

EE5811 FPGA-A1

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1 Question

2017 Q.6(a) State DeMorgan's Laws of Boolean Algebra and verify them using truth table.

2 Solution

2.1 DeMorgan's Laws

1) $(A + B)' = A' . B'$

2) $(AB)' = A' + B'$

2.2 Verification using truth tables

Law 1:

A	B	A'	B'	A+B	(A+B)'	A'.B'
0	0	1	1	0	1	1
0	1	1	0	1	0	0
1	0	0	1	1	0	0
1	1	0	0	1	0	0

Law 2:

A	B	A'	B'	A.B	(A.B)'	A'+B'
0	0	1	1	0	1	1
0	1	1	0	0	1	1
1	0	0	1	0	1	1
1	1	0	0	1	0	0