# Design of Arithmetic Logic Unit

INSTRUCTION

1. **Apply high voltage to M(mode control input) and low volatge to C_n.**

2. **Apply V_{CC} and low level voltage to ground(GND).**

3. **Then apply low voltage to all the 4 select inputs (S_3 S_2 S_1 S_0). Logical operation will be performed. The output will be inverted A.**

4. **Next, apply high voltage to S_0 and apply low voltage to all other select inputs(S_3 S_2 S_1). Logical operation will be performed. The output will be A + B.**

5. **Now apply high voltage to S_1 and low voltage to all other select inputs(S_3 S_2 S_0). Logical operation will be performed. The output will be AB.**

6. **To check the outputs for arithmetic operations, apply high voltage to C_n and low volatge to M. Then apply low voltage to all the 4 select inputs(S_3 S_2 S_1 S_0). Arithemetic operation will be performed.The output will be A**

7. **Apply high voltage to S_0 and apply low voltage to all other select inputs(S_3 S_2 S_1). Arithmetic operation will be performed. The output will be A + B.**

8. **For Arithmetic operation A+ $\overline{B}$, apply high voltage to S_1 and low voltage to all other select inputs(S_3 S_2 S_0).**

9. **Apply all the combinations to all the select inputs(S_3 S_2 S_1) to check the Logical and Arithmetic operation output.**

10. **Note: Red symbolize as Low (L), Green symbolize as High(H).**

CIRCUIT DIAGRAM
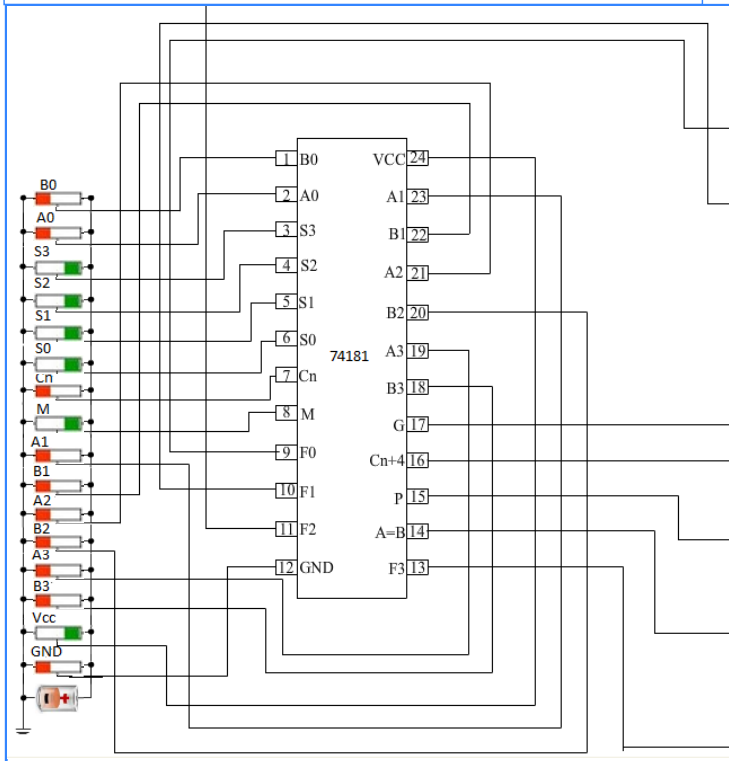
TRUTH TABLE   Add to Table

7	0	1	1	1	1	0	0	A$\overline{B}$
8	1	0	0	0	1	0	0	$\overline{A}$+B
9	1	0	0	1	1	0	0	$\overline{A}$ xor $\overline{B}$
10	1	0	1	0	1	0	0	B
11	1	0	1	1	1	0	0	AB
12	1	1	0	0	1	0	0	Logic 1
13	1	1	0	1	1	0	1	A+ $\overline{B}$