ARQUITETURA DE COMPUTADORES
PROF. FELIX DO REGO BARROS LISTA III
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SIST. DE INFORMAÇÃO 2021.2

1 -

a) $11,01_{(2)}$

$1 \times 2^1 + 1 \times 2^0 =$
$2 + 1 = 3$

$0 \times 2^{-1} + 1 \times 2^{-2}$
$0 + 2^{-2} =$
$0,25$

$(3,25)_{10}$

b) $(101,111)_2$

$1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$
$4 + 1 = 5$

$1 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-3}$
$0,5 + 0,25 + 0,125$
$0,875$

$5,875_{(10)}$

c) $10,1_{(2)} =$

$1 \times 2^1 + 0 \times 2^0$
2

1×2^{-1}
$0,5$

$+$

$(2,5)_{10}$

data
fecha

d) $110,011_{(2)}$

$1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$ $\quad$ $0 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-3}$

$4 + 2 = 6$ $\quad$ $0,25 + 0,125 =$

$(6,375)_{10}$

e) $0,101_{(2)}$

$0 \times 2^0 = 0$ $\quad$ $1 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3}$

$0,5 + 0 + 0,125 = 0,625$

$(0,625)_{10}$

f) $1101,001_{(2)}$

$1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$ $\quad$ $0 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3}$

$8 + 4 + 1 = 13$ $\quad$ $0,125$

$(13,125)_{10}$

2-

a) 01011101

$+\ 10100010$

$\quad\quad\quad\ \ 1$

10100111

data
fecha

b) 011011011
+ 100100100
  1
100100101

c) 01111011
+ 10000100
  1
10000101

4 -

a) 647,75 =

647	2	
1	323	2
1	161	2
1	80	2
0	40	2
0	20	2
0	10	2
0	5	2
1	2	2
0	1	

1010000111

0,75 =
0,5 + 0,25 =
$2^{-1} + 2^{-2}$ =
0,11

1010000111,11

data
fecha

5-

a) 55

55	2	
1	27	2
1	13	2
1	6	2
0	3	2
1	1	

00110111 (sinal modulo)

11001000 (complemento de 1)

b) -88

88	2	
0	44	2
0	22	2
0	11	2
1	5	2
1	2	2
0	1	

10110000 (sinal modulo)

00100111 (cmpl de 1)

data
fecha

6- a) 11011100 em complemento de 1

00100011

$0\times2^6 + 1\times2^5 + 0\times2^4 + 0\times2^3 + 0\times2^2 + 1\times2^1 + 1\times2^0$

$32 + 2 + 1 = 35_{10}$

b) 11101000 em complemento de 2

$X + 1 = 11101000$

$X = 11101000 - 00000001$

$-\ 11101000$

$\quad\ 00000001$

$\quad\ 11101011$

11100111

$\quad\quad\ 1$

11101100

00010011

$0\times2^6 + 0\times2^5 + 1\times2^4 + 0\times2^3 + 0\times2^2 + 1\times2^1 + 1\times2^0$

$16 + 2 + 1 = (19)_{10}$

7- + - OR
    · - AND

a)

$$\left.\begin{matrix}(A+B)\\ \overline{(A\cdot C)}\end{matrix}\right\}(A+B)\cdot\overline{(A\cdot C)}$$

$$\left.\begin{matrix}(\bar{B}+D)\\ (\bar{B}+D)\end{matrix}\right\}(\bar{B}+D)$$

$$\left.\begin{matrix}(A+B)\cdot\overline{(A\cdot C)}\\ (\bar{B}+D)\end{matrix}\right\}\overline{\overline{(A+B)\cdot\overline{(A\cdot C)}}+(\bar{B}+D)}$$

b)

$$(B\cdot\bar{D})\rightarrow\overline{(\overline{(B\cdot\bar{D})}+A)}$$

$$\left.\begin{matrix}(\bar{B}\cdot D)\\ (C\cdot D)\end{matrix}\right\}(\bar{B}\cdot D)+(C\cdot D)$$

$$\left.\begin{matrix}\overline{(B\cdot\bar{D})}+A\\ (\bar{B}\cdot D)+(C\cdot D)\end{matrix}\right\}\overline{\overline{(B\cdot\bar{D})}+A}\cdot\overline{(\bar{B}\cdot D)+(C\cdot D)}$$

$$\left.\begin{matrix}(\bar{A}+C)\\ \overline{(B\cdot D)}\end{matrix}\right\}(\bar{A}+C)\cdot\overline{(B\cdot D)}\rightarrow\overline{C+\overline{(\bar{A}+C)\cdot\overline{(B\cdot D)}}}$$

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

data
fecha

8- $\overline{X}$ $\overline{Y}$ $\overline{Z}$

$\overline{(X.\overline{Z})}$

$\overline{(Y.Z)}$

$\overline{(\overline{X}+Y)}$

$\overline{(X+Y+\overline{Z})}$

$S=\overline{(\overline{(X.\overline{Z})}.\overline{(Y.Z)}.(\overline{X}+\overline{Y}).\overline{(X+Y+\overline{Z})})}$

c)

$(B \oplus D)$

$\left.\begin{matrix}\overline{(A.\overline{C}.D)} \\ \overline{(\overline{A}+B+\overline{C})}\end{matrix}\right\} \overline{\overline{((A.\overline{C}.D)+(\overline{A}+B+\overline{C}))}}$

$C.\overline{\overline{((A.\overline{C}.D)+(\overline{A}+B+\overline{C}))}}$

$\overline{\overline{(\overline{A}+B+\overline{C}).D)}}$

$S=(B \oplus D)+\left(C.\overline{\overline{((A.\overline{C}.D)+(\overline{A}+B+\overline{C}))}}+\overline{\overline{(\overline{A}+B+\overline{C}).D)}}\right)$

9-

$\overline{(A \cdot B)}$

$\overline{(C \cdot \bar{D})}$

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

A	B	C	D	$\bar{D}$	$A \cdot B$	$\overline{(A \cdot B)}$	$C \cdot \bar{D}$	$\overline{(C \cdot \bar{D})}$	$\overline{(A \cdot B)} + \overline{(C \cdot \bar{D})}$	$\overline{(\overline{(A \cdot B)} + \overline{(C \cdot \bar{D})})}$
1	1	1	1	0	1	0	0	1	1	0
1	1	1	0	1	1	0	1	0	1	0
1	1	0	1	0	1	0	0	1	1	0
1	1	0	0	1	1	0	0	1	1	0
1	0	1	1	0	0	1	1	0	1	0
1	0	1	0	1	0	1	0	1	1	0
1	0	0	1	0	0	1	0	1	1	0
1	0	0	0	1	0	1	0	1	1	0
0	1	1	1	0	0	1	1	0	1	0
0	1	1	0	1	0	1	0	1	1	0
0	1	0	1	0	0	1	0	1	1	0
0	1	0	0	1	0	1	0	1	1	0
0	0	1	1	0	0	1	1	0	1	0
0	0	1	0	1	0	1	0	1	1	0
0	0	0	1	0	0	1	0	1	1	0
0	0	0	0	1	0	1	0	1	1	0