

VERIFICATION OF BOOLEAN IDENTITIES

Rudra Pratap Singh

Contents

1	PROBLEM	1
2	COMPONENTS	1
3	TRUTH TABLE	1
4	ARDUINO CONNECTIONS	1
5	CODE	1

1 PROBLEM

(GATE CS-2008) Q.5 In the Karnaugh map shown below, X denotes a don't care term. What is the minimal form of the function represented by the Karnaugh map?

cd \ ba	11	10	01	00
	1	1		1
	X			
	X			
	1			X

- (A) $b'd' + a'd'$
(B) $a'b' + b'd' + a'bd'$
(C) $b'd' + a'bd'$
(D) $a'b' + b'd' + a'd'$

Here, (A) $b'd' + a'd'$ is correct option.

2 COMPONENTS

Component	Value	Quantity
Arduino	UNO	1
Bread board	-	1
Jumper wires	M-M	10
LED	-	1

3 TRUTH TABLE

The Truth Table for the identity is as follows:

(A) $Y = b'd' + a'd'$

a	b	d	Y
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	0

Table 1

4 ARDUINO CONNECTIONS

1) The connections taken from Arduino as Input and Output is as follows:

Input	a	b	d	Y
Arduino	3	4	5	6

Table 2

- 2) The input **a,b,c** here are connected to Arduino D3,D4,D5 pins.
3) The output **Y** here are connected to Arduino D6 pins.
4) The values for these inputs are conncted either to GND or 5V according to the truth table.

5 CODE

The arduino code can be downloaded from the below link.

[https://github.com/Rudrapratap1404/Rudrapratap1404/blob/main/latex/GATE\(2008\)](https://github.com/Rudrapratap1404/Rudrapratap1404/blob/main/latex/GATE(2008))