

Score: _____

Name: _____

ECE 3055 Quiz 3, Wednesday, September 10

The MIPS machine code instruction, **0x00C82822** is executed on the MIPS single clock cycle datapath from the text. Assume the registers are all loaded with the register number prior to execution, all data memory words are loaded with the memory address of the first byte of the word, and the current PC is 0x0400000. Fill in the values of the following control signals and buses.

The MIPS Assembly Language Instruction (i.e. symbolic - not hex machine code!) is

sub \$5, \$6, \$8 (2 points)

(Answer must include all operands - i.e. both register and address fields when present)

Show all MIPS Datapath bus values below (in Hexadecimal)

Register file - Read Data Bus 1 = 0x00000006 (1 point)

Register file - Read Data Bus 2 = 0x00000008 (1 point)

Write Register Bus = 0x05 (1 point)

Write Data Bus = 0xFFFFFFFFE (1 point)

MIPS Control Signals (in Binary)

MemWrite = 0 (1 point)

RegDst = 1 (1 point)

ALU Op (two-bits) = 10 (1 point)

ALU control (three bits) = 110 (1 point)