Course: Computer Organization Course Code: CS45

Activity V: Designing an ALU to perform arithmetic and logical functions using Logisim simulator.

23/05/20

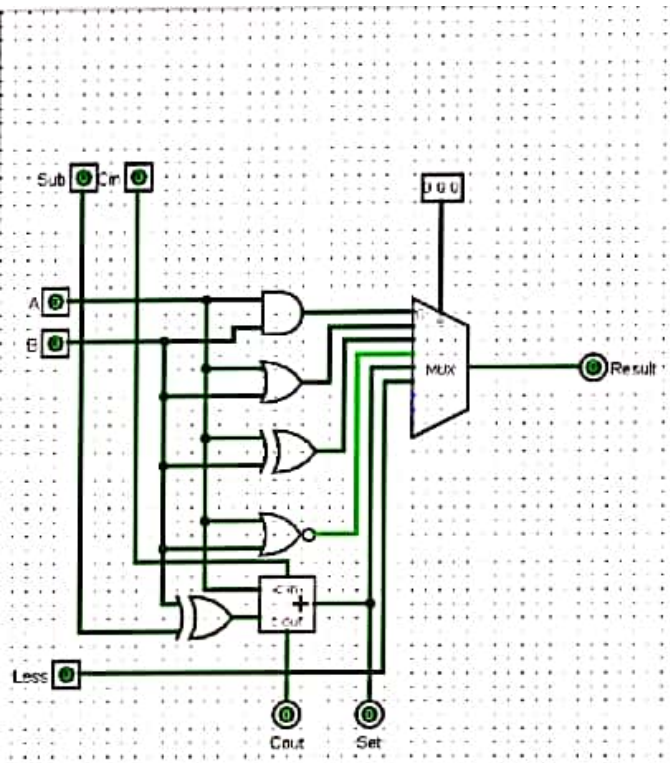
Name: Poorvi Goyal	Marks: 10
USN: 1MS18CS089	Signature of faculty:

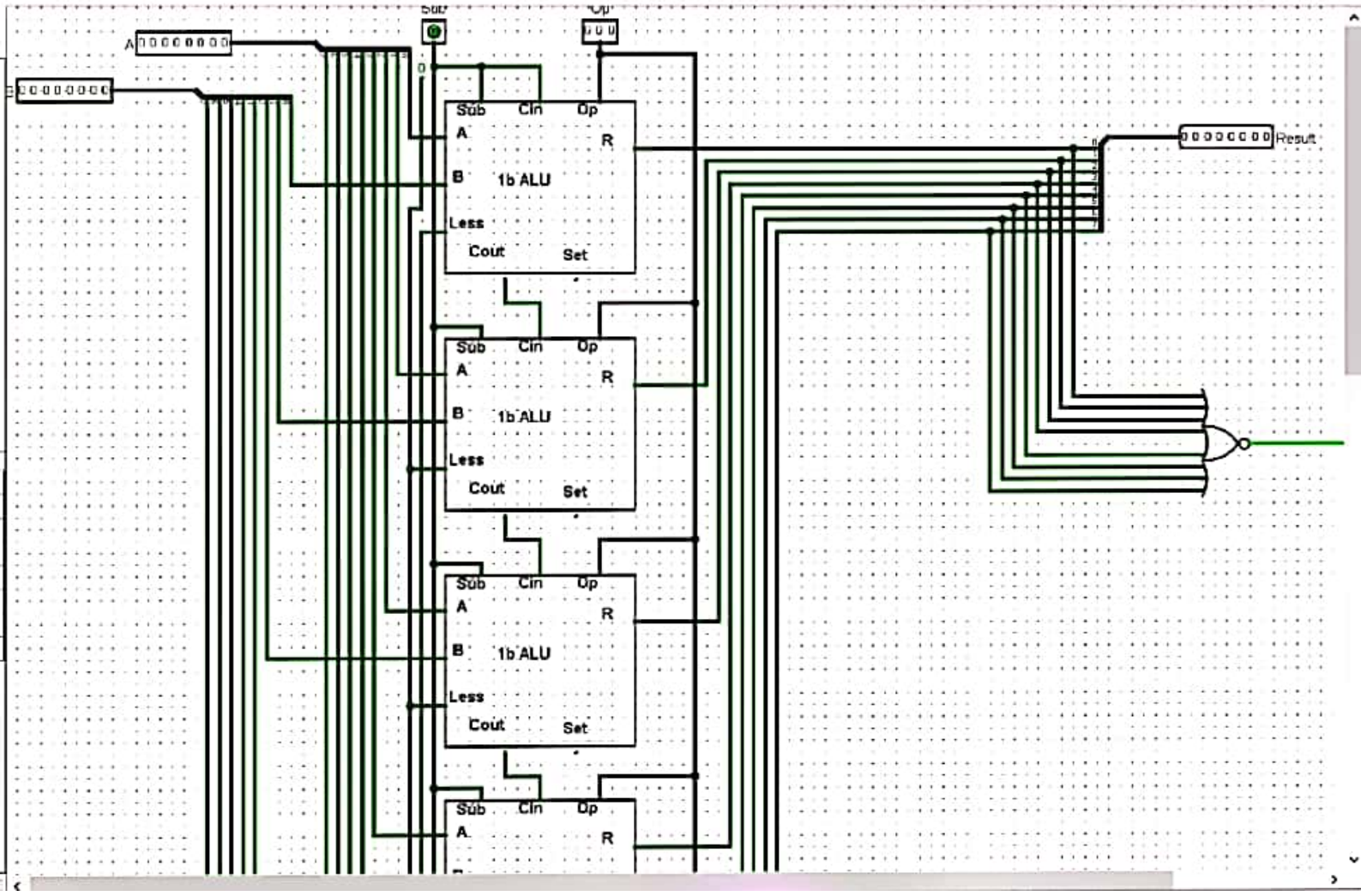
Date: / /

Objective: To simulate the working of Arithmetic and Logical Unit using simulator.

List out the steps in designing ALU:

1. Add the two input pins, name them A and B.
2. Add OR, AND, EX-OR, NOR gates and a 1-bit adder.
3. Connect the A's and B's of all the gates to their respective pins.
4. Add an output pin and name it Result.
5. Add a 1-bit multiplier with 3 select bits.
6. Connect the outputs of all gates to the mux.
7. Connect 3-bit input pin to mux.
8. Add i/p pin to cin and o/p pin to cout.
9. Add an EX-OR gate. Connect its o/p to cout. The first i/p must be connected to B and the second to another i/p pin SUB.
10. Add another i/p and name it Less. Connect it to mux.
11. Add an output pin and name it set. Connect it to the multiplexer o/p of adder circuit.





Course: Computer Organization Course Code: CS45

Activity VI: Designing memory system using Logisim simulator.

Name: Poorvi Goyal	Marks: /10 Date: / /
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23/05/20

Objective: To simulate the working operation on memory.

List out the steps in designing memory system.

1. Add a RAM with separate load and store selected.
2. Add a counter and connect R to A of the RAM.
3. Add a controlled buffer and connect its o/p to RAM.
4. Add a clock and connect to the i/p of the buffer.
5. Add a TTY unit with 32 rows and columns. Make the connections with RAM.
6. Add a 7-bit random number generator, connect R to D.
7. Add another controlled buffer, connect it to TTY. Also, add an i/p pin to the buffer.
8. Connect the o/p of the second buffer to the counter.
9. Connect a button to the counter.