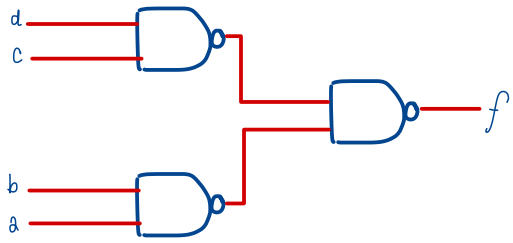
Experiment 2 Using NAND gates to implement the Boolean function $F = AB + CD$

a. Draw the circuit diagram.



b. Obtain the truth table for F.

D	C	B	A	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1

D	C	B	A	F
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

c. Connect the four outputs of the binary counter shown in Figure 4 to the four inputs of the NAND circuit. Simulate and sketch the waveforms.