AOC I

Atividades - Simplificação de Circuitos

1-a)

A	B	C	S
0	0	0	1
0	0	1	1
0	1	1	1
1	0	1	1
1	1	1	1

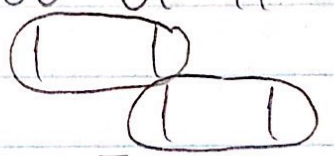
A\BC	00	01	11	10
1			1	
0	1	1	1	

$S = C + \bar{A}B$

b)

A	B	C	S
0	0	1	1
0	1	1	1
1	0	0	1
1	0	1	1

A\BC	00	01	11	10
1		1		
0			1	1

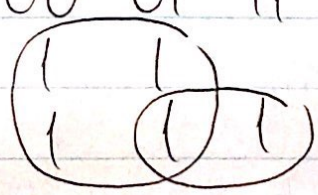


$A\bar{B} + \bar{A}C$

c)

A	B	C	S
0	0	0	1
0	0	1	1
0	1	1	1
1	0	0	1
1	0	1	1

A\BC	00	01	11	10
1		1		
0		1	1	1

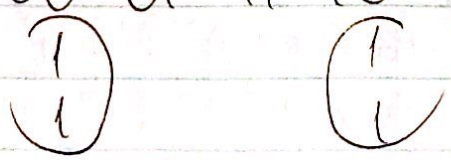


$\bar{B} + \bar{A}C$

d)

A	B	C	S
0	0	0	1
0	1	0	1
1	0	0	1
1	1	0	1

A\BC	00	01	11	10
0	1			1
1	1			1



$\bar{C}$

e)

A	B	C	D	L
0	1	1	0	1
0	1	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

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

$L = AB + BC$

f)

A	B	C	D	L
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

$\bar{A}\bar{B}$	0	0	0	1
$\bar{A}B$	0	0	0	1
AB	1	1	1	1
$A\bar{B}$	1	1	1	1
	$\bar{C}\bar{D}$	$\bar{C}D$	CD	$C\bar{D}$

$L = A + C\bar{D}$

(2-) a) $X = \bar{A}\bar{C}D + \bar{A}BC + A\bar{B}\bar{C} + AC\bar{D}$ (a)

$X = \bar{A}BD + BC\bar{D} + \bar{B}\bar{C}D + A\bar{B}\bar{D}$ (b)

(3-) a) $S = A' \cdot B' \cdot C' + A' \cdot B \cdot C + A' \cdot B \cdot C' + A \cdot B' \cdot C' + A \cdot B \cdot C'$

$= A' \cdot B \cdot C + (A' \cdot B' + A' \cdot B + A \cdot B' + A \cdot B) \cdot C'$

$= A' \cdot B \cdot C + (A' \cdot (B' + B) + A \cdot (B' + B))) \cdot C'$

$= A' \cdot B \cdot C + (A' + A) \cdot C'$

$= A' \cdot B \cdot C + C'$

$= A' \cdot B + C'$

$X + (X' \cdot Y) = X + Y$

b) $S = \overline{(A+B+C)\cdot(\bar{A}+\bar{B}+C)}$

$= 0 + A\cdot\bar{B} + A\cdot C + B\cdot\bar{A} + 0 + B\cdot C + C\cdot\bar{A} + C\cdot\bar{B} + C$

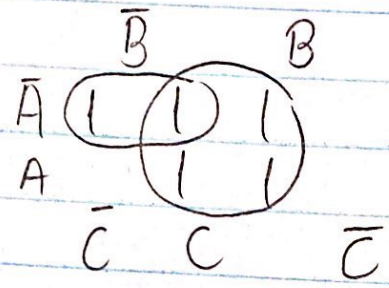
$= A\cdot\bar{B} + B\cdot\bar{A} + C(A + B + \bar{A} + \bar{B} + 1)$

$= A\cdot\bar{B} + B\cdot\bar{A} + C(1)$

$= A\bar{B} + B\bar{A} + C$

4- a) $S = A'\cdot B'\cdot C' + A'\cdot B'\cdot C + A'\cdot B\cdot C + A\cdot B'\cdot C + A\cdot B\cdot C$

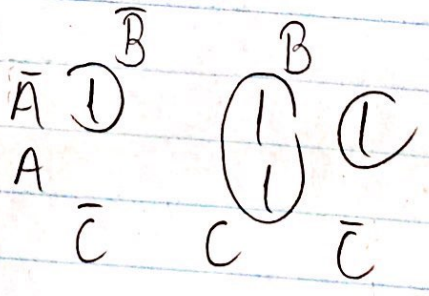
A	B	C	S
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1



$S = C + \bar{A}\bar{B}$

b) $S = A'\cdot B'\cdot C' + A'\cdot B\cdot C' + A'\cdot B\cdot C + A\cdot B\cdot C$

A	B	C	S
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1



$S = \bar{A}\bar{C} + BC$