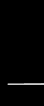


Switching Circuit & Logic Design

Lecture 8 : Practice for Logic Functions

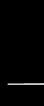


Prove the following

$$A \text{ XOR } A' = 1$$

$$AB \text{ XOR } AC = A.(B \text{ XOR } C)$$

$$A \text{ XOR } B = (A+B).(AB)'$$



Which one is commutative but not associative ?

AND

$$X = A \cdot (B \cdot C)$$

OR

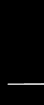
$$X = A + (B + C)$$

XOR

$$X = A \text{ XOR } (B \text{ XOR } C)$$

NAND

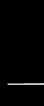
$$X = (A \cdot (B \cdot C))'$$



Apply Demorgan's theorem

$$F = [(AB)' (CD+E'F) (\{AB\}' + \{CD\}')]'$$

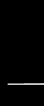
$$F = [(AB)' + A' + AB]'$$



Reduce expressions

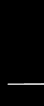
$$F = A [B + C'(AB + AC')']$$

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



Consensus Theorem

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



Prove

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

