

Question 1: Register File Decode Your team has intercepted five encoded transmissions. Intelligence confirms each is a RISC-V R-type instruction. Before the transmission ended, your team also received a register file with its 32 registers filled with values and a garbled voice stating the secret message spans from register x10–x19.

Part I: Decoding the Message

Here are the 5 messages:

Label	Transmission
MSG-0	0000000 01001 00001 001 00100 0110011
MSG-1	0100000 00010 01011 000 01011 0110011
MSG-2	0000000 00100 01110 100 01110 0110011
MSG-3	0100000 00101 10000 000 10000 0110011
MSG-4	0000000 01000 10001 000 10001 0110011

1.1. Decode each 32-bit transmission into a RISC-V R-type instruction.

Question 2: Register File Execute Good job Agent. Now, using the instructions you decoded from the transmissions, execute these instructions **in order** on the register file below.

Reg 0 D Q > 0	Reg 1 D Q > 1	Reg 2 D Q > 11	Reg 3 D Q > 100	Reg 4 D Q > 56	Reg 5 D Q > 19	Reg 6 D Q > 25	Reg 7 D Q > 22
Reg 8 D Q > 12	Reg 9 D Q > 5	Reg 10 D Q > 119	Reg 11 D Q > 112	Reg 12 D Q > 108	Reg 13 D Q > 111	Reg 14 D Q > 86	Reg 15 D Q > 101
Reg 16 D Q > 118	Reg 17 D Q > 99	Reg 18 D Q > 109	Reg 19 D Q > 112	Reg 20 D Q > 84	Reg 21 D Q > 98	Reg 22 D Q > 25	Reg 23 D Q > 17
Reg 24 D Q > 5	Reg 25 D Q > 67	Reg 26 D Q > 55	Reg 27 D Q > 44	Reg 28 D Q > 62	Reg 29 D Q > 33	Reg 30 D Q > 34	Reg 31 D Q > 47

2.1. Write the resulting values in registers x10–x19 after execution.

2.2. Take the values from the register file and decode each using an ASCII table. Write the secret message below.

To get more practice with assembly writing, check out the **RISC-V Assembly Practice** on the course website here: <https://github.com/kakiryan/comp-311-assembly-practice-problems!>