

سال ۱

امیر محمد اسحاق مراد 99463106

Subject: -----

Date: -----

$$\sum m(2, 3, 5, 7, 8, 10, 11, 12, 13) + d(6) \quad (11)$$

cd	00	01	11	10		
ab						
00	0	0	1 ₄	1 ₄	<u>WPI</u>	<u>WPI</u>
01	0	1 ₂	1 ₄	—	$\bar{b}c \checkmark$	$\bar{b}c$
11	1 ₂	1 ₂	0	0	$\bar{a}c$	+2
10	1 ₂	0	1 ₄	1 ₄	$\bar{a}bd$	
					$b\bar{c}d$	+6
					$a\bar{c}d$	
					$a\bar{b}c$	-1
					$ab\bar{e}$	

~~WPI SOP = $\bar{b}c + \bar{a}c + b\bar{c}d + a\bar{c}d$~~

WPI SOP $\rightarrow \bar{b}c + \bar{a}c + b\bar{c}d + a\bar{c}d$

+3

Subject: -----

Date: -----

NOR - NOR $\rightarrow f \rightarrow \text{POS}$

AND - OR - INV \rightarrow

$\bar{f} \rightarrow \text{SOP}$

SOP

$$f = \bar{b}c + \bar{a}c + b\bar{c}d + \bar{a}\bar{c}d$$

	cd	00	01	11	10
ab	00	0	0	1	1
	01	0	1	1	-
	11	1	1	0	0
	10	1	0	1	1

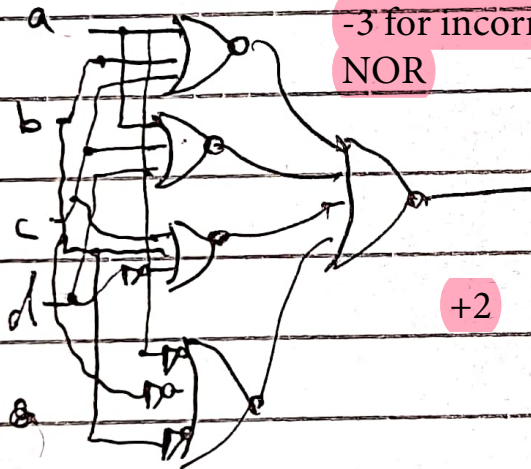
$$f \rightarrow \text{POS} = (a+b+c)$$

$$(a+c+d)$$

$$(b+c+d)$$

$$(\bar{a}+\bar{b}+\bar{c})$$

\Rightarrow



-3 for incorrect POS use surplus gate in NOR-NOR

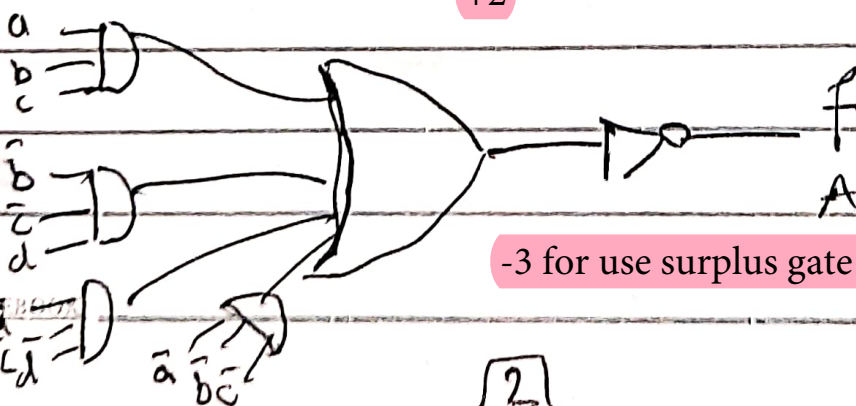
f NOR-NOR

+2

$$f = (a+b+c)(a+c+d)(b+c+d)(\bar{a}+\bar{b}+\bar{c})$$

$$\bar{f} = \bar{a}\bar{b}\bar{c} + \bar{a}\bar{c}\bar{d} + \bar{b}\bar{c}\bar{d} + abc$$

+2



f AND-OR-INV

-3 for use surplus gate and incorrect $\sim F$

[2]

Subject: ----- Date: -----

$$F = \sum m(2, 3, 5, 7, 8, 10, 11, 12, 13) + d(6) \quad (ع)$$

✓ 2	✓ (2,3) 1	✓ (2,3,6,7) (1,4)	0	-	1	-
✓ 8	✓ (2,6) 4	✓ (2,3,10,11) (1,8)	-	0	1	-
✓ 3	✓ (8,10) 2	(2,6,3,7) (4,1)				
✓ 5	✓ (8,12) 4	(2,10,3,11) (1,8)				
✓ 10	✓ (2,10) 8					
✓ 12	✓ (3,7) 4					
✓ 13	✓ (3,11) 8					
✓ 7	✓ (5,7) 2					
✓ 11	✓ (5,13) 8					
✓ 1	✓ (6,7) 1					
✓ 13	✓ (10,11) 1					
✓ 1	✓ (12,13) 1					

WPI +8

SOP: $\bar{b}c + ac + \bar{a}bd + abc$

WPI +7

SOP: $\bar{b}c + ac + \bar{a}bd + abc$

min term	2	3	5	7	8	10	11	12	13
$\bar{a}c$	x	x		x					
$\bar{b}c$	x	x				x	(x)		
$\bar{a}b\bar{d}$					x	x			
$a\bar{c}d$					x			x	
$\bar{a}b\bar{d}$			x	x					x
$b\bar{c}d$			x						
abc								x	x

NOTEBOOK SAMAN

+5

Subject: ----- Date: -----

$$F = (a+b+c)(a+c+d)(b+c+d)(\bar{a}+\bar{b}+\bar{c}) \quad (1a)$$

0	0		
0			-
		0	0
	0		

Static 0
reduction

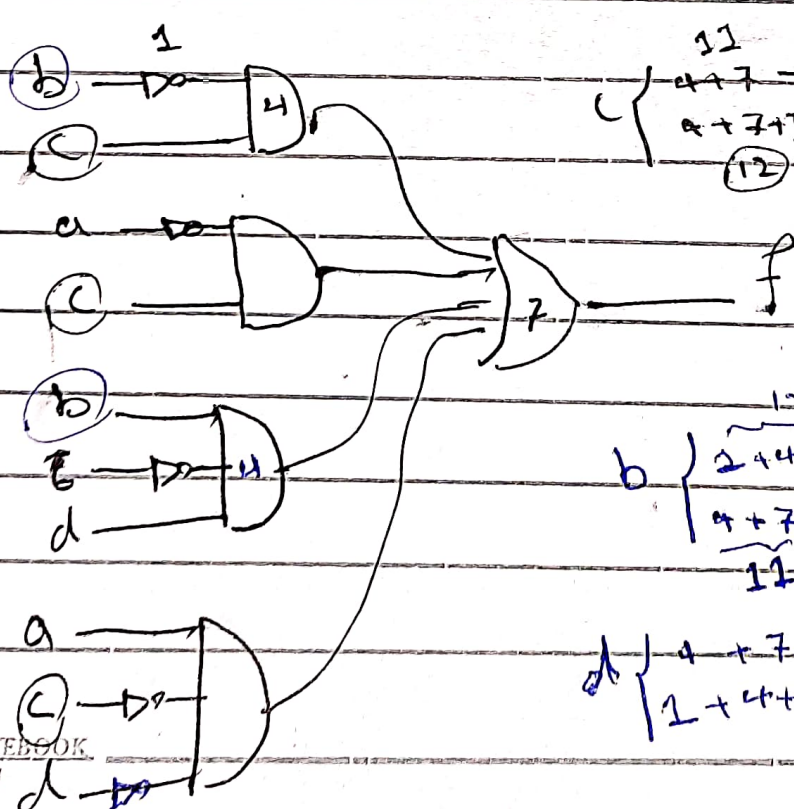
+6

$\bar{a}bd, ab\bar{c}, \bar{a}b\bar{d}$
 اے ب د، ا ب ج، ا ب د
 اے ب د، ا ب ج، ا ب د

cd	00	01	11	10
ab			1	1
00			1	1
01	1	1		-
11	1	1		
10	1		1	1

$$F = \bar{b}c + \bar{a}c + b\bar{c}d + a\bar{c}d$$

0101 \leftrightarrow 0111 $\rightarrow c$
 1100 \leftrightarrow 1101 $\rightarrow d$
 1000 \leftrightarrow 1010 $\rightarrow b$



11
 $4+7 \rightarrow 1$
 $9+7+1 \rightarrow \emptyset$
 (12) -6

b
 $2+4+7 \rightarrow \emptyset$
 $9+7 \rightarrow 1$
 11 -6

d
 $4+7 = 11 \rightarrow 1$
 $1+4+7 = 12 \rightarrow \emptyset$
 -6