Name: _____

EECE.3170 Spring 2024
Quiz 3

Below are two op-code descriptions from the AVR ISA and their descriptions. In each case, r and d are the two registers the operation is performed on and *d is the register where the result is stored*. Use this information to answer the following questions.

MOV (copy Rr to Rd)	0010 11rd dddd rrrr
EOR (exclusive or)	0010 01rd dddd rrrr

Register 0 contains: 0000 0001
Register 1 contains: 0011 0100
Register 2 contains: 1100 0001
Register 3 contains: 1100 0100

1. For the following questions, consider this opcode: 0010 1100 0010 0011
    a. What operation is this?

MOV
2 points

    b. What is register Rd?

R2
2 points

    c. What is register Rr?

R3
2 points

    d. Write out the operation and give it's result in binary.

R3 -> R2, R2 = 11000100
2 points

    e. What register will this result be stored in?

R2
2 points

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2. For the following questions, consider this opcode: 0010 0100 0000 0001
    a. What operation is this?

EOR, exclusive or, XOR. Any are fine.
2 points

    b. What is register Rd?

R0
2 points

    c. What is register Rr?

R1
2 points

    d. Write out the operation and give it's result in binary.

0000 0001 XOR 0011 0100 = 00110101
2 points

    e. What register will this result be stored in?

R0
2 points

3. Write out the opcode for EOR using Rr = 12 and Rd = 23

    EOR = 0010 01rd dddd rrrr
    Rr = 01100
    Rd = 10111

    Op Code: 0010 0101 0111 1100
    5 points

4. Write out the opcode for MOV using Rr = 31 and Rd = 9
    MOV = 0010 11rd dddd rrrr
    Rr = 11111, Rd = 01001, Op Code = 0010 1110 1001 1111
    5 points