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

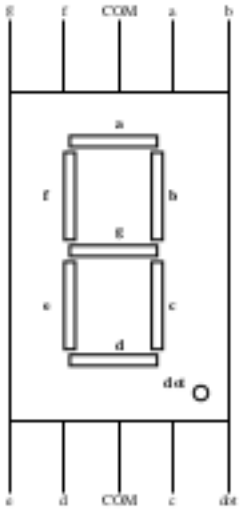

Figure 1: Seven segment display

2 TruthTable

This manual shows how to use Arduino with 7447 and sevensegment dispaly 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

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:

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/p

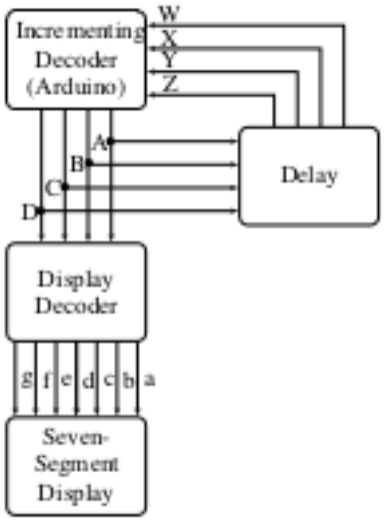

Figure 4:

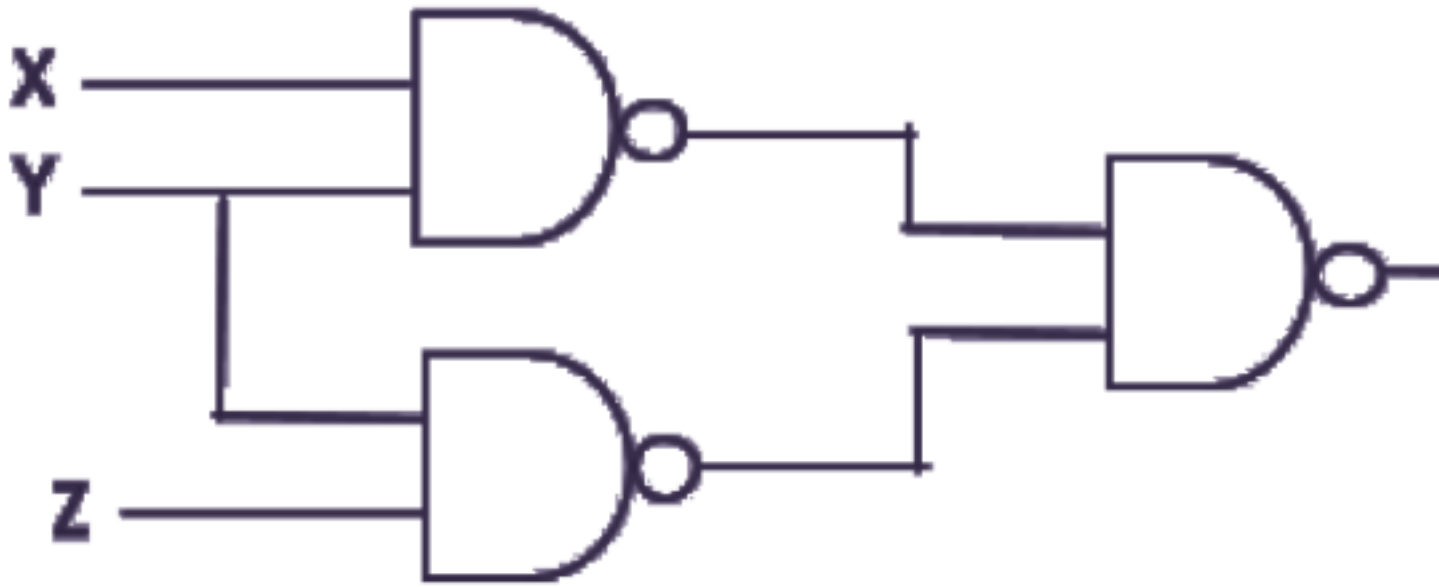

Figure 5: F = XY + YZ