VERIFICATION OF BOOLEAN IDENTITIES

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1 PROBLE	\mathbf{M}
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COMPONENTS

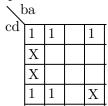
TRUTH TABLE 3

ARDUINO CONNECTIONS

CODE

PROBLEM 1

(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?

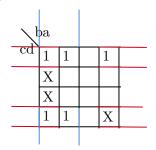


(A)
$$b'd' + a'd'$$

(B)
$$a'b' + b'd' + a'bd'$$

(C)
$$b'd' + a'bd'$$

(D)
$$a'b' + b'd' + a'd'$$



One group consists of (0000, 0010, 1000, 1010) which gives b'd' Other group is (0000, 0001, 1000, 1001) which gives a'd' So, solution is b'd' + a'd'. Hence, correct option is a).

COMPONENTS

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

TRUTH TABLE 3

The Truth Table for the identity is as follows:

$$(\mathbf{A}) \quad Y = b'd' + a'd'$$

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/code/ src/GATE2008.cpp