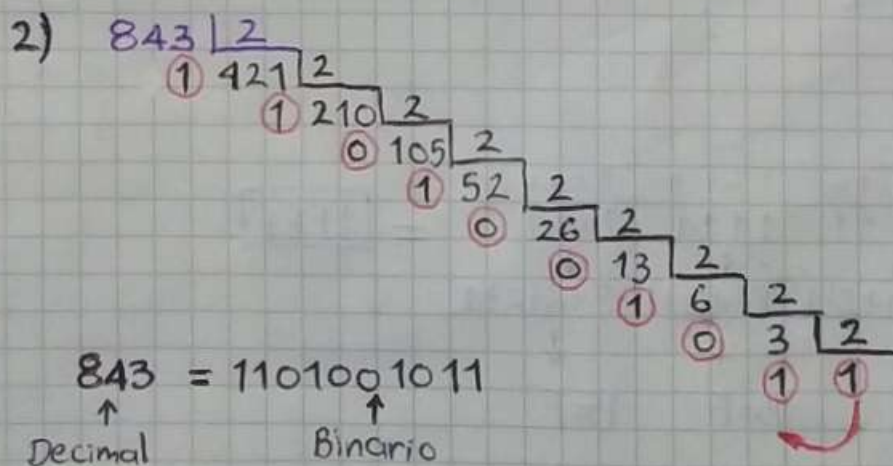


Laboratorio 1

Ivan Rodrigo Jimenez Vanegas

1)

Caracter	Decimal ASCII	Binario
I	73	1001001
v	118	1110110
a	97	1100001
n	110	1101110
R	82	1010010
o	111	1101111
d	100	1100100
r	114	1110010
i	105	1101001
j	103	1100111
o	111	1101111
I	74	1001010
i	105	1101001
m	109	1101101
e	101	1100101
n	110	1101110
e	101	1100101
z	122	1111010
V	86	1010110
a	97	1100001
n	110	1101110
e	101	1100101
g	103	1100111
a	97	1100001
s	115	1110011



3) a) 1110010101110

a Decimal:

1 1 1 0 0 1 0 1 0 1 1 1 0

$2^{13} 2^{12} 2^{11} 2^{10} 2^9 2^8 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0$

$$= 2^{13} + 2^{12} + 2^{11} + 2^8 + 2^6 + 2^4 + 2^3 + 2^2 + 2^1$$

$$= 8192 + 4096 + 2048 + 256 + 64 + 16 + 8 + 4 + 2 = \boxed{14686}$$

a Hexadecimal:

$\begin{array}{cccc} \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 2 \ 1 \ 1 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 1 \ 0 \ 0 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 0 \ 1 \ 0 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 1 \ 1 \ 1 \ 0 \end{array} \end{array}$

= $\boxed{395E}$

$\begin{array}{cccc} 2+1 & 8+1 & 4+1 & 8+4+2 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 3 & 9 & 5 & 14 \\ & & & \downarrow \\ & & & E \end{array}$

b) 1111111111111

a decimal:

$$2^{12} + 2^{11} + 2^{10} + 2^9 + 2^8 + 2^7 + 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0$$

$$= 4096 + 2048 + 1024 + 512 + 256 + 128 + 64 + 32 + 16 + 8 + 4 + 2 + 1$$

$$= \boxed{8191}$$

a hexadecimal:

$\begin{array}{cccc} \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 0 \ 0 \ 0 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 1 \ 1 \ 1 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 1 \ 1 \ 1 \ 1 \end{array} & \begin{array}{c} 3 \ 2 \ 1 \ 0 \\ 1 \ 1 \ 1 \ 1 \end{array} \end{array}$

= $\boxed{1FFF}$

$\begin{array}{cccc} \downarrow & \downarrow & \downarrow & \downarrow \\ 1 & 8+4+2+1 & 8+4+2+1 & 8+4+2+1 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ & 15=F & 15=F & 15=F \end{array}$

c) 1000,0000,0001,

a decimal:

$$2^{11} + 2^0$$

$$= 2048 + 1 = \boxed{2049}$$

a hexadecimal:

3 2 1 0	3 2 1 0	3 2 1 0	
1 0 0 0	0 0 0 0	0 0 0 1	= $\boxed{801}$
↓	↓	↓	
$2^3=8$	0	$2^0=1$	

d) 1010101111,0000,

a decimal:

$$10101011110000$$

$$2^{13} + 2^{11} + 2^9 + 2^7 + 2^6 + 2^5 + 2^4$$

$$= 8192 + 2048 + 512 + 128 + 64 + 32 + 16 = \boxed{10992}$$

a hexadecimal:

3 2 1 0	3 2 1 0	3 2 1 0	3 2 1 0	
0 0 1 0	1 0 1 0	1 1 1 1	0 0 0 0	= $\boxed{2AFO}$
↓	↓	↓	↓	
2^1	$2^3 + 2^1$	$8 + 4 + 2 + 1$	0	
↓	↓	↓		
2	$8 + 2$	15		
	↓	↓		
	$10 = A$	F		

4) Decimal Binario Hexadecimal

0	000000	0
1	000001	1
2	000010	2
3	000011	3
4	000100	4
5	000101	5
6	000110	6
7	000111	7
8	001000	8
9	001001	9
10	001010	A
11	001011	B
12	001100	C
13	001101	D
14	001110	E
15	001111	F
16	010000	10
17	010001	11
18	010010	12
19	010011	13
20	010100	14
21	010101	15
22	010110	16
23	010111	17
24	011000	18
25	011001	19
26	011010	1A
27	011011	1B
28	011100	1C
29	011101	1D
30	011110	1E
31	011111	1F
32	100000	20

5) ¿cuál es el siguiente número hexadecimal al 19F?

$$19F + 1 = 1A0$$