

**“ELECTRÓNICA ANALÓGICA**”

PRINCIPIOS ELÉCTRICOS Y APLICACIONES DIGITALES

**INGENIERÍA EN SISTEMAS**

PRESENTA:

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**Ejercicio 1**

**Binario**  **Decimal**

**Decimal Binario**

|  |  |
| --- | --- |
|  | Bin (Divisiones sucesivas entre 2) |
| 22 | 1 |
| 11 | 0 |
| 5 | 1 |
| 2 | 1 |
| 1 | 0 |
| 0 | 1 |

|  |  |
| --- | --- |
|  | Bin (Divisiones sucesivas entre 2) |
| 18 | 1 |
| 9 | 0 |
| 4 | 1 |
| 2 | 0 |
| 1 | 0 |
| 0 | 1 |

**Octal Decimal**

**Decimal Octal**

|  |  |
| --- | --- |
|  | Octal (Divisiones entre 8) |
| 58 | 2 |
| 7 | 2 |
| 0 | 7 |

***Binario***

Para hacerlo positivo se agrega un 0 al inicio, para hacerlo negativo se hace lo del complemento a 2

**Ejercicio 2**

**Álgebra de Boole**

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**\*Copiar tabla del ejemplo**

**Suma de Términos Mínimos**

\*en donde F1 vale 1

**Producto de Términos Máximos**

**Cambio de una función expresada en producto de términos máximos a mínimos**

|  |  |
| --- | --- |
| **XF** | **F** |
| 00 | 0 |
| 01 | 0 |
| 10 | 0 |
| 11 | 1 |

|  |  |  |
| --- | --- | --- |
|  | **0** | **1** |
| **0** |  |  |
| **1** |  | 1 |

****

|  |  |
| --- | --- |
| **XF** | **F** |
| 00 | 0 |
| 01 | 0 |
| 10 | 0 |
| 11 | 1 |
|  | **0** | **1** |
| **0** |  | 1 |
| **1** | 1 | 1 |

\*x se elimina por el cambio de variable de 0 a 1 que existió en el segundo par de unos

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **00** | **01** | **11** | **10** |
| **0** |  |  |  |  |
| **1** |  | 1 | 1 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **00** | **01** | **11** | **10** |
| **0** | 1 |  |  | 1 |
| **1** | 1 |  |  | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **00** | **01** | **11** | **10** |
| **0** |  |  | 1 | 1 |
| **1** | 1 | 1 |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **00** | **01** | **11** | **10** |
| **0** |  | 1 | 1 | 1 |
| **1** |  | 1 | 1 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **00** | **01** | **11** | **10** |
| **0** |  |  |  |  |
| **1** |  | 1 | 1 |  |

**Simplificación de un producto de sumas**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ABCD** | **00** | **01** | **11** | **10** |
| **00** | 1 | 1 |  | 1 |
| **01** |  | 1 |  |  |
| **11** |  |  |  |  |
| **10** | 1 | 1 |  | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ABCD** | **00** | **01** | **11** | **10** |
| **00** |  |  | 0 |  |
| **01** | 0 |  | 0 | 0 |
| **11** | 0 | 0 | 0 | 0 |
| **10** |  |  | 0 |  |

En donde las condiciones de No importa son:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WXYZ** | **00** | **01** | **11** | **10** |
| **00** | X | 1 | 1 | X |
| **01** |  | X | 1 |  |
| **11** |  |  | 1 |  |
| **10** |  |  | 1 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WXYZ** | **00** | **01** | **11** | **10** |
| **00** | X |  |  | X |
| **01** | 0 | X |  | 0 |
| **11** | 0 | 0 |  | 0 |
| **10** | 0 | 0 |  | 0 |

|  |  |
| --- | --- |
| **ABCD** | **S** |
| 0000 | 0 |
| 0001 | 0 |
| 0010 | 0 |
| 0011 | 0 |
| 0100 | 0 |
| 0101 | 0 |
| 0110 | 0 |
| 0111 | 1 |
| 1000 | 1 |
| 1001 | 1 |
| 1010 | 1 |
| 1011 | 1 |
| 1100 | 1 |
| 1101 | 1 |
| 1110 | 1 |
| 1111 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ABCD** | **00** | **01** | **11** | **10** |
| **00** |  |  |  |  |
| **01** |  |  | 1 |  |
| **11** | 1 | 1 | 1 | 1 |
| **10** | 1 | 1 | 1 | 1 |

**S = A + BCD**

|  |  |
| --- | --- |
| **PQR** | **S** |
| 000 | 1 |
| 001 | 1 |
| 010 | 1 |
| 011 | 1 |
| 100 | 0 |
| 101 | 0 |
| 110 | 0 |
| 111 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PQR** | **00** | **01** | **11** | **10** |
| **0** | 1 | 1 | 1 | 1 |
| **1** |  |  | 1 |  |

**S = P’ + QR**

|  |  |
| --- | --- |
| **PML** | **ALARMA** |
| 000 | 0 |
| 001 | 1 |
| 010 | 0 |
| 011 | 0 |
| 100 | 0 |
| 101 | 1 |
| 110 | 1 |
| 111 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PML** | **00** | **01** | **11** | **10** |
| **0** | 0 | 1 | 0 | 0 |
| **1** | 0 | 1 | 1 | 1 |

**ALARMA = M’L + PM**