

## Solución del Parcial I – EC1723

1.- a)  $1011_{10} = 33303_4$

1011		4				
21		252		4		
11		12		63		4
3		0		23		15
				3		3
						3
						4
						3

b)  $4321_5 = 4 \times 5^3 + 3 \times 5^2 + 2 \times 5^1 + 1 \times 5^0 = 500 + 75 + 10 + 1 = 586_{10}$

586		8				
26		73		8		
2		1		9		8
				1		1
						1

$4321_5 = 1112_8$

c)  $1'12'02'01_3 = 1521_9$

d)  $1010010,1001_2 = 2^6 + 2^4 + 2 + 2^{-1} + 2^{-4} = 82,5625$

e)  $AC28_H = 1'010'110'000'101'000_2 = 126050_8$

f)  $4905_{10} = 0100\ 1001\ 0000\ 0101_{BCD}$

2.-a)  $100100_2 -$   
 $\begin{array}{r} 010011_2 \\ 100100_2 \\ \hline 010001_2 \end{array}$

b)  $1AB3_H +$   
 $\begin{array}{r} 452C_H \\ 5FDF_H \\ \hline \end{array}$

c)  $16767_8 +$   
 $\begin{array}{r} 2453_8 \\ 21442_8 \\ \hline \end{array}$

3.-a)  $10011001 +$   
 $\begin{array}{r} 00010100 \\ 10011001 \\ \hline \end{array}$

$10011001 +$   
 $\begin{array}{r} 11101100 \\ 10000101 \\ \hline \end{array}$

b)  $01101111 +$   
 $\begin{array}{r} 01110101 \\ 11100100 \\ \hline \end{array}$   
 Overflow

$01101111 +$   
 $\begin{array}{r} 10001011 \\ 11111010 \\ \hline \end{array}$

4.-  $F(x,y,z) = (y' + z) (x + y + z') [(x'(y + z'))' + x]' + z] [(x'y'z')' + z']$   
 $= (x y' + y'z' + xz + yz) [(x'(y+z'))' x' + z] [x + y + z + z']$   
 $= (x y' + y'z' + xz + yz) [(x + y + z') x' + z]$   
 $= (x y' + y'z' + xz + yz) (x'y + x'z' + z)$   
 $= (x y' + y'z' + xz + yz) (x'y + x' + z)$   
 $= (x y' + y'z' + xz + yz) (x' + z) = xy'z + x'y'z' + xz + x'yz + yz$   
 $= x'y'z' + xz + yz$

5.- a)

A		B		Z <sub>1</sub>	Z <sub>2</sub>	Z <sub>3</sub>
A <sub>1</sub>	A <sub>0</sub>	B <sub>1</sub>	B <sub>0</sub>			
0	0	0	0	0	0	1
0	0	0	1	0	1	0
0	0	1	0	0	1	0
0	0	1	1	0	1	0
0	1	0	0	1	0	0
0	1	0	1	0	0	1
0	1	1	0	0	1	0
0	1	1	1	0	1	0
1	0	0	0	1	0	0
1	0	0	1	1	0	0
1	0	1	0	0	0	1
1	0	1	1	0	1	0
1	1	0	0	1	0	0
1	1	0	1	1	0	0
1	1	1	0	1	0	0
1	1	1	1	0	0	1

$$\begin{aligned}
 \text{b) } Z_1 &= \sum m(4,8,9,12,13,14) \\
 &= A_1'A_0B_1'B_0' + A_1A_0'B_1'B_0' + A_1A_0'B_1'B_0 + A_1A_0B_1'B_0' + A_1A_0B_1'B_0 + A_1A_0B_1B_0'
 \end{aligned}$$

$$\begin{aligned}
 Z_2 &= \sum m(1,2,3,6,7,11) \\
 &= A_1'A_0'B_1'B_0 + A_1'A_0'B_1B_0' + A_1'A_0'B_1B_0 + A_1'A_0B_1B_0' + A_1'A_0B_1B_0 + A_1A_0'B_1B_0
 \end{aligned}$$

$$\begin{aligned}
 Z_3 &= \sum m(0,5,10,15) \\
 &= A_1'A_0'B_1'B_0' + A_1'A_0B_1'B_0 + A_1A_0'B_1B_0' + A_1A_0B_1B_0
 \end{aligned}$$