Nome: Daniel Henrique de Brito Matrícula: 397824 Lista 1

(1) (a) Binário → Octal:

$\underbrace{010}_{5}\underbrace{110}_{5}\underbrace{111}_{3}\underbrace{110}_{7}\underbrace{11}_{3} \Rightarrow \boxed{55373_8}$

Binário → Hexadecimal:

$\underbrace{0101}_{5}\underbrace{1010}_{A}\underbrace{1111}_{F}\underbrace{1011}_{B} \Rightarrow \boxed{5AFB_{16}}$

(b) Binário → Octal

$\underbrace{001}_{1}\underbrace{111}_{7}\underbrace{000}_{0}\underbrace{011}_{3}\underbrace{110}_{6}\underbrace{000}_{0} \Rightarrow \boxed{170360_8}$

Binário → Hexadecimal

$\underbrace{1111}_{F}\underbrace{0000}_{0}\underbrace{1111}_{F}\underbrace{0000}_{0} \Rightarrow \boxed{F0F0_{16}}$

(c) Binário → Octal

$\underbrace{010}_{5}\underbrace{101}_{2}\underbrace{011}_{6}\underbrace{010}_{5}\underbrace{10}_{2} \Rightarrow \boxed{52652_8}$

Binário → Hexadecimal

$\underbrace{0101}_{5}\underbrace{0101}_{5}\underbrace{1010}_{A}\underbrace{1010}_{A} \Rightarrow \boxed{55AA_{16}}$

(2) (a) Hexadecimal → Binário

$\underbrace{5}_{0101}\ \underbrace{5}_{0101}\ \underbrace{A}_{1010}\ \underbrace{A}_{1010} \Rightarrow \boxed{0101010110101010_2}$

Hexadecimal → Octal

$\underbrace{0101}_{5}\underbrace{0101}_{2}\underbrace{1010}_{6}\underbrace{1010}_{5}\underbrace{10}_{2} \Rightarrow \boxed{52652_8}$

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(b) Hexadecimal → Binário

0 1 A C ⇒ 0001101011100_2

0000 0001 1010 1100

Hexadecimal → Octal

110 101 100 ⇒ 654_8

6 5 4

(c) Hexadecimal → Binário

3 2 1 0 ⇒ 0011001000010000_2

0011 0010 0001 0000

Hexadecimal → Octal

0011001000010000 ⇒ 31020_8

3 1 0 2 0

(3) (a) 123 | 2

1 61 | 2

1 30 | 2

0 15 | 2

1 7 | 2

1 3 | 2

1 1 | 2

1 0

10000100_2

(b) 3 B

0011 1011$_2$

59_{10}

11000100

+1

11000101

11000101_2

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④ a) $\bar{A} \cdot B + C \cdot (A + \bar{B})$

$\bar{A} \cdot B + A \cdot C + A \cdot \bar{B}$ [Distributiva]

$B \cdot \bar{A} + A \cdot C + A \cdot \bar{B}$ [Comutativa]

$B \cdot C + \bar{A} + A \cdot B$ [Lei da absorção: $AB + \bar{A} = B + \bar{A}$]

$B \cdot C + \bar{A} \cdot B$ [Lei da absorção]

$C \cdot B + B \cdot \bar{A}$ [Comutativa]

$C + B \cdot \bar{A}$ [Idempotência $A + A = A$]

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

$\overline{A \cdot B \cdot C} \cdot (\bar{B} + \bar{C})$ [DeMorgan]

$\bar{A} \cdot \bar{B} \cdot \bar{C} \cdot \bar{B} + \bar{A} \cdot \bar{B} \cdot \bar{C} \cdot \bar{C}$ [Distributiva]

$\bar{A} \cdot \bar{B} \cdot \bar{C} + \bar{A} \cdot \bar{B} \cdot \bar{C} \cdot \bar{C}$ [Idempotência: $AA = A$]

$\bar{A} \cdot \bar{B} \cdot \bar{C} + \bar{A} \cdot \bar{B} \cdot \bar{C}$ [Idempotência]

$\boxed{\bar{A} \cdot \bar{B} \cdot \bar{C}}$ //

c) $\bar{B} + \overline{A \cdot C} + A \cdot B$

$\bar{B} + \bar{A} + \bar{C} + A \cdot B$ [DeMorgan]

$\bar{B} + \bar{A} + \bar{C} + A$ [Lei da Absorção: $AB + \bar{A} = B + \bar{A}$]

$\bar{B} + \bar{C} + 1$ [Lei do Complemento: $A + \bar{A} = 1$]

[Lei da Identidade: $A + 1 = 1$]

$\boxed{1}$ //

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(5) (a) $(A \cdot B) + (\overline{B} \cdot \overline{C})$

A	B	C	A·B	$\overline{B}$	$\overline{C}$	$\overline{B}\,\overline{C}$	$(A \cdot B) + (\overline{B}\,\overline{C})$
1	1	1	1	0	0	0	1
1	1	0	1	0	1	0	1
1	0	1	0	1	0	0	0
1	0	0	0	1	1	1	1
0	1	1	0	0	0	0	0
0	1	0	0	0	1	0	0
0	0	1	0	1	0	0	0
0	0	0	0	1	1	1	1

(b) $(\overline{A \cdot B}) \cdot (\overline{A} \cdot (B + C)) \Rightarrow \overline{A} \cdot \overline{B} + \overline{A} \cdot C$

A	B	C	$\overline{A}$	$\overline{B}$	$\overline{A \cdot B}$	$\overline{A} \cdot C$	$\overline{A \cdot B} + \overline{A} \cdot C$
1	1	1	0	0	0	0	0
1	1	0	0	0	0	0	0
1	0	1	0	1	0	0	0
1	0	0	0	1	0	0	0
0	1	1	1	0	0	1	1
0	1	0	1	0	0	0	0
0	0	1	1	1	1	1	1
0	0	0	1	1	1	0	1

(c) $(((A \cdot C) + (B + D)) + (B + D)) \cdot (\overline{A \cdot (B + D)}) \Rightarrow A \cdot C \cdot \overline{B} \cdot \overline{D} + B \cdot \overline{A} + D \cdot \overline{A}$

A	B	C	D	$\overline{A}$	$\overline{B}$	$\overline{D}$	$\overline{B} \cdot \overline{D}$	$C \cdot \overline{B} \cdot \overline{D}$	$A \cdot C \cdot \overline{B} \cdot \overline{D}$	$B \cdot \overline{A}$	$D \cdot \overline{A}$	$B \cdot \overline{A} + D \cdot \overline{A}$	*
1	1	1	1	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	0	1	0	0	0	0	0	0	0
1	1	0	1	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	1	1	1	1	0	0	0	1
1	0	1	1	0	1	0	0	0	0	0	0	0	0
1	0	1	0	0	1	1	0	0	0	0	0	0	0
1	0	0	1	0	1	0	0	0	0	0	0	0	0
1	0	0	0	0	1	1	0	0	0	0	0	0	0
0	1	1	1	1	0	0	0	0	0	1	0	1	1
0	1	1	0	1	0	1	0	0	0	1	0	1	1
0	1	0	1	1	0	0	0	0	0	1	0	1	1
0	1	0	0	1	0	1	0	0	0	1	0	1	1
0	0	1	1	1	1	0	0	0	0	1	1	1	1
0	0	1	0	1	1	1	0	0	0	1	1	1	1
0	0	0	1	1	1	0	0	0	0	1	1	1	1
0	0	0	0	1	1	1	1	0	0	1	1	1	0