

AC Sesión 2: 1.12, 2.1, 2.2, 2.5, 2.6

1.12 a) Tempo medio hasta fallos: $MTTF_{sistema} = \frac{1}{\frac{1}{MTTF_1} + \frac{1}{MTTF_2} + \dots + \frac{1}{MTTF_N}}$

$$MTTF_{sistema} = \left(\frac{1}{125000} + \frac{1}{1000000} + \frac{1}{200000} + \frac{1}{100000} + \frac{1}{500000} + \frac{1}{100000} \right)^{-1} =$$

$$= 10.000 \text{ horas}$$

b) MTTR (Mean Time To Repair) = 20 horas
MTBF?

$$MTBF = MTTF + MTTR = 10.000 + 20 = 10.020 \text{ horas}$$

c) disponibilidad (Availability) = $\frac{MTTF}{MTTF + MTTR} = \frac{10.000}{10.000 + 20} = 0,998$? unidades?

| 2.1 | expresión | binario | hex | expresión | binario | hex |
|-----|-------------------|----------|------|------------------|----------|------|
| | $x \& y$ | 00000010 | 0x02 | $x \& \& y$ | 00000001 | 0x01 |
| | $x y$ | 11110111 | 0xF7 | $x y$ | 00000001 | 0x01 |
| | $\sim x \sim y$ | 11111101 | 0xFD | $! x ! y$ | 00000000 | 0x00 |
| | $x \& ! y$ | 00000000 | 0x00 | $x \& \& \sim y$ | 00000000 | 0x00 |

$$\begin{cases} x = 0x66 = 01100110 \\ y = 0x93 = 10010011 \end{cases}$$

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| 2.2 | | X | | X << 4 | | (lógico) X >> 3 | | (aritmético) X >> 3 | |
|------|----------|------|----------|--------|----------|--------------------|----------|------------------------|---------|
| hex | binario | hex | binario | hex | binario | hex | binario | hex | binario |
| 0xF0 | 11110000 | 0x00 | 00000000 | 0xE | 00011110 | 0xFE | 11111110 | | |
| 0x0F | 00001111 | 0xF0 | 11110000 | 0x01 | 00000001 | 0x01 | 00000001 | | |
| 0xCC | 11001100 | 0xC0 | 11000000 | 0xF | 00011111 | 0xF9 | 11111001 | | |
| 0x55 | 01010101 | 0x50 | 01010000 | 0x0A | 00001010 | 0x0A | 00001010 | | |
| 0x80 | 10000000 | 0x00 | 00000000 | 0x10 | 00010000 | 0xF0 | 11110000 | | |
| 0x02 | 00000010 | 0x20 | 00100000 | 0x00 | 00000000 | 0x00 | 00000000 | | |

| 2.5 | | char A[256]; | | movl \$A,%eax //A | |
|-----|--|-----------------------|--|---|--|
| | | char tabla[256]; | | movl \$tabla,%ebx //tabla | |
| | | for(i=0; i<256; i++){ | | movl \$0,%ecx //i=0 | |
| | | A[i]=tabla[A[i]]; | | for: cmpl \$256,%ecx //compara contador con | |
| | | } | | jge fi_for //mayor o igual a 256 | |
| | | | | movl (%eax,%ecx),%eax //A[i]→%eax | |
| | | | | movb (%ebx,%ecx),%al //tabla[i]→%al | |
| | | | | movb %al, (%eax,%ecx) //A[i]=tabla[A[i]] | |
| | | | | incl %ecx //++i | |
| | | | | jmp for | |
| | | | | fi_for: | |

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```
2.6 int *sorpresal(int i, int *x){
    if(i > -10 && i < 10)
        *x = i;
    else
        x = &i;
    return x;
}

i = &(%ebp)
x = &(%ebp)
```

2?

Sorpresal:

```
pushl %ebp           // %esp-4 → %ebp
                      // %ebp → M[%ebp]
movl %esp, %ebp
movl 8(%ebp), %eax    // i → %eax
movl 12(%ebp), %ebx   // x → %ebx
cmpl $-10, %eax
jle else              // i > -10
cmpl $10, %eax        // i < 10
jge $fi_sorpresal     // i < 10
movl %eax, (%ebx)     // M[x] = i // *x = i
jmp fi_sorpresal
else:
leal (%eax), %ebx     // M[&i] = x
                      // x = &i
fi_sorpresal: movl 12(%ebp), %ebx // x → %ebx
popl %ebp             // %ebp ← M[%ebp]
                      // %esp ← %ebp+4
ret
```