Assignment-1

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Download the codes from

https://github.com/pavanmanesh/EE5803/tree/main/assign1

1 Problem

Verify the following using Boolean Laws.

$$A^{'} + B^{'}.C = A^{'}.B^{'}.C^{'} + A^{'}.B.C^{'} + A^{'}.B.C + A^{'}.B^{'}.C + A.B^{'}.C$$

2 Solution

From the Figure 0,We can see that the right hand side expression is simplified to that of left side expression.

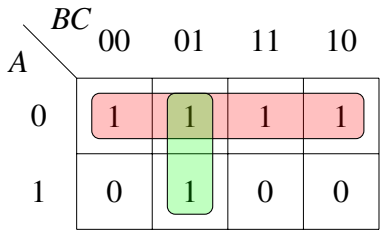

Fig. 0: K-Map

3 Truth Table

The truth table corresponding to the given expression:

A	B	C	LHS	RHS
0	0	0	1	1
0	0	1	1	1
0	1	0	1	1
0	1	1	1	1
1	0	0	0	0
1	0	1	1	1
1	1	0	0	0
1	1	1	0	0

TABLE 0: Truth Table

4 Implementation Using NAND Logic

$$\overline{A} + \overline{B}.C = \overline{\overline{\overline{A} + \overline{B}.C}} = \overline{\overline{\overline{A}}.(\overline{\overline{B}.C})} = \overline{A.(\overline{\overline{B}.C})} \tag{1}$$

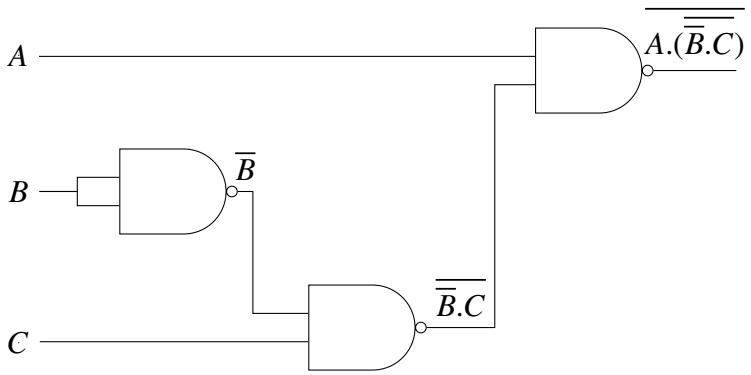

Fig. 0: Logic circuit using NAND logic