

Quiz NO1 70 Minutes

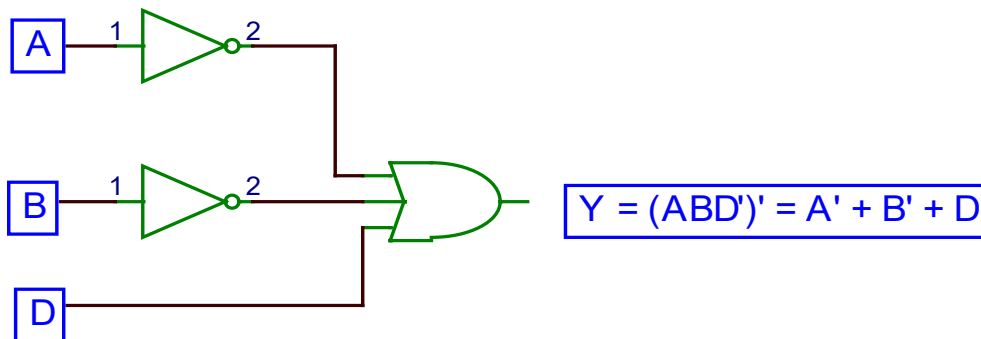
Make sure that I verify receiving your email to prof@dpeled.com

1. Simplify the following K-maps. Draw the final simplified circuit.

AB CD	00	01	11	10
00	1	1	0	1
01	1	1	1	1
11	1	1	1	1
10	1	1	0	1

Use a Circuit Simulator Program.

Using the zero's $Y' = ABD' \rightarrow Y = (ABD')' = A' + B' + D$



AB CD	00	01	11	10
00	1			1
01		1	1	
11	1	1	1	1
10		1	1	

There are two viable solutions

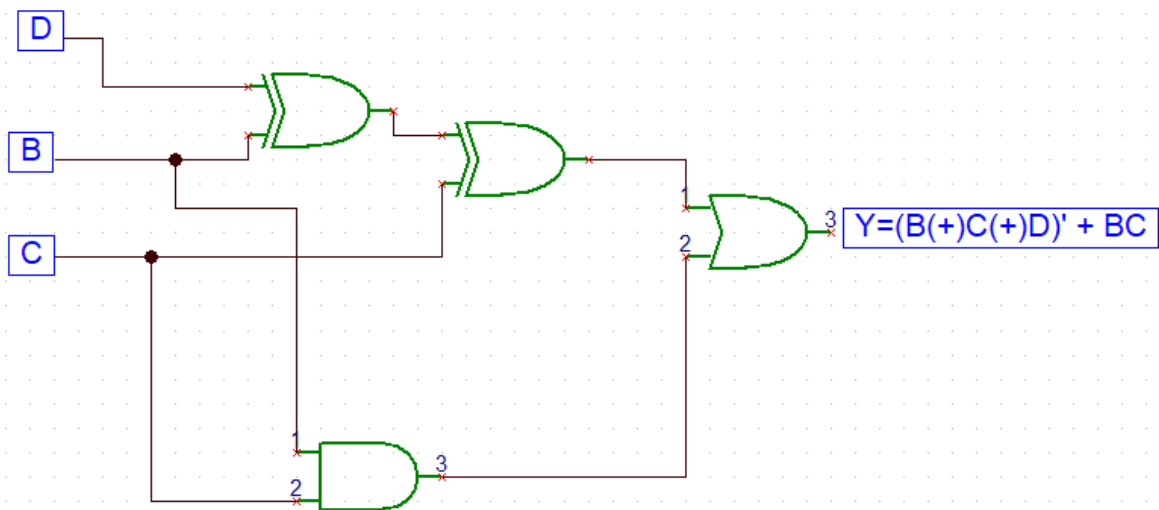
$$Y1 = BCD' + B'CD + BC'D + B'C'D' + BC$$

Using zigzag

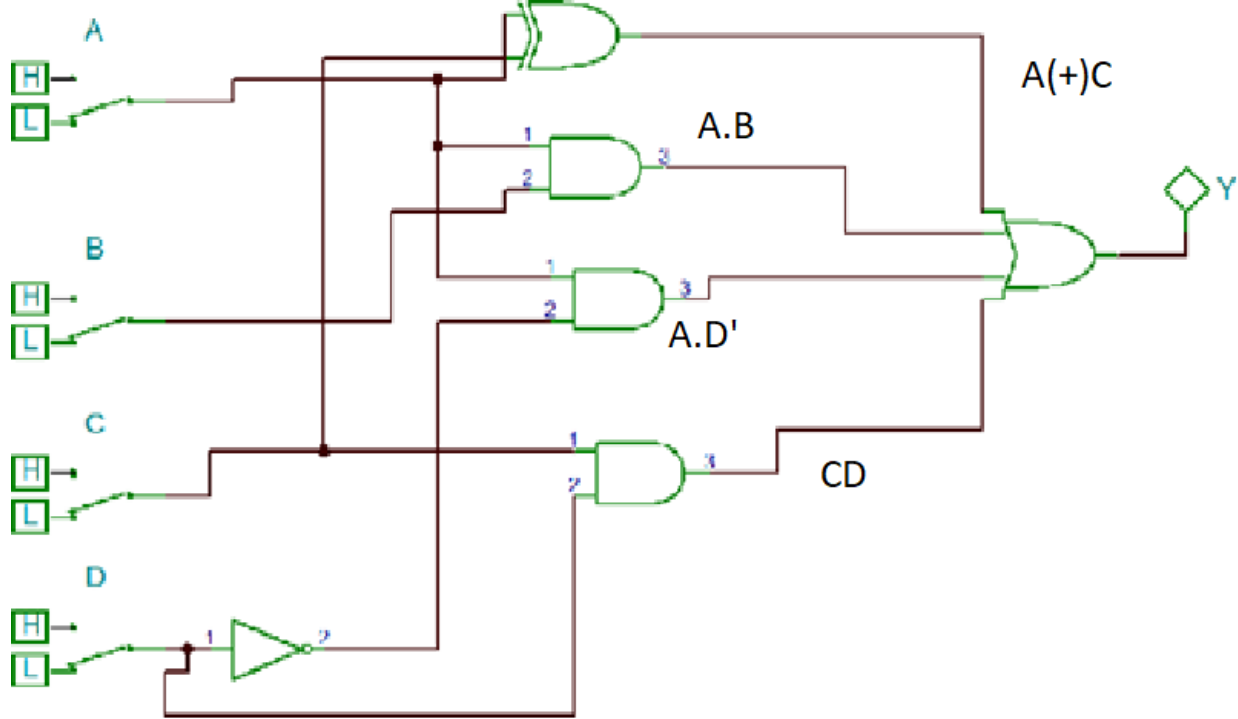
$$Y1 = B(CD' + C'D) + B'(C'D' + CD) + BC$$

$$= B(C(+)D) + B'(C(+)D)' + BC = (B(+)C(+)D)' + BC$$

$$Y2 = (B(+)C(+)D)' + BD$$

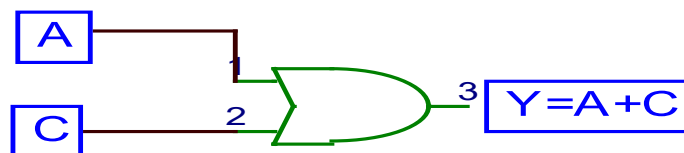


2. Obtain the Boolean algebra equation from the circuit, enter it into a Karnaugh map simplifying it and redraw the simplified circuit



$$Y = A(+)C + AB + AD' + CD = A'C + AC' + AB + AD' + CD$$

AB \ CD	00	01	11	10
00			1	1
01			1	1
11	1	1	1	1
10	1	1	1	1



$$Y = A + C$$