

Tutorial 5

1. Write the simplified Boolean function for the following K-Map.

a.

		BC	00	01	11	10	
		A	0	1	0	0	1
A	0	1	1	0	0	1	
	1	1	0	0	1		

b

		ab	cd	00	01	11	10	
		ab	cd	00	1	X	X	1
		ab	cd	01	X			1
		11						
		10		1				X

2. Simplify the below function expressions using K-Map (Note that A' denotes \overline{A})

$$a. \quad F(A,B) = A'B' + A'B + AB$$

$$b. F(A,B,C) = A'B'C' + A'BC' + AB'C' + ABC' + ABC$$

c. $F(A,B,C,D) = A'B'C'D' + A'B'CD' + A'BCD' + A'BCD + AB'C'D' + AB'CD'$

3. Consider the K-Map given below and answer the question.

A	BC	00	01	11	10
0		1	1		1
1					1

- a. Write the Boolean function (F) expresses in above K-Map.
 - b. Simplify the function (F) using K-Map.
 - c. Consider that the minterm $\bar{A}\bar{B}\bar{C}$ is a don't care minterm.
 - d. Indicate this don't care minterm in the same K-map.
 - e. Simplify the function (F) again with the don't care minterm.