Subject: Date: 3/12/14

(Lecture 6) Boolian Algebra

Laws:-

i) $x+0 = x$

ii) $x \cdot 0 = 0$

iii) $x+1 = 1$

iv) $x+x = x$

v) $x \cdot x = x$

vi) $x' \cdot 0 = 0$

vii) $x' \cdot 1 = x'$

viii) $x'y + xy' = x \oplus y$

Involution:- $(x')' = x$

Commutative:-

a) $x+y = y+x$

b) $x \cdot y = y \cdot x$

Associative:-

a) $x+(y+z) = (x+y)+z$

b) $x \cdot (y \cdot z) = (x \cdot y) \cdot z$

Distributive

$x(y+z) = x \cdot y + x \cdot z$

$\frac{n-13}{11}$

Subject: _____ Date: _____

De-Morgan's Law:-

i) $(x+y)' = x' \cdot y'$

ii) $\overline{(x \cdot y)} = x' + y'$

Absorption Law:-

$$x + xy = x$$

x	y	x'	y'	x+y	x·y	x'+y
0	0	1	1	0	0	1
0	1	1	0	1	0	1
1	0	0	1	1	0	0
1	1	0	0	1	1	1

Question:- $x + xy = x$

L.H.S

$= x + xy$

$= x(1+y)$

$= x \cdot 1 = x$ proved

Question:-

$= x' + xy' + x'y'$

$= x'(1+y) + x'y'$

$= x'(1) + xy'$

$= x' + xy'$