

ASSIGNMENT-1

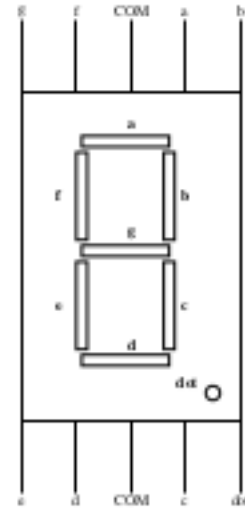
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Abstract

Draw the logic circuit of the following Boolean Expression using only NAND Gates : $X.Y + Y.Z$

1 Components

Components	Value	Quantity
Arduino	UNO	1
seven segment display	-	1
Jumper wires	M-M	18
Breadboard		1
Resister	150 ohm	1
Decoder	7447	1



2 Truth Table

Abstract

This manual shows how to use Arduino with 7447 and seven segment display to represent pos canonical form for function 'F' in truth table.

X	Y	Z	F
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

3 HardwareConnections

*Make the connections as shown in the Figure3 and Figure4.

*Connect COM pin of seven segment display to Vcc through Resister and Dot pin to ground.

4 Execution

*Verify the above truth table by using the minimized expression in the following code.

https://github.com/bhavani360/FWC_assignments/blob/main/

Figure 1: Seven segment display

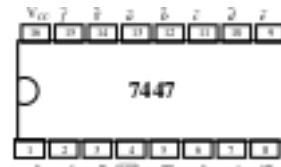


Figure 2: Pin diagram of 7447IC

7447	\bar{a}	\bar{b}	\bar{c}	\bar{d}	\bar{e}	\bar{f}	\bar{g}
Display	a	b	c	d	e	f	g

Figure 3:

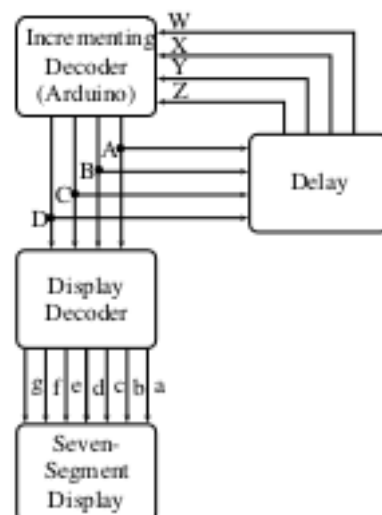


Figure 4:

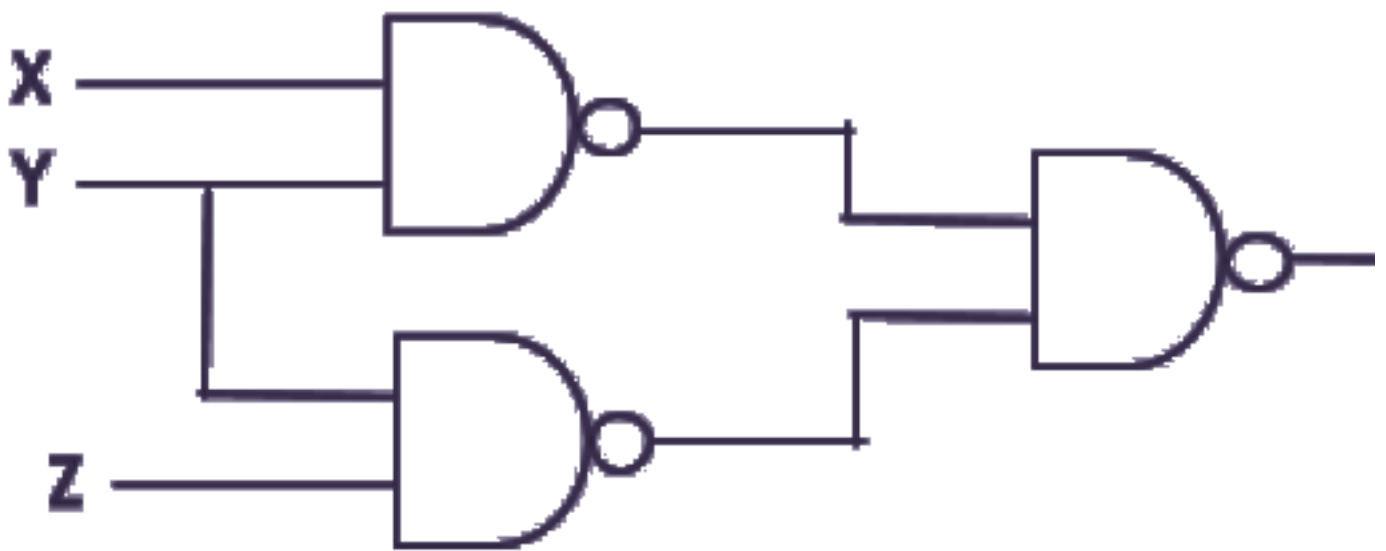


Figure 5: $F = XY + YZ$