Ficha nº 11

Revisão de Conceitos

1. Converta os números seguintes que estão na base 10 para a base 16, base 2 e base 8

Converter da Base 10 para a 16

EXEMPLO

381	16			
61	23	16		
13	7	1	16	
		1	0	16
			0	0

$(381)_{10} = (017D)_{16}$

Converter da Base 16 para a 2

$(17D)_{16} = (0001\ 0111\ 1101)_2$

Converter da Base 2 para a 8

$(000\ 101\ 111\ 101)_2 = (0575)_8$

a) 43
b) 54
c) 349
d) 15
e) 4
f) 1

2. Converta os números seguintes que estão nas bases indicadas para a base 10

$(1BC)_{16} = 1*16^2 + B*16^1 + C*16^0$

$= 1*256 + 11*16 + 12*1$

$= 256 + 176 + 12$

$= 444$

EXEMPLO

a) $(C3)_{16}$
b) $(743)_8$
c) $(111011)_2$
d) $(54)_{16}$
e) $(111)_8$
f) $(101110)_2$

3. Faça a soma dos números na base indicada

EXEMPLO $(573)_8 + (327)_8$

	2	5	3
+	3	3	7
	6	1	2

$(573)_8 + (327)_8 = (612)_8$

a) $(1E)_{16} + (A3)_{16}$
b) $(532)_8 + (327)_8$
c) $(110011)_2 + (110011)_2$
d) $(29)_{16} + (53)_{16}$
e) $(151)_8 + (333)_8$
f) $(01110)_2 + (11011)_2$

4. Os números seguintes estão na base 2 e codificados em Código de Complementos. Faça as operações indicadas e apresente o resultado na base 10

EXEMPLO: SOMA $(11011)_2 + (11010)_2$

	1	1	0	1	1
+	1	1	0	1	0
1	**1**	0	1	0	1

	1	0	1	0	1
		inverter			
	0	1	0	1	0
+		somar 1			1
	0	1	0	1	1

$(11011)_2 + (11010)_2 = (10101)_2 = -(1011)_2 = -11$

EXEMPLO: SOMA $(10011)_2 + (11010)_2$

	1	0	0	1	1
+	1	1	0	1	0
1	**0**	1	1	0	1

$(10011)_2 + (11010)_2 = (01101)_2 = +(1101)_2 = +13$

EXEMPLO: SUBTRACÇÃO $(11011)_2 - (11010)_2$

	1	1	0	1	1
–	1	1	0	1	0

	1	1	0	1	0
		inverter			
	0	0	1	0	1
+		somar 1			1
	0	0	1	1	0

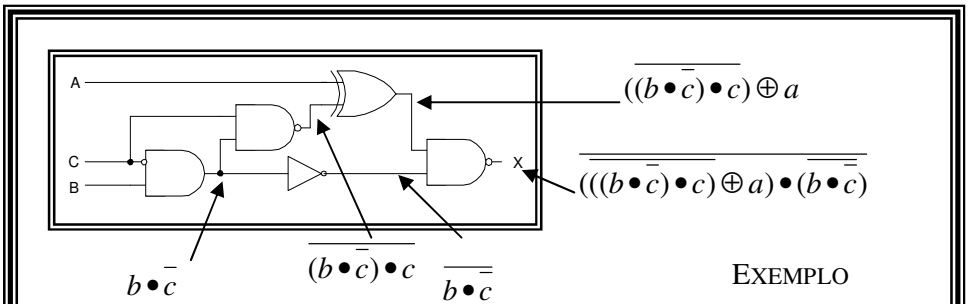
	1	1	0	1	1
+	0	0	1	1	0
1	**0**	0	0	0	1

$(10011)_2 - (11010)_2 = (00001)_2 = +(0001)_2 = +1$

a) $(11011)_2 + (11001)_2$
b) $(01110)_2 + (10011)_2$
c) $(01001)_2 + (11101)_2$
d) $(11100)_2 + (10001)_2$
e) $(01011)_2 + (11111)_2$
f) $(01011)_2 + (00011)_2$

g) $(11011)_2 - (11001)_2$
h) $(01110)_2 - (10011)_2$
i) $(01001)_2 - (11101)_2$
j) $(11100)_2 - (10001)_2$
k) $(01011)_2 - (11111)_2$
l) $(01011)_2 - (00011)_2$

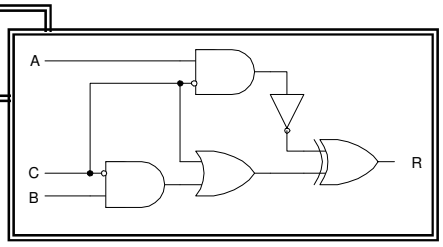
5. Apresente as **tabelas de verdade** dos circuitos seguintes, e escreva as **expressões lógicas** correspondentes:



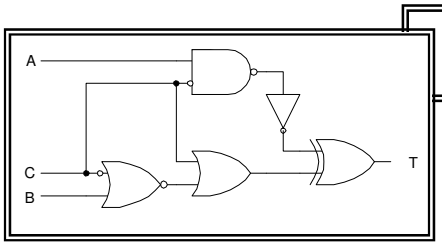
EXEMPLO

A	B	C	$b \bullet \overline{c}$	$\overline{b \bullet \overline{c}}$	$(\overline{b \bullet \overline{c}}) \bullet c$	$((\overline{b \bullet \overline{c}}) \bullet c) \oplus a$	S
0	0	0	0	1	0	0	1
0	0	1	0	1	0	0	1
0	1	0	1	0	0	0	1
0	1	1	0	1	0	0	1
1	0	0	0	1	0	1	0
1	0	1	0	1	0	1	0
1	1	0	1	0	0	1	1
1	1	1	0	1	0	1	0

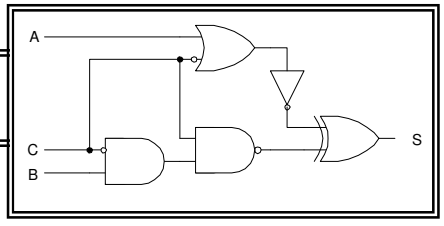
1.



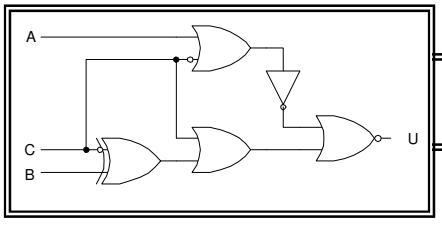
.2



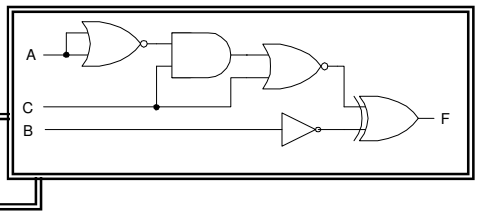
3.

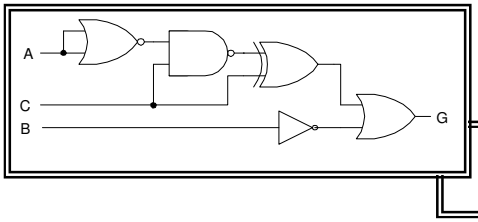


.4



5.





.6

6. Desenhe os circuitos das seguintes expressões lógicas:

1. $\overline{\overline{\overline{a} \bullet b + d + \overline{c}}}$
2. $((a \oplus \overline{b}) \bullet c) + \overline{d + b}$
3. $a \bullet \overline{c + d} \bullet b$
4. $\overline{b + \overline{(\overline{a} \oplus c) + d}}$