#### 1

## FPGA Lab Assignment 1

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#### 1 Question

[CBSE 2019 Q6 (a)] State any one Distributive Law of Boolean Algebra and verify it using truth table.

#### 2 Solution

Distributive Law is as follows:-

$$A.(B+C) \tag{2.1}$$

$$= A.B + A.C \tag{2.2}$$

#### 3 TRUTH TABLE

Verification of the above stated distributive law using truth table is as follows.

A	В	С	B+C	A.(B+C)	A.B	A.C	A.B+A.C
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

$$A.(B+C) = A.B + A.C$$
 (3.1)

#### 4 KARNAUGH MAP

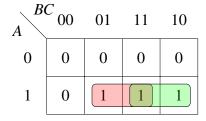


Fig. 1: K-Map for A.B + A.C

# 5 CIRCUIT DIAGRAM(INPLEMENTATION USING NAND GATES)

