

Quiz #2: Given  $F(A,B,C,D) = \sum (0, 2, 8, 10, 7, 5, 13, 15, 6, 14, 9, 11)$

Minimize function using k-map and list all the possible essential forms

2 points

CD \ AB	00	01	11	10
00	1			1
01		1	1	1
11		1	1	1
10	1	1	1	1

$F = BD' + BD + CD' + AB'$  (1.5 points)

$F = BD' + BD + CD' + AD$  (1 point)

$F = BD' + BD + BC + AB'$  (1 point)

$F = BD' + BD + BC + AD$  (1 point)

6 points

Q2:

Given  $F(A,B,C,D) = \prod (0, 2, 8, 11, 10, 13)$

$d(A,B,C,D) = \prod (9, 11, 15)$

I implemented the function using Nor gates only

CD \ AB	00	01	11	10
00	0			0
01				
11	0	X		
10	0	X	X	0

$F = (B + D) \cdot (A' + D')$

$F' = (B + D)' + (A' + D')'$

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

