Switching Circuit & Logic Design

Lecture 8 : Practice for Logic Functions

Prove the following

A XOR A’ = 1

AB XOR AC = A .(B XOR C)

A XOR B = (A+B) .(AB)’

Which one is commutative but not associative ?

AND	X = A . (B . C)
OR	X = A + (B + C)
XOR	X = A XOR (B XOR C)
NAND	X = (A . (B . C))’

Apply Demorgan’s theorem

F = [(AB)’ (CD+E’F) ({AB}’ + {CD}’)]’

F = [(AB)’ + A’ + AB]’

Reduce expressions

$F = A [B + C'(AB + AC')']$

$F = A + B[AC + (B + C')D]$

Consensus Theorem

$$AB + A'C + BC = AB + A'C$$

Prove

$$AB' + BC' + CA' = A'B + B'C + C'A$$