Verification of First Distributive law of Boolean Algebra

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***Abstract*—This document shows the verification of first distributive law of Boolean Algerbra through Truth Table**

I. Statement

This law states that X.(Y+Z) = X.Y + X.Z

This law can be verified by the Truth table mentioned below:

X	Y	Z	Y+Z	X.(Y+Z)	X.Y	X.Z	X.Y + X.Z
0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0
0	1	0	1	0	0	0	0
0	1	1	1	0	0	0	0
1	0	0	0	0	0	0	0
1	0	1	1	1	0	1	1
1	1	0	1	1	1	0	1
1	1	1	1	1	1	1	1

TABLE I
1.1 Truth Table

II. Components

Component	Value	Qunatity
Arduino	UNO	1
Jumper Wires	M-M	2
BreadBoard		1
LED		1

TABLE II
1.1 Components

III. Hardware

Problem 2.1. Make connections between the Arduino UNO, and LED as shown in Table 2.1

Arduino	12	GND
LED	+ ve	- ve

TABLE III
2.1 Connections

IV. Software

Problem 3.1 Now connect the Arduino to the computer and execute the following program and verify the outputs as mentioned in Table 3.1 by modifying the inputs X, Y, Z.

svn co https://github.com/sureshoye/IDE-Assignment/trunk/codes cd codes pio run pio run -t nobuild -t upload

TABLE IV

Result You will observe that the light adjacent to Pin 13 and LED bulb glow together.

Problem 3.2 Now type ”cd src” and open the programming code using the command ”nano main.cpp” and modify the values of X,Y and Z in the programming code main.cpp file such that both LED and Light adjacent to Pin 13 turn off and then recompile it