a)

$x_3x_2 \backslash x_1x_0$	00	01	11	10
00	0	X	1	
01	1	0	1	1
11	1	0	X	1
10	X	0	1	X

② - x_3 : 0 and 1
x_2 : 1
x_1 : 0 and 1
x_0 : 0
$\Big\} \; x_2 x_0'$

① - x_3 : 0 and 1
x_2 : 0 and 1
x_1 : 1
x_0 : 1
$\Big\} \; x_1 x_0$

$$\boxed{S = x_1 x_0 + x_2 x_0'}$$

$\Sigma \Pi M(0, 2, 5, 9, 13) = \Sigma m(1, 3, 4, 6, 7, 8, 10, 11, 12, 14, 15)$

$\Sigma d(1, 8, 10, 15)$ - DONT CARE

0000 - 0
0001 - 1
0010 - 2
0011 - 3
0100 - 4
0101 - 5
0110 - 6
0111 - 7
1000 - 8
1001 - 9
1010 - 10
1011 - 11
1100 - 12
1101 - 13
1110 - 14
1111 - 15

b) $\Sigma d(4, 6, 10)$

$\Sigma \Pi M(2,3,5,7,8,9,13) = \Sigma m(0,1,4,6,10,11,12,14,15)$

x_3x_2 \ x_1x_0	00	01	11	10
00	1	1		
01	X			X
11	1		1	1
10			1	X

① $x_3 = 0$
$x_2 = 0$
$x_1 = 0$
$x_0 = 0$ and 1
$\Big\}\ x_3' x_2' x_1'$

② $x_3 = 0$ and 1
$x_2 = 1$
$x_1 = 1$ and 1
$x_0 = 0$
$\Big\}\ x_2 x_0'$

③ $x_3 = 1$
$x_2 = 1$ and 0
$x_1 = 1$
$x_0 = 1$ and 0
$\Big\}\ x_3 x_1$

$$\boxed{S = x_3' x_2' x_1' + x_2 x_0' + x_3 x_1}$$

Digitalizado com CamScanner

2 - Método Algébrico

a)

$F = ab'c + abc + a'bc + abc'$

$c(ab' + \underbrace{ab + a'b}_{b}) + abc'$ } 6

$c(ab' + b) + abc'$

$c(ab' + b(b+b')) + abc'$ } 4

$c(ab' + b + b') + abc'$ } 1

$c(a + b) + abc'$

$ca + cb + abc'$

$ca + b(c + ac')$

$ca + b(c(c+c') + ac')$

$ca + b(cc' + ac')$

$ca + b(c + a)$

$ca + bc + ba$

$$\boxed{F = ca + bc + ba}$$

1 { $a'b + ab = b(\underbrace{a+a'}_{1}) = b$

2 { $ab' + ab' = ab'$
$ab' \cdot ab' = ab'$

3 { $(b+b') = 1$
$b \cdot b' = 0$

4 { $c \cdot 1 = c(c+c')$
$= cc'$

5 { $cc' + bc' = c + b$

6 { $abc + ab'c = c(ab + ab')$

b) MAPA K $F = ab'c + abc + a'bc + abc'$
101 111 011 110

$\ldots + bc + ba$

$$\boxed{F = ca + bc + ba}$$

b) MAPA K

$$F = \underset{101}{ab'c} + \underset{111}{abc} + \underset{011}{a'bc} + \underset{110}{abc'}$$

a \ cd	00	01	11	10
0			1	
1		1	1	1

① - $a = 0$ ou 1, $b = 1$, $c = 1$ } bc

② - $a = 1$, $b = 0$ ou 1, $c = 1$ } ac

③ - $a = 1$, $b = 1$, $c = 1$ ou 0 } ab

$$\boxed{F = ab + ac + bc}$$

Ambos Resultados São Iguais → a) → b)

3 $a'bc' + abcd' + adb$

$a'bc'(d+d') + abcd' + adb(c+c')$

$\underset{0101}{\underline{a'bc'd}} + \underset{0100}{\underline{a'bc'd'}} + \underset{1100}{\underline{abcd'}} + \underset{1111}{\underline{abcd}} + \underset{1101}{\underline{abc'd}}$

ab \ CD	00	01	11	10
00	0	0	0	0
01	1	1	0	0
11	1	1	1	0
10	0	0	0	0

① - a = 0 ou 1
b = 0
c = 0 ou 1
d = 0 ou 1 $\Big\}\ b'$

② - a = 0
b = 0 ou 1
c = 1
d = 0 ou 1 $\Big\}\ A' \cdot C$

③ - a = 0 ou 1
b = 0 ou 1
c = 1
d = 0 $\Big\}\ C \cdot D'$

$(F)' = (b' + A'C + C'D)'$ -> Invertendo com De Morgan

$F' = b \cdot (A + C')(C' + D)$ -> Produto de soma

$F' = b(A + C')(C' + D)$