

Horvátén: 12. Aug
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1.

Last digit: 7 $F(A,B,C,D) = \sum m(2,5,13,15) + \sum d(8,9,10,11)$

0	
1	$m_2: 0010 \checkmark$ $d_8: 1000 \sim$
2	$m_5: 0101 \checkmark$ $d_9: 1001 \sim$ $d_{10}: 1010 \checkmark$
3	$m_{13}: 1101 \checkmark$ $d_{11}: 1011 \sim$
4	$m_{15}: 1111 \checkmark$

0	
1	$(2,10) - 010$ $(8,9) 100 - \checkmark$ $(8,10) 10-0 \checkmark$
2	$(5,13) - 101$ $(9,13) 1-01 \checkmark$ $(9,11) 10-1 \checkmark$ $(11,10) 101- \checkmark$
3	$(13,15) 11-1 \checkmark$ $(11,15) 1-11 \checkmark$

0	
1	$(8,9,10,11) 10--$
2	$(9,11,13,15) 1--1$

Prime Implicants

$P_{11}(8,9,10,11)$	10--
$P_{12}(9,11,13,15)$	1--1
$P_{13}(2,10)$	-010
$P_{14}(5,13)$	-101

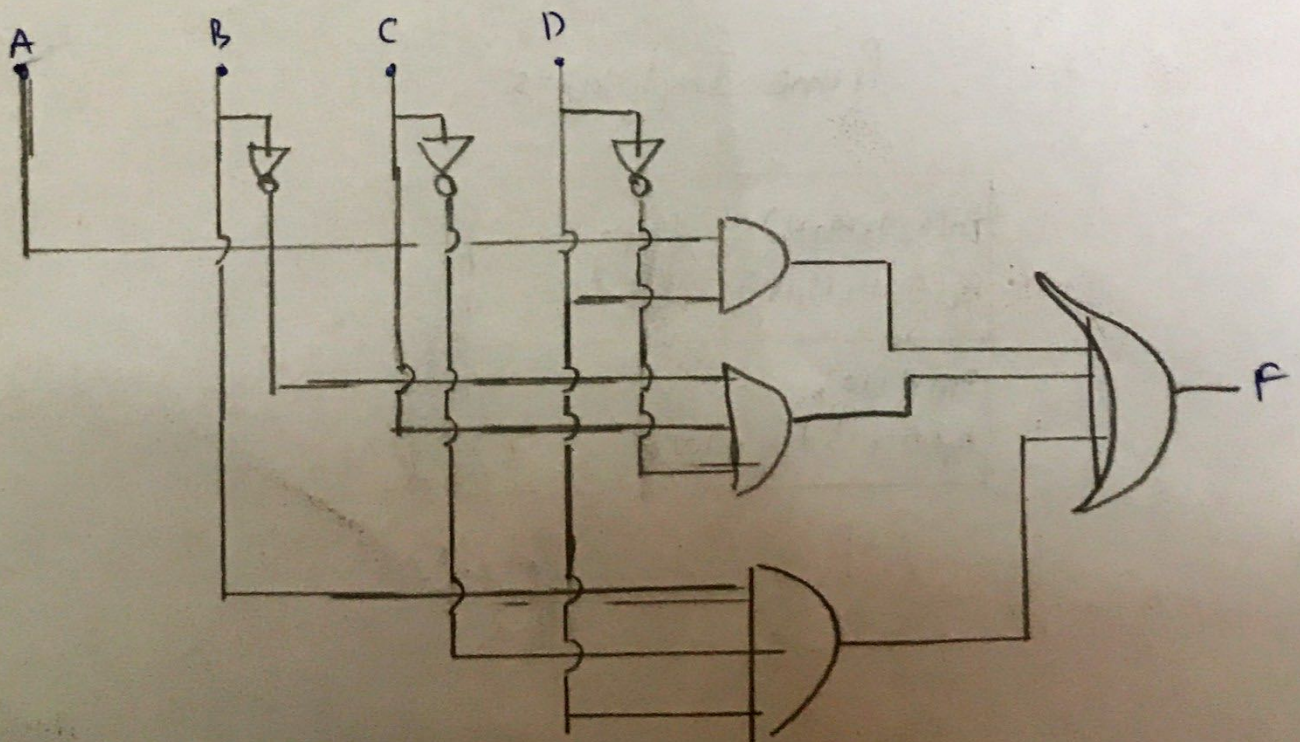
Coverage Table

	2	5	13	15
P_{I1} (8-Dark): 0--				
P_{I2} : 1--1			x	x
P_{I3} : -010	x			
P_{I4} : -101		x	x	

$$F(A, B, C, D) = P_{I2} + P_{I3} + P_{I4}$$

$$= 1--1 + -010 + -101$$

$$= AD + \bar{B}\bar{C}\bar{D} + B\bar{C}D$$



2. 10:7

Stable table

PS	NS
010	011
011	100
100	101
101	111
111	010
000	---
001	---
110	---

Excitation table:

PS	NS						
q ₂ q ₁ q ₀	Q ₂ Q ₁ Q ₀	J ₂	K ₂	J ₁	K ₁	J ₀	K ₀
000	---	-	-	-	-	-	-
001	---	-	-	-	-	-	-
010	011	0	-	-	0	1	-
011	100	1	-	-	1	-	1
100	101	-	0	0	-	1	-
101	111	-	0	1	-	-	0
110	---	-	-	-	-	-	-
111	010	-	1	-	0	-	-

$J_2:$

$q_2 \backslash q_1 q_0$	00	01	11	10
0	-	-	1	0
1	-	-	-	-

$\rightarrow J_2 = q_0.$

$K_2:$

$q_2 \backslash q_1 q_0$	00	01	11	10
0	-	-	-	-
1	0	0	1	-

$\rightarrow K_2 = q_1$

$J_1:$

$q_2 \backslash q_1 q_0$	00	01	11	10
0	-	-	-	-
1	0	0	1	-

$\rightarrow J_1 = q_0.$

$K_1:$

$q_2 \backslash q_1 q_0$	00	01	11	10
0	x	x	1	0
1	x	x	0	x

$\rightarrow K_1 = \overline{q_2} q_0.$

J_0 .

$q_1 q_0$ q_2	00	01	11	10
0	-	-	-	1
1	1	-	-	-

$$J_0 = 1.$$

k_0 :

$q_1 q_0$ q_2	00	01	11	10
0	-	-	1	-
1	-	0	1	-

$$\rightarrow k_0 = q_1.$$

$$\rightarrow J_2 = J_1 = q_0$$

$$k_2 = k_0 = q_1$$

$$k_1 = \bar{q}_2 q_0$$

$$J_0 = 1$$

Circuit :

1

Clock

