

AI1110 Assignment 2

AI21BTECH11001

ICSE Grade 12th 2017

Question 3(b) : If A,B and C are the elements of Boolean Algebra,simplify the expression $(A' + B')(A + C') + B'(B + C)$. Draw the simplified expression

Solution:

$$= (A' + B')(A + C') + B'(B + C) \quad (1)$$

$$= A'(A + C') + B'(A + C') + B'B + B'C \quad (2)$$

$$= A'A + A'C' + B'A + B'C' + B'B + B'C \quad (3)$$

$$\because AA' = O$$

$$= O + A'C' + B'A + B'C' + O + B'C \quad (4)$$

$$= A'C' + B'A + B'(C + C') \quad (5)$$

$$\because A + A' = I$$

$$= A'C' + B'A + B'(I) \quad (6)$$

$$= A'C' + B'(A + I) \quad (7)$$

$$\because A + I = I$$

$$= A'C' + B' \quad (8)$$

