

CSE231. 4L

Assignment 1 - Team 45

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• truth table :

a	b	c	d	- output
0	0	0	0	0
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	0
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	0
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

- boolean equation from table:

$$F(a, b, c, d) = a'b'cd' + a'bc'd' + a'bcd' + ab'cd' + ab'cd' + abc'd' + abcd'$$

- simplification using k-map:

	$c'd'$	$c'd$	cd	cd'	
$a'b'$	0	1	3	1 2	
$a'b$	1 4	5	7	1 6	$\rightarrow cd'$
ab	1 2	13	15	1 14	
ab'	1 8	9	11	1 12	

$\downarrow \quad \downarrow$
 $ad' \quad bd'$

$$F(a, b, c, d) = ad' + bd' + cd'$$