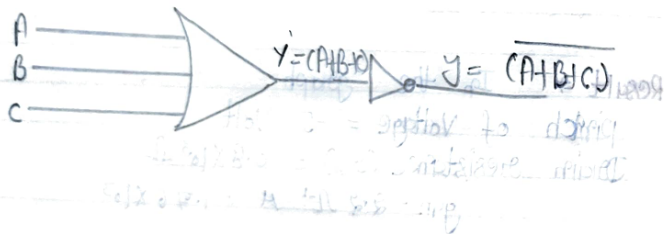
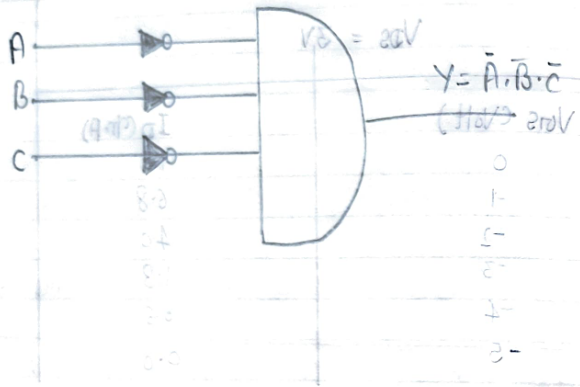


Verification of De Morgan's Theorem



Experiment $\Rightarrow$ 10 27

Page:

Date:

Object: To verify the De Morgan's Theorem or Binary and Logic Theorem

Apparatus used $\Rightarrow$ AND GATE, OR GATE, NOT GATE, Power supply, connection wire etc.

Theory $\Rightarrow$ Demorgan's Theorem consists of two parts:

(i) $\overline{A+B+C} = \bar{A} \cdot \bar{B} \cdot \bar{C}$

(ii) $\overline{A \cdot B \cdot C} = \bar{A} + \bar{B} + \bar{C}$

observation $\Rightarrow$ for part one

A	B	C	$A+B+C$	$\bar{A} \cdot \bar{B} \cdot \bar{C}$
0	0	0	1	1
0	0	1	0	0
0	1	0	0	0
0	1	1	0	0
1	0	0	0	0
1	0	1	0	0
1	1	0	0	0
1	1	1	0	0

Table for Second part

A	B	C	$\overline{A \cdot B \cdot C}$	$\overline{A} + \overline{B} + \overline{C}$
0	0	0	1	1
0	0	1	1	1
0	1	0	1	1
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	0	0

Result $\Rightarrow$ From the above two tables, it is clear that for all possible combination of A, B & C, the value of $(A+B+C)$ is equal to $\overline{A \cdot B \cdot C}$ while the value of $(A \cdot B \cdot C)$ is equal to $\overline{A+B+C}$

Precaution $\Rightarrow$

- (i) Connection should be proper.
- (ii) Indicators should be bright.