with the memory address of the first byte of the word. Fill in the values of the following control signals and buses.

MIPS Datapath bus values in hexadecimal

| | | | | | |
|----------|-------|-------|-------|------|-------|
| 00000000 | 00101 | 01000 | 00010 | 0000 | 0x22 |
| 0 | 0 | A | 8 | 1 | 0 2 2 |

Instruction Bus = 00A81022

Register file Read Data Bus 1 = 0x00000005

Register file Read Data Bus 2 = 0x00000008

ALU Result Bus = 0xFFFFFFFF

Data Memory Write Data Bus = 0x00000008

MIPS Control Signals in Binary

MemWrite = 0

ALUSrc = 0

RegDst = 1

ALU Op (two-bits) = 10

ALU control (3 or 4 bits in new edition) = 110 or 0110