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CSE 140 HW #3 zyBook Exercises

3. Exercise 4.19.5 Solve it for sw x12, 20(x13) instead of sd

a) What are the values of the ALU control unit's inputs for this instruction?

- ALUOp: 00 (store operation)

- Funct3: 010 (store operation)

- Funct7: Not applicable for this instruction

b) What is the new PC address after this instruction is executed?

- The new PC address after the instruction is executed would be PC + 4. This occurs during the fetch stage.

c) For each mux, show the values of its inputs and outputs during the execution of this instruction. List values that are register outputs at Reg [xn]

- MuxA: Inputs: PC + 4, Register Output x13, Output: Register Output x13

- MuxB: Inputs: Immediate 20, Register Output x12, Output: Immediate 20

- MuxY: Inputs: ALU Result, Register Output x12, Output: ALU Result

- MuxMem: Inputs: ALU Result, Register Output x12, Output: ALU Result

d) What are the input values for the ALU and the two add units?

- ALU: Input1 = x13, Input2 = 20

- Add1: Input1 = PC, Input2 = 4

- Add2: Input1 = x13, Input2 = 20

e)
What are the values of all inputs for the registers unit?

- Write register: x13

- Write data: x12

- Read register 1: x13
- Read register 2: Not used