FPGA LAB

ASSIGNMENT 1

NITISH PANI

INTEGRATED SENSOR SYSTEMS

ROLL NO:-IS21MTECH14007

Q.6.

(a) Verify the following using Boolean Laws.

A+C = A+A'.C+B.C

Ans:-

To prove: A+C = A+A'.C+B.C

Proof: RHS= A+A'.C+B.C

As per redundancy rule,

A+A'.C = A+C

So the RHS translates to

A+C+BC

= A+C.(1+B)

=A+C=LHS

Hence proved.

Now taking the truth table followed by a three-variable K-map,

A	B	C	A+A'.C+B.C
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

Drawing a three-variable K-map from the truth table above:

A \ BC				
0	0	1	1	0
1	1	1	1	1

Grouping the 1’s in the above K-map into a rectangle and a square, we get the final expression as:

F(out)=A+C;