

Score: _____

Name: _____

ECE 3055 Quiz III, Wednesday, February 10, 2010

The instruction, `sub $2, $4, $6` is assembled using standard MIPS/SPIM syntax and executed on the MIPS single clock cycle datapath described in Section 4.4 and summarized in Figure 4.17 of the textbook. Assume the registers are all loaded with the register number prior to execution and all data memory words are loaded with the (byte addressable) memory address of the first byte of the 32-bit word. Fill in the values of the following control signals and buses.

MIPS Datapath bus values in hexadecimal

0000|00 00|100 0|0110|000|0 00|00 10|0010

Instruction Bus = 0x00861022

Register file Read Register Bus 1 = 0x04 (5 bits!)

Register file Read Data Bus 2 = 0x00000006

ALU Result Bus = 0xFFFFFFFF

Register File Write Data Bus = 0xFFFFFFFF

1 pt. each

MIPS Control Signals in Binary

RegWrite = 1

ALUSrc = 0

MemtoReg = 0

ALU Op (two-bits) = 10

ALU control (four bits) = 0110