

# Sistema Digital Binario



**Coatepec, Veracruz**

# PLD ATF22v10c-15PU PDIP



atf22v10C dip

Número de pieza: ATF22V

EN PRODUCCIÓN

En stock ahora: 63,061

Parcial TUBE

Los ingenieros no se basan en creencias,  
sino en la evidencia."



15NS, PDIP, IND TEMP, GREEN

(Precio de compra ahora)

Cantidad

USD por unidad

1-24

\$2.26

25-99

\$2.06

23-Aug-2025

Tipo de envase

notificaciones de stock

## Diferentes representaciones de un sistema digital binario

**Descripción  
Verbal**

**Descripción con palabras del comportamiento de un sistema,  
Utilizando alternativas (o) y/o Condiciones (y)**

***La salida toma el valor de uno  
Solo cuando todas  
sus entradas son cero***

**NOR**



$$F_{(AB)} = \overline{A+B}$$

| m | A | B | E |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 2 | 1 | 0 | 0 |
| 3 | 1 | 1 | 0 |

## Diferentes representaciones de un sistema digital binario

*Ecuación*

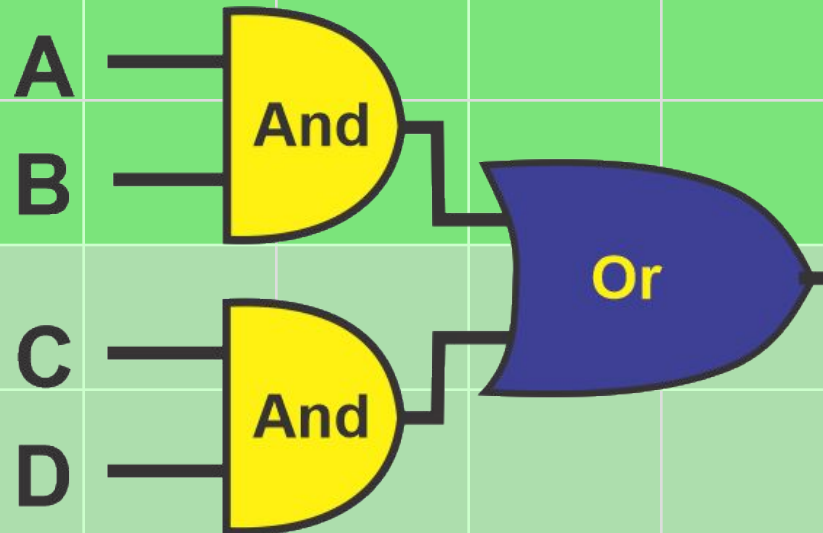
*Representación matemática de una función booleana.*

$$F_{(AB)} = A B' + A B$$

## Diferentes representaciones de un sistema digital binario

**Diagrama  
Esquemático**

*Representación gráfica de una expresión Booleana a través de la interconexión de símbolos que corresponden a los operadores lógicos.*



$$F_{(AB)} = A B + C D$$

## Diferentes representaciones de un sistema digital binario

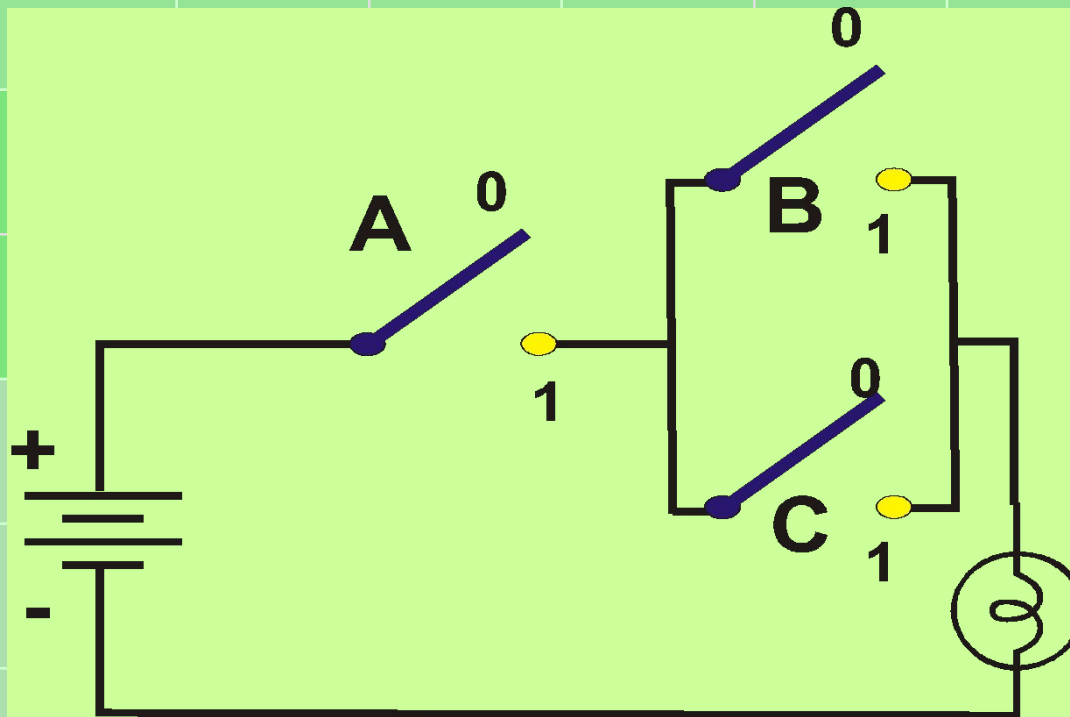
### Tabla de verdad

*Representación tabular de los valores de salida del sistema, para cada una de las posibles combinaciones de entrada.*

| m | R | A | V | E |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 0 | 1 | 1 | 1 |
| 4 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 1 | 1 |
| 6 | 1 | 1 | 0 | 1 |
| 7 | 1 | 1 | 1 | 1 |

## Diferentes representaciones de un sistema digital binario

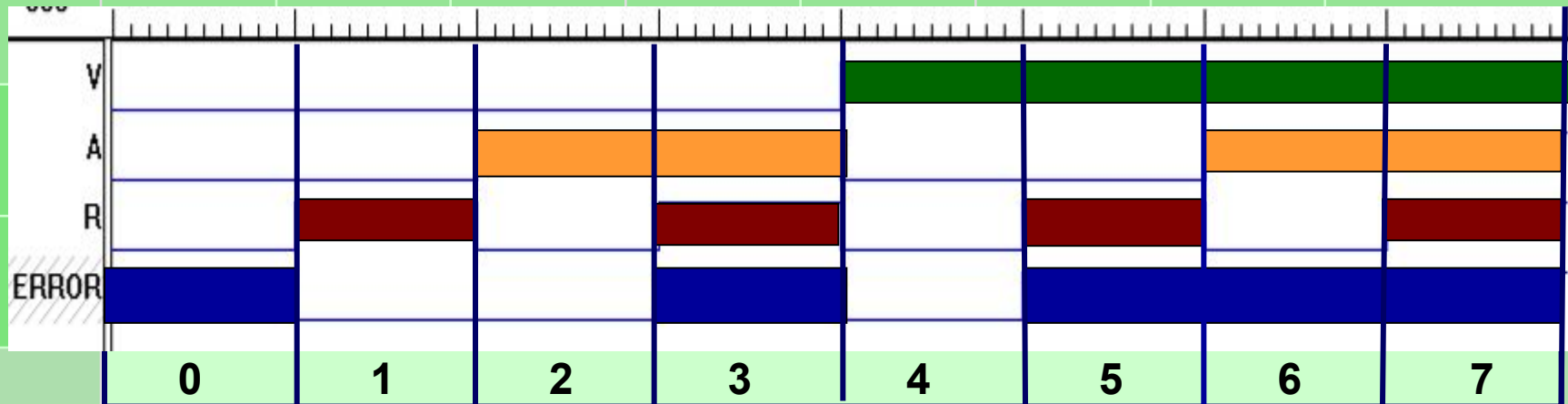
|                                       |                                                   |
|---------------------------------------|---------------------------------------------------|
| <i>Circuito eléctrico equivalente</i> | <i>Representación por medio de interruptores.</i> |
|---------------------------------------|---------------------------------------------------|



## Diferentes representaciones de un sistema digital binario

*Diagrama de  
Tiempos*

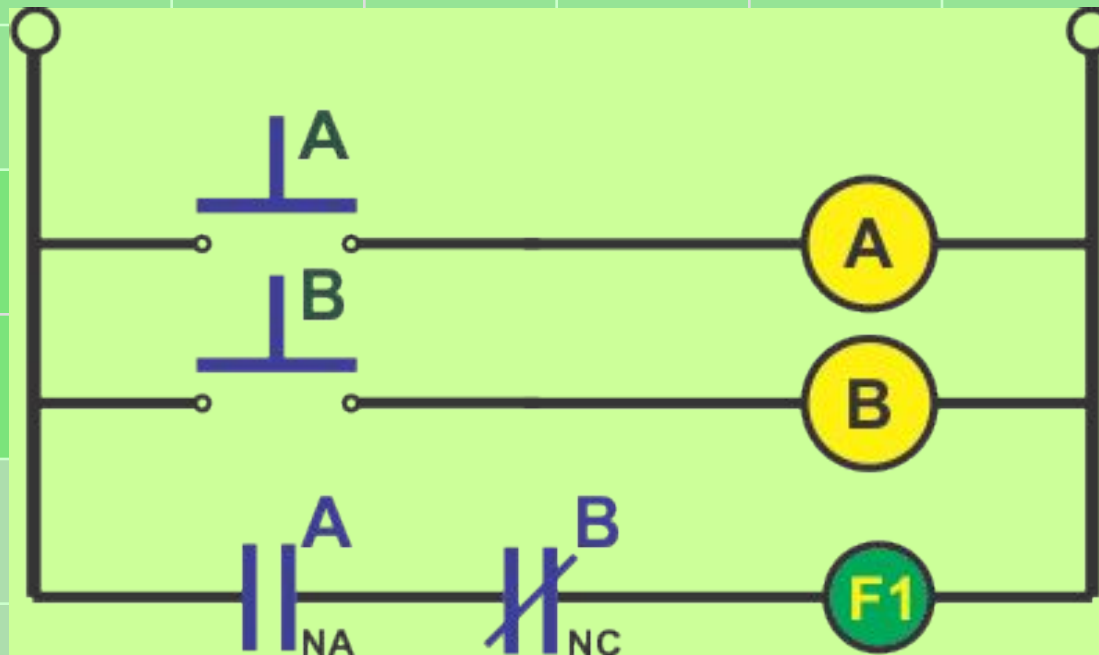
*Representación de los niveles en forma gráfica de los valores de  
entrada y salida del sistema.*



## Diferentes representaciones de un sistema digital binario

**Diagrama Escalera**

*Representación por medio de lenguaje de contactos*



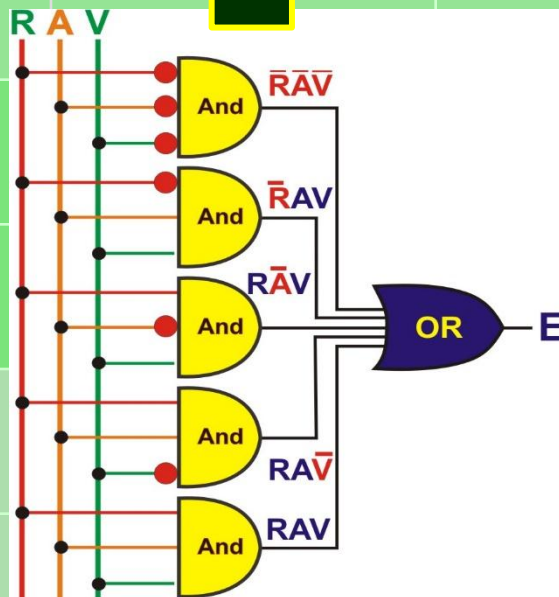
$$F1 = A \bar{B}$$

## Diferentes representaciones de un sistema digital binario

| <b><i>Descripción Verbal</i></b>             | <b><i>Descripción con palabras del comportamiento de un sistema, Utilizando alternativas (o) y/o Condiciones (y)</i></b>                           |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Diagrama Esquemático</i></b>           | <b><i>Representación gráfica de una expresión Booleana a través de la interconexión de símbolos que corresponden a los operadores lógicos.</i></b> |
| <b><i>Ecuación</i></b>                       | <b><i>Representación matemática de una función booleana.</i></b>                                                                                   |
| <b><i>Tabla de verdad</i></b>                | <b><i>Representación tabular de los valores de salida del sistema, para cada una de las posibles combinaciones de entrada.</i></b>                 |
| <b><i>Circuito eléctrico equivalente</i></b> | <b><i>Representación por medio de interruptores.</i></b>                                                                                           |
| <b><i>Diagrama de Tiempos</i></b>            | <b><i>Representación de los niveles en forma gráfica de los valores de entrada y salida del sistema.</i></b>                                       |
| <b><i>Diagrama Escalera</i></b>              | <b><i>Representación por medio de lenguaje de contactos</i></b>                                                                                    |

Tabla de Verdad

| m | R | A | V | E |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 0 | 1 | 1 | 1 |
| 4 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 1 | 1 |
| 6 | 1 | 1 | 0 | 1 |
| 7 | 1 | 1 | 1 | 1 |



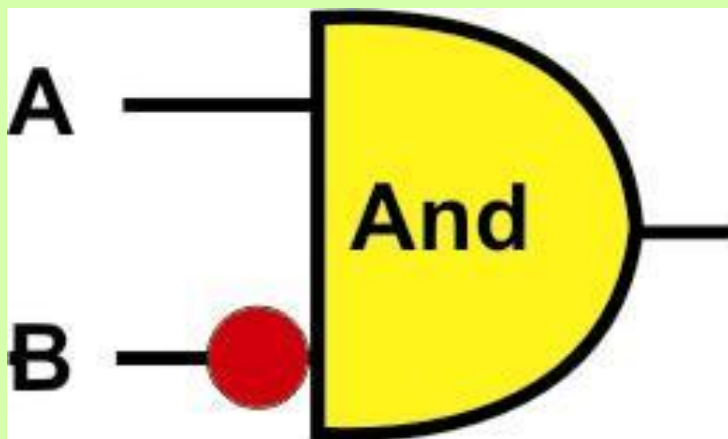
Circuito

$$F_{E(R,A,V)} = \bar{R}\bar{A}\bar{V} + \bar{R}\bar{A}V + \bar{R}A\bar{V} + \bar{R}AV + R\bar{A}\bar{V} + R\bar{A}V + RA\bar{V} + RAV$$

Ecuación

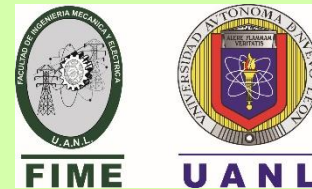
# Sistema Digital Binario

$$F1_{(A,B)} = A \bar{B}$$

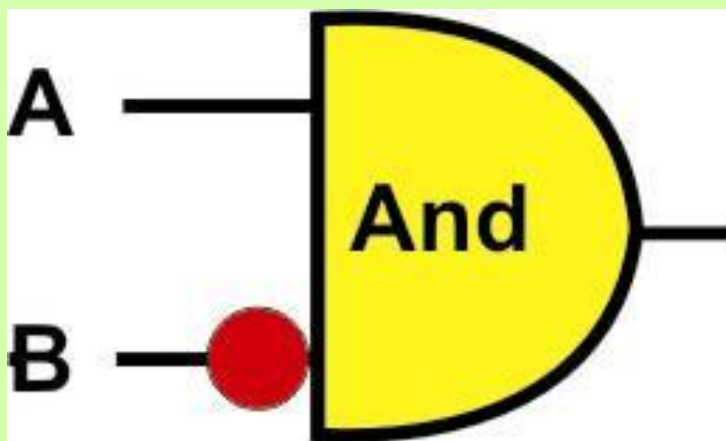


| m | A B | AB |
|---|-----|----|
| 0 | 0 0 |    |
| 1 | 0 1 |    |
| 2 | 1 0 | 1  |
| 3 | 1 1 |    |

# Sistema Digital Binario



$$F1_{(A,B)} = A \bar{B}$$



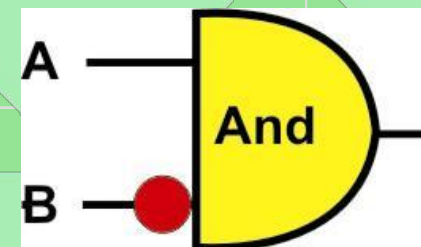
| m | A B | S |
|---|-----|---|
| 0 | 0 0 | 0 |
| 1 | 0 1 | 0 |
| 2 | 1 0 | 1 |
| 3 | 1 1 | 0 |

La salida es igual a uno solo cuando A=1 y B=0

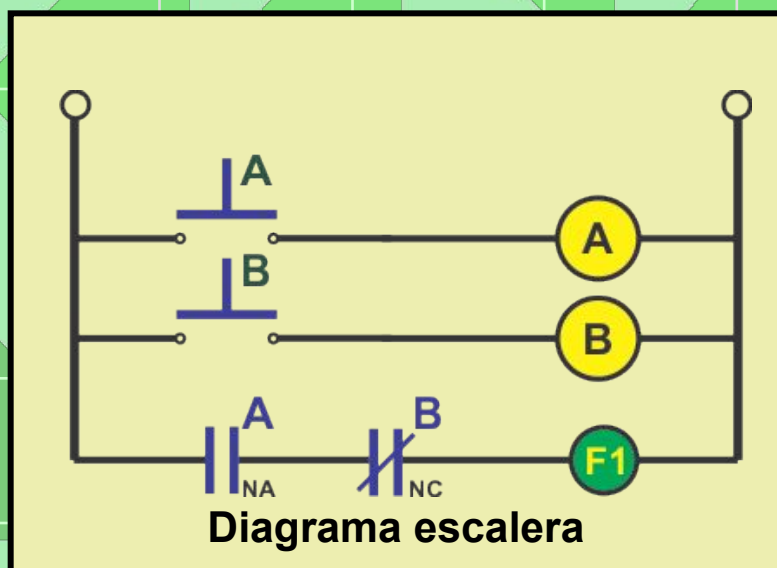
# Sistema Digital Binario

$$F1_{(A,B)} = A \bar{B}$$

$$F1_{(A,B)} = A \& !B$$



La salida es igual a uno solo cuando A=1 y B=0

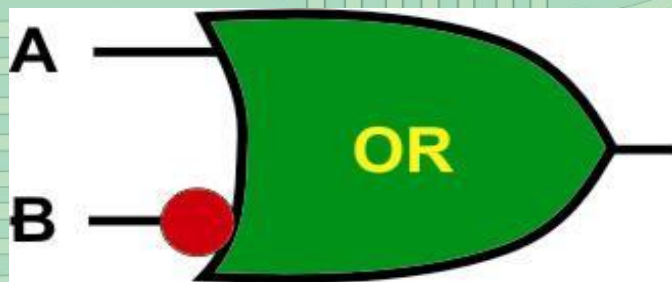


| m | A B | F1 |
|---|-----|----|
| 0 | 0 0 | 0  |
| 1 | 0 1 | 0  |
| 2 | 1 0 | 1  |
| 3 | 1 1 | 0  |

| A  | 0 | 0 | 1 | 1 |
|----|---|---|---|---|
| B  | 0 | 1 | 0 | 1 |
| F1 | 0 | 0 | 1 | 0 |

# Sistema Digital Binario

$$F2_{(A,B)} = A + \bar{B}$$

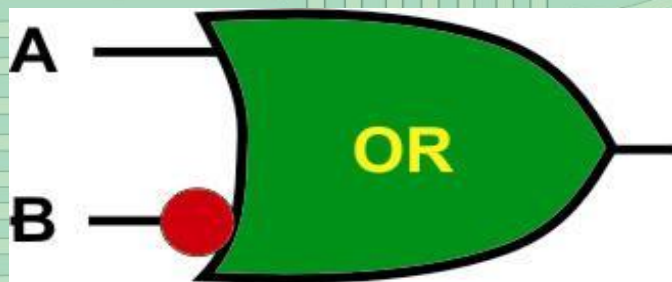


| m | A B | A+B |
|---|-----|-----|
| 0 | 0 0 |     |
| 1 | 0 1 | 0   |
| 2 | 1 0 |     |
| 3 | 1 1 |     |

# Sistema Digital Binario

La salida es igual a cero solo cuando A=0 y B=1

$$F2_{(A,B)} = A + \bar{B}$$



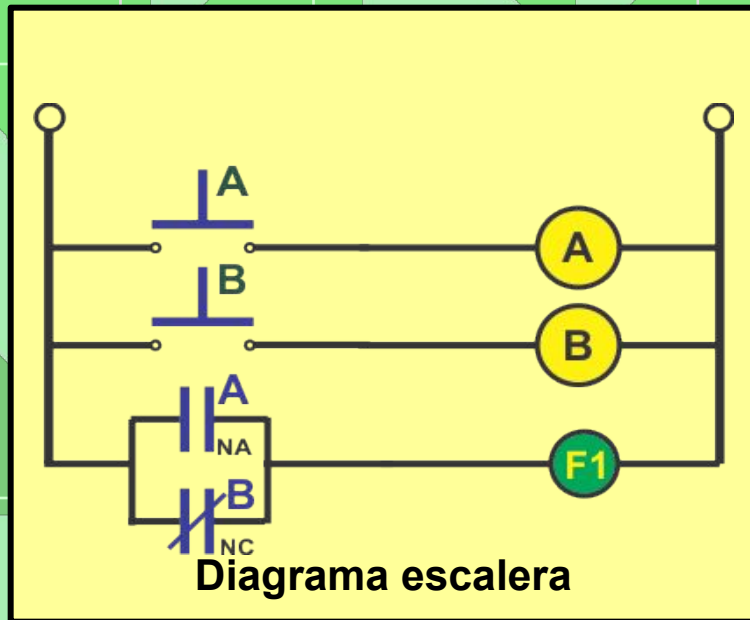
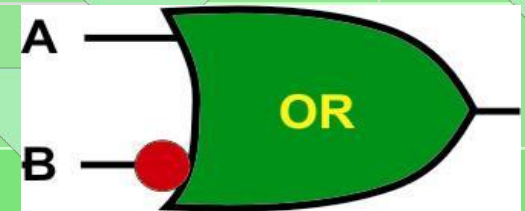
| m | A B | A+B |
|---|-----|-----|
| 0 | 0 0 | 1   |
| 1 | 0 1 | 0   |
| 2 | 1 0 | 1   |
| 3 | 1 1 | 1   |

# Sistema Digital Binario

$$F2_{(A,B)} = A + \bar{B}$$

$$F2_{(A,B)} = A \# !B$$

La salida es igual a cero solo cuando A=0 y B=1

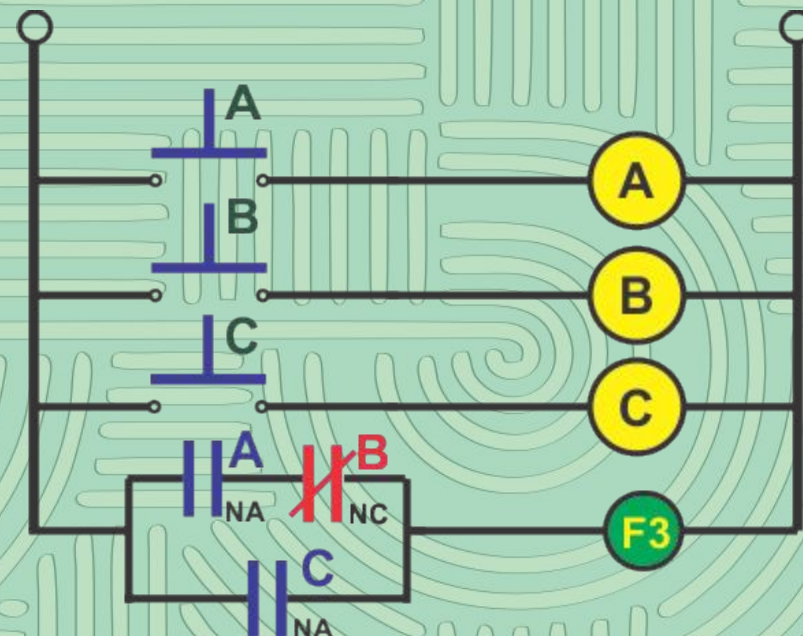
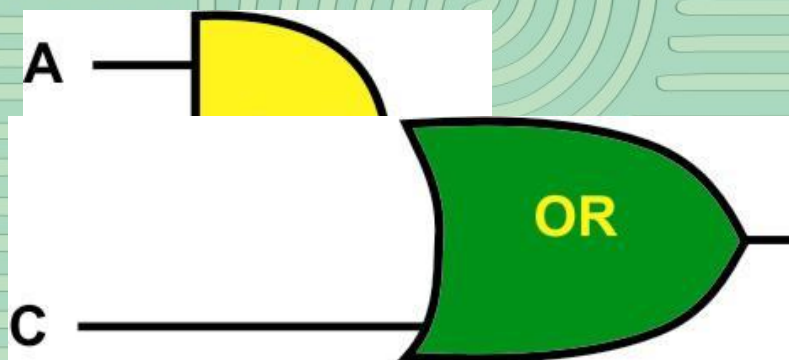


| m | A B | F2 |
|---|-----|----|
| 0 | 0 0 | 1  |
| 1 | 0 1 | 0  |
| 2 | 1 0 | 1  |
| 3 | 1 1 | 1  |

| A  | 0 | 0 | 1 | 1 |
|----|---|---|---|---|
| B  | 0 | 1 | 0 | 1 |
| F2 | 1 | 0 | 1 | 1 |

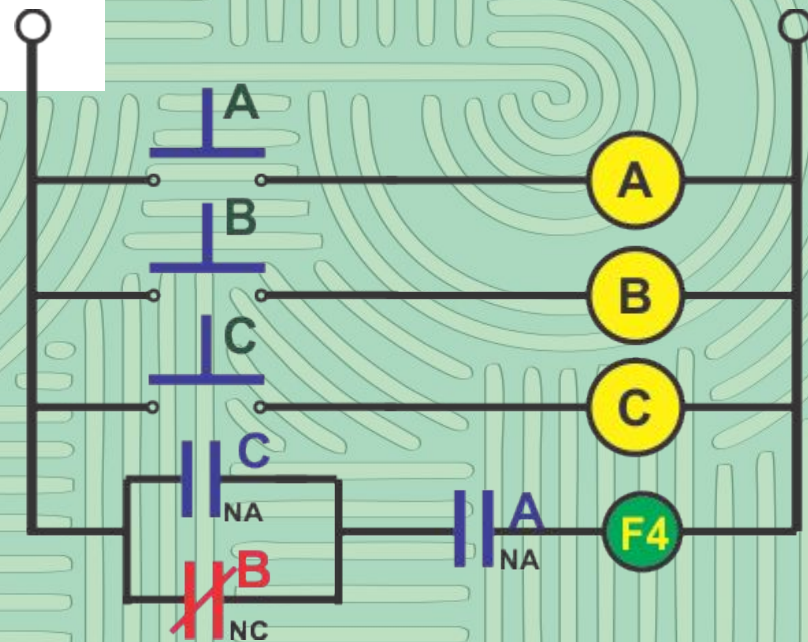
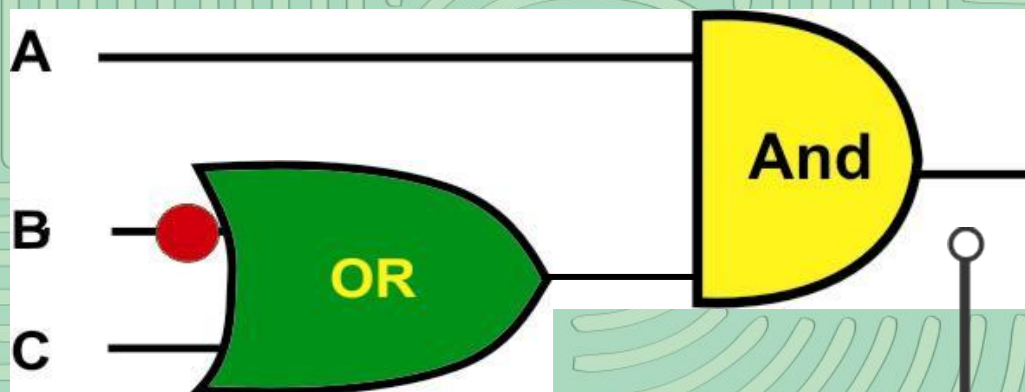
# Sistema Digital Binario

$$F3_{(A,B,C)} = A \bar{B} + C$$

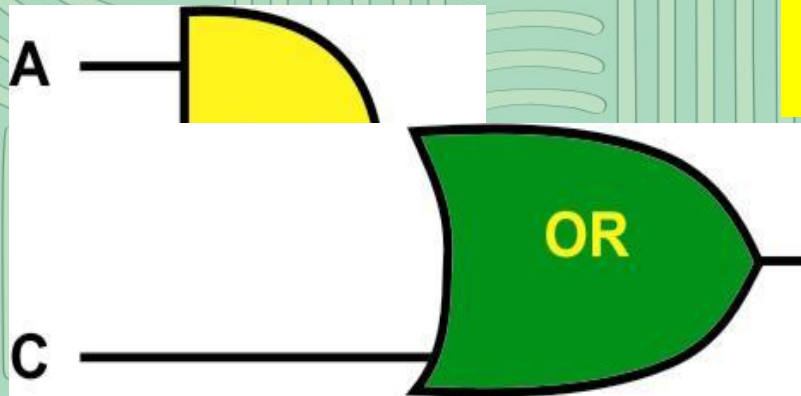


## Sistema Digital Binario

$$F4_{(A,B,C)} = A (\bar{B} + C)$$

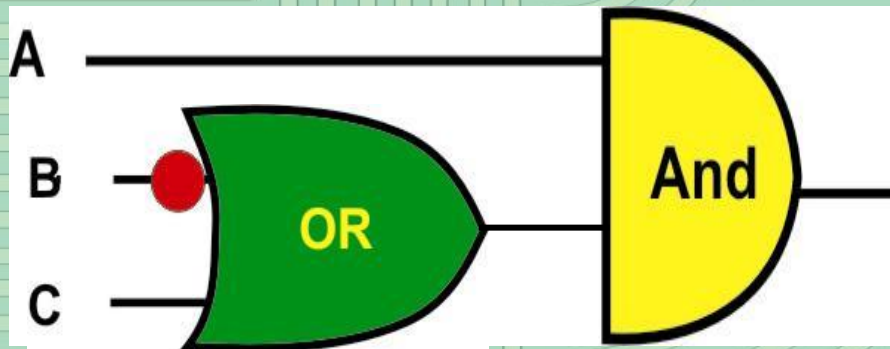


## Sistema Digital Binario



¿Serán Equivalentes?

$$F3_{(A,B,C)} = A \bar{B} + C$$

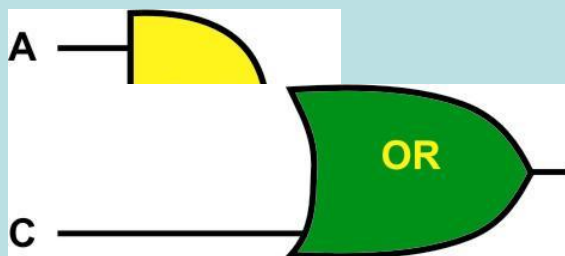


$$F4_{(A,B,C)} = A (\bar{B} + C)$$

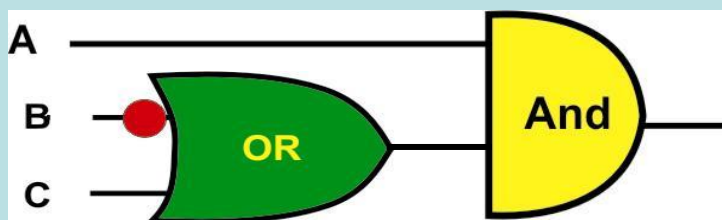
¿Qué recurso podemos usar para comparar las dos funciones?

# Sistema Digital Binario

**F3**



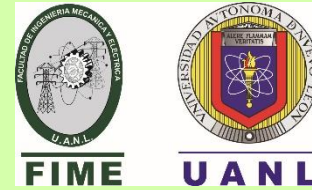
**F4**



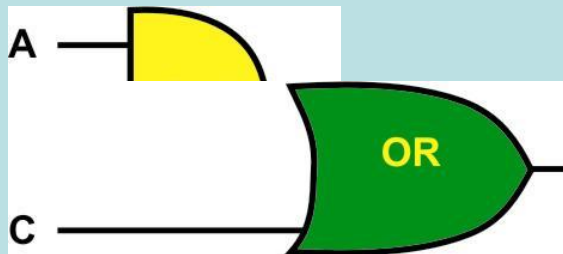
## Tabla de verdad

| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 |    |    |
| 1 | 0 | 0 | 1 |    |    |
| 2 | 0 | 1 | 0 |    |    |
| 3 | 0 | 1 | 1 |    |    |
| 4 | 1 | 0 | 0 |    |    |
| 5 | 1 | 0 | 1 |    |    |
| 6 | 1 | 1 | 0 |    |    |
| 7 | 1 | 1 | 1 |    |    |

# Sistema Digital Binario

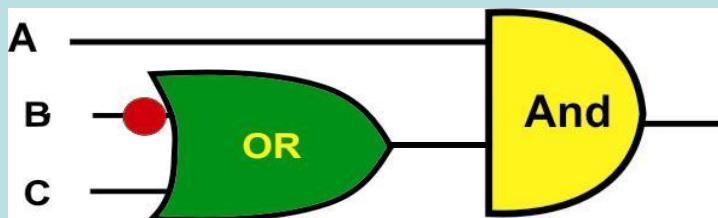


**F3**



Para pasar del circuito a la Tabla de Verdad se recomienda usar un método de análisis inverso

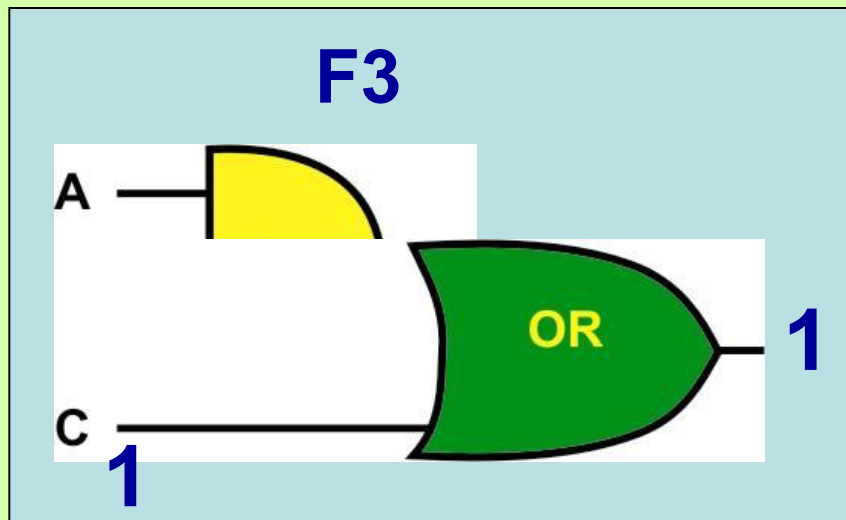
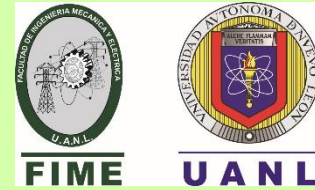
**F4**



Que consiste en proponer un valor conveniente a la salida y determinar que combinaciones de entrada cumplen con el valor propuesto

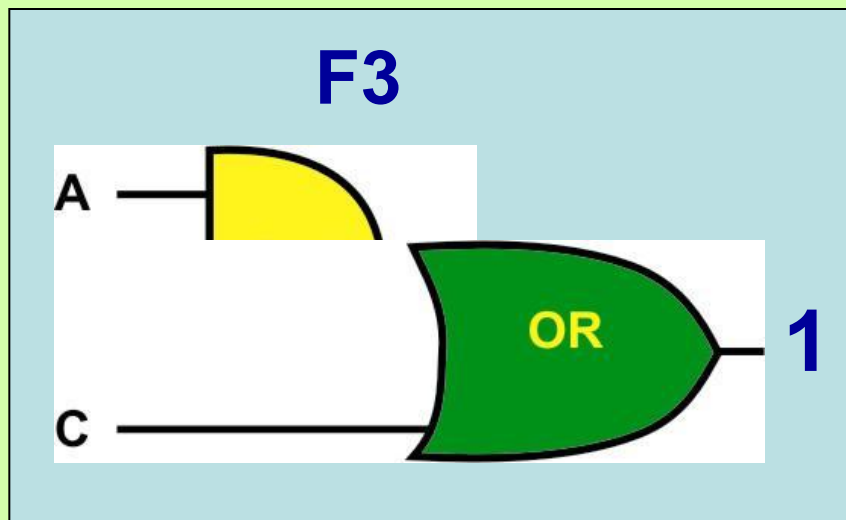
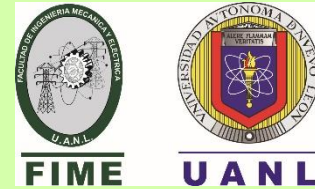
**Hecho en FIME**

# Sistema Digital Binario



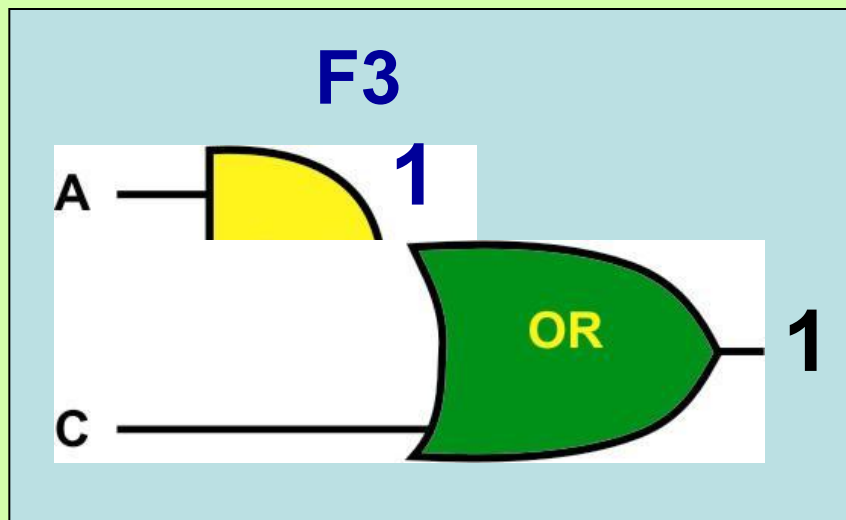
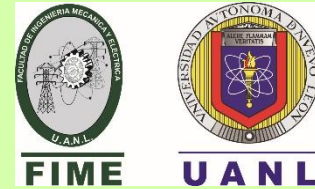
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 |    |    |
| 1 | 0 | 0 | 1 |    |    |
| 2 | 0 | 1 | 0 |    |    |
| 3 | 0 | 1 | 1 |    |    |
| 4 | 1 | 0 | 0 |    |    |
| 5 | 1 | 0 | 1 |    |    |
| 6 | 1 | 1 | 0 |    |    |
| 7 | 1 | 1 | 1 |    |    |

# Sistema Digital Binario



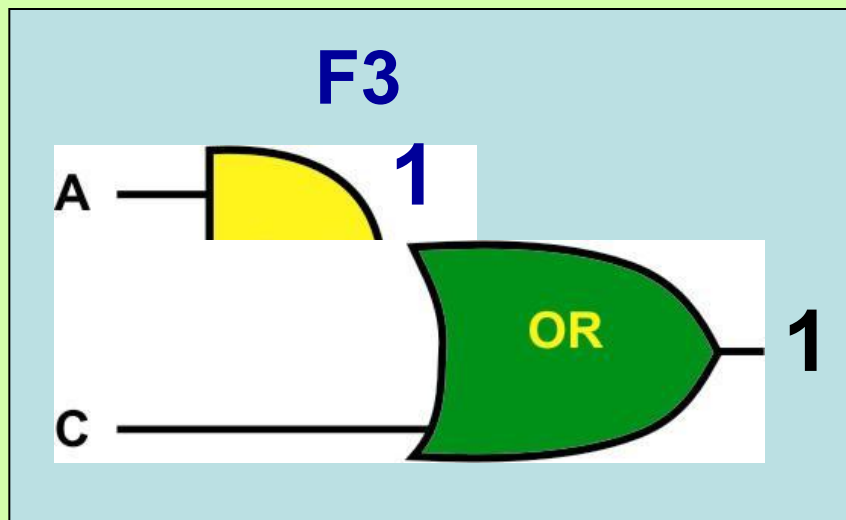
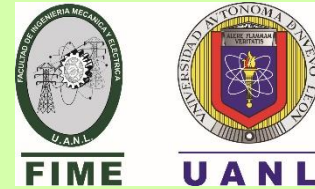
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 |    |    |
| 1 | 0 | 0 | 1 | 1  |    |
| 2 | 0 | 1 | 0 |    |    |
| 3 | 0 | 1 | 1 | 1  |    |
| 4 | 1 | 0 | 0 |    |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 |    |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



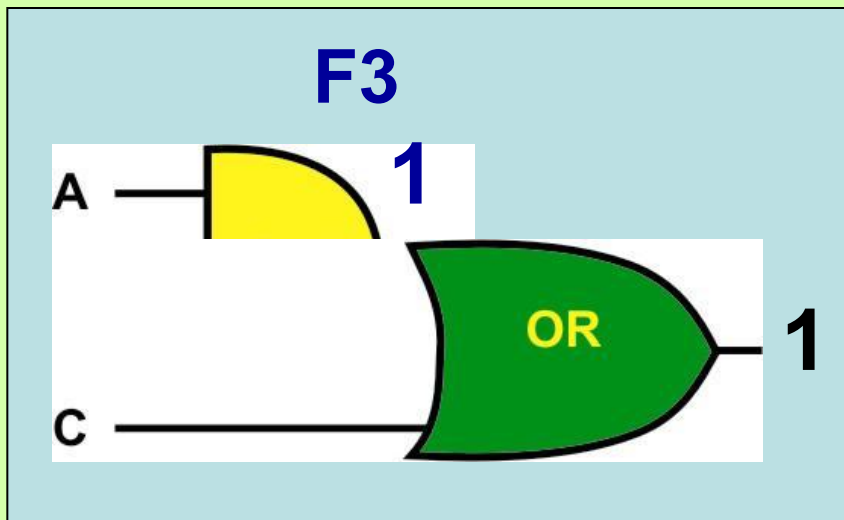
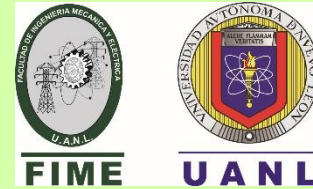
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 |    |    |
| 1 | 0 | 0 | 1 | 1  |    |
| 2 | 0 | 1 | 0 |    |    |
| 3 | 0 | 1 | 1 | 1  |    |
| 4 | 1 | 0 | 0 |    |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 |    |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 |    |    |
| 1 | 0 | 0 | 1 | 1  |    |
| 2 | 0 | 1 | 0 |    |    |
| 3 | 0 | 1 | 1 | 1  |    |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 |    |    |
| 7 | 1 | 1 | 1 | 1  |    |

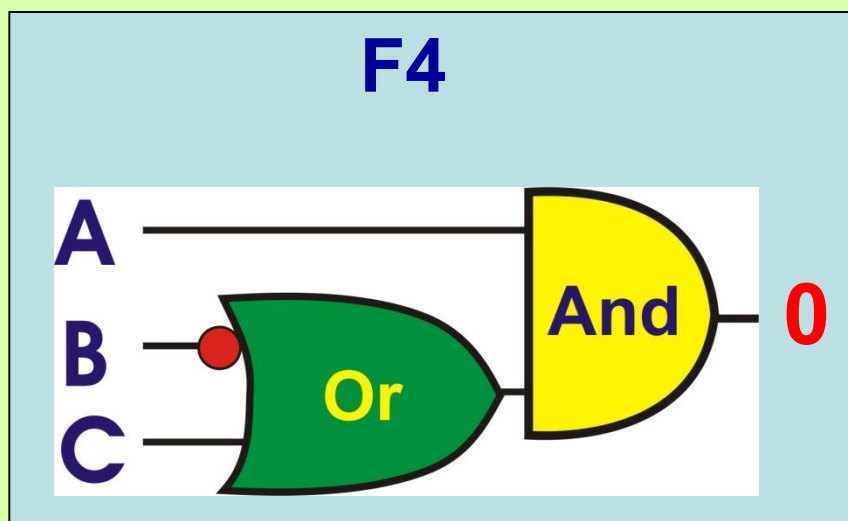
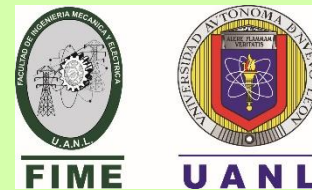
# Sistema Digital Binario



$$F3_{(A,B,C)} = A \bar{B} + C$$

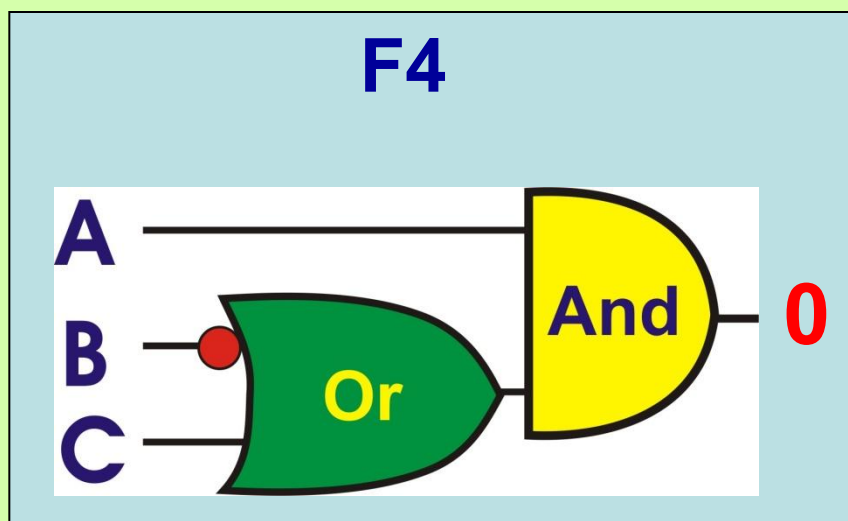
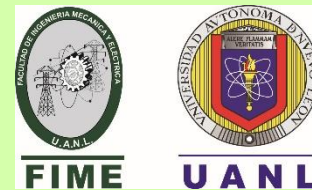
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  |    |
| 1 | 0 | 0 | 1 | 1  |    |
| 2 | 0 | 1 | 0 | 0  |    |
| 3 | 0 | 1 | 1 | 1  |    |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 | 0  |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



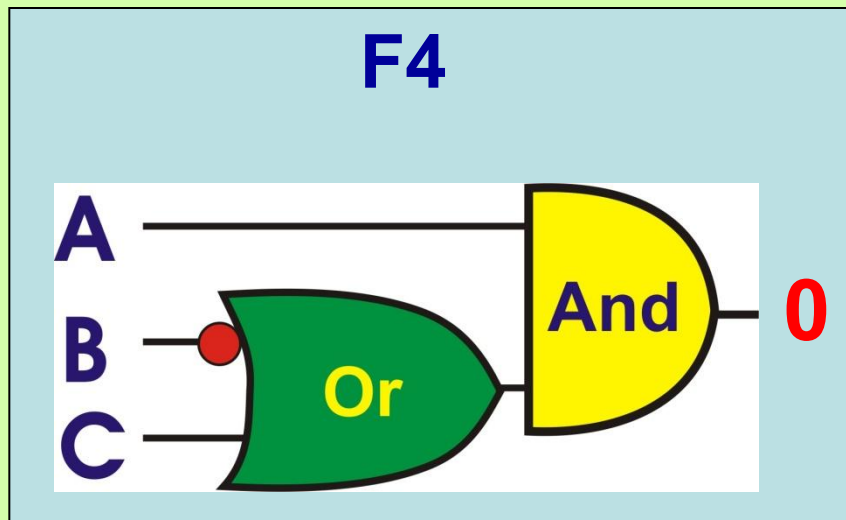
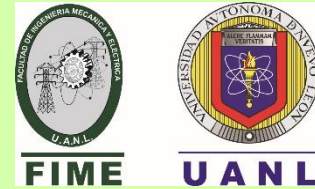
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  |    |
| 1 | 0 | 0 | 1 | 1  |    |
| 2 | 0 | 1 | 0 | 0  |    |
| 3 | 0 | 1 | 1 | 1  |    |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 | 0  |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



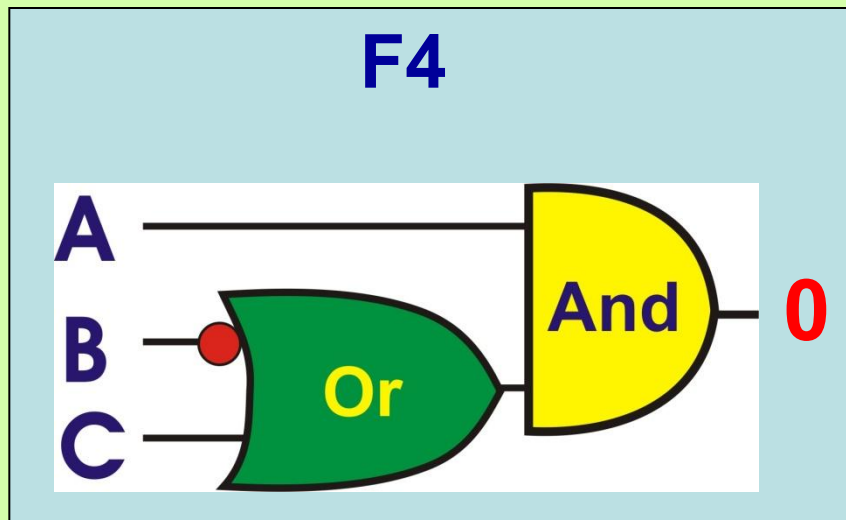
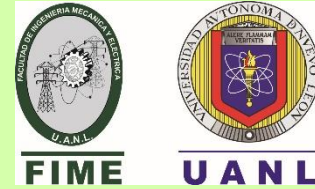
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  | 0  |
| 1 | 0 | 0 | 1 | 1  | 0  |
| 2 | 0 | 1 | 0 | 0  | 0  |
| 3 | 0 | 1 | 1 | 1  | 0  |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 | 0  |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



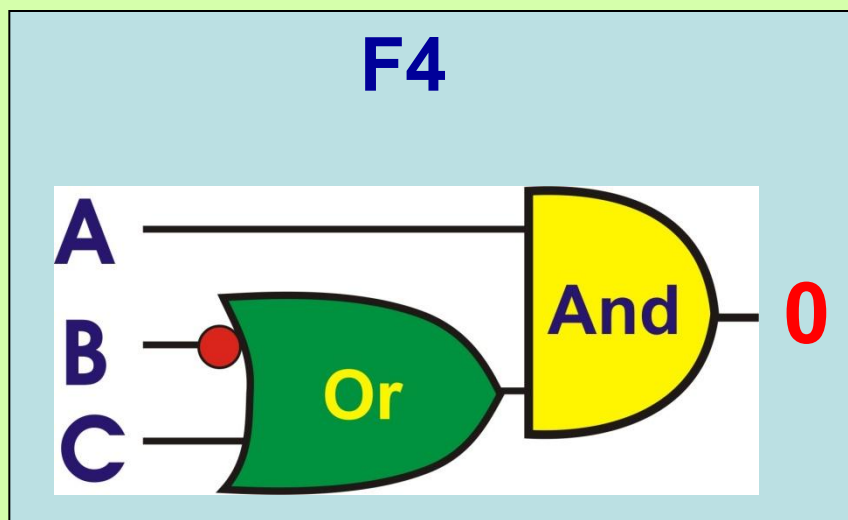
| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  | 0  |
| 1 | 0 | 0 | 1 | 1  | 0  |
| 2 | 0 | 1 | 0 | 0  | 0  |
| 3 | 0 | 1 | 1 | 1  | 0  |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 | 0  |    |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario



| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  | 0  |
| 1 | 0 | 0 | 1 | 1  | 0  |
| 2 | 0 | 1 | 0 | 0  | 0  |
| 3 | 0 | 1 | 1 | 1  | 0  |
| 4 | 1 | 0 | 0 | 1  |    |
| 5 | 1 | 0 | 1 | 1  |    |
| 6 | 1 | 1 | 0 | 0  | 0  |
| 7 | 1 | 1 | 1 | 1  |    |

# Sistema Digital Binario

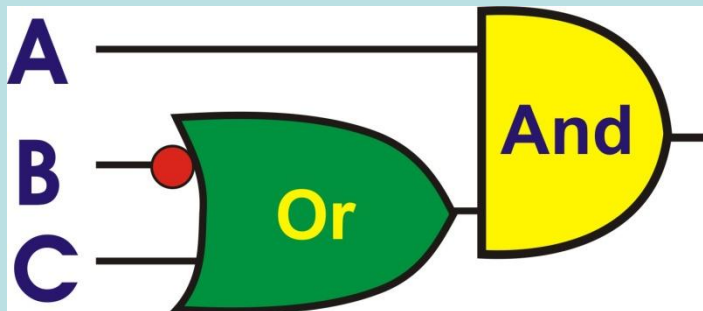
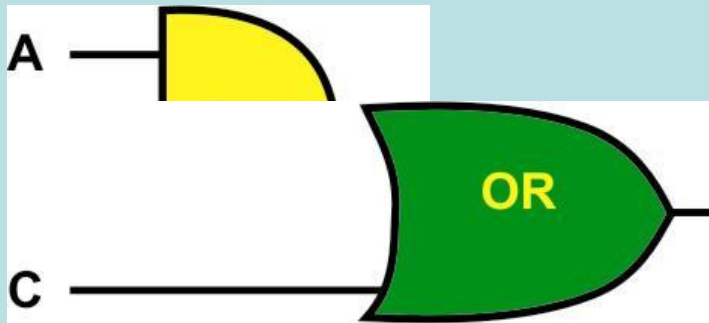


$$F4_{(A,B,C)} = A (\overline{B} + C)$$

| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  | 0  |
| 1 | 0 | 0 | 1 | 1  | 0  |
| 2 | 0 | 1 | 0 | 0  | 0  |
| 3 | 0 | 1 | 1 | 1  | 0  |
| 4 | 1 | 0 | 0 | 1  | 1  |
| 5 | 1 | 0 | 1 | 1  | 1  |
| 6 | 1 | 1 | 0 | 0  | 0  |
| 7 | 1 | 1 | 1 | 1  | 1  |

# Sistema Digital Binario

$$F3 \neq F4$$

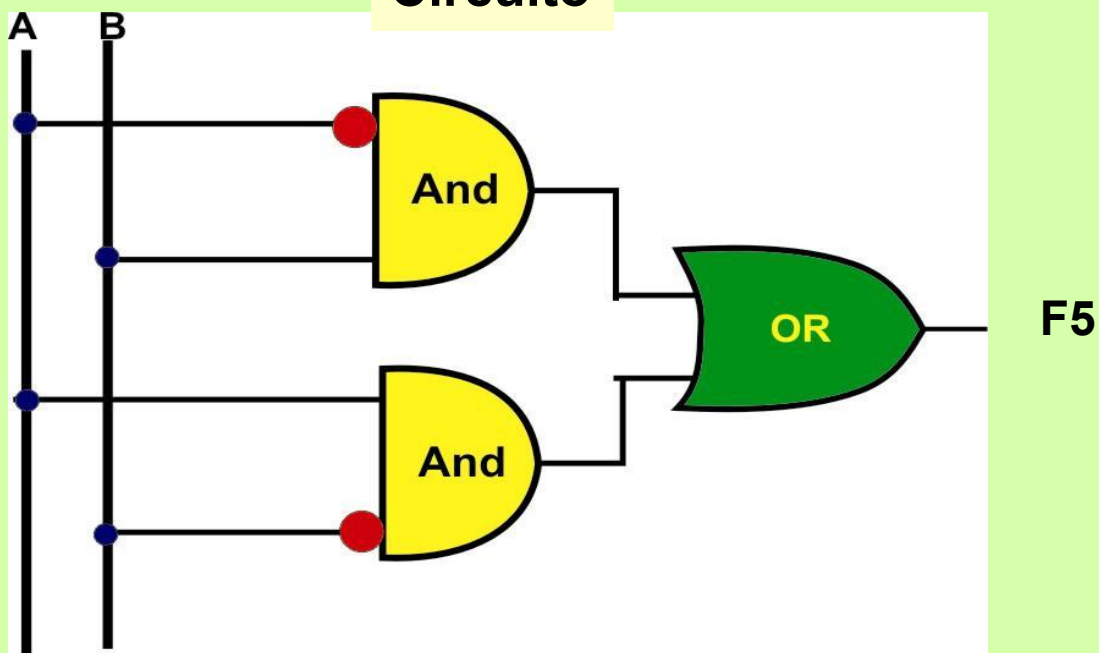


| m | A | B | C | F3 | F4 |
|---|---|---|---|----|----|
| 0 | 0 | 0 | 0 | 0  | 0  |
| 1 | 0 | 0 | 1 | 1  | 0  |
| 2 | 0 | 1 | 0 | 0  | 0  |
| 3 | 0 | 1 | 1 | 1  | 0  |
| 4 | 1 | 0 | 0 | 1  | 1  |
| 5 | 1 | 0 | 1 | 1  | 1  |
| 6 | 1 | 1 | 0 | 0  | 0  |
| 7 | 1 | 1 | 1 | 1  | 1  |

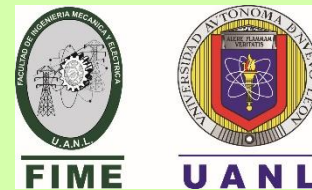
**F5**

Pasaremos ahora del circuito a la ecuación

**Circuito**

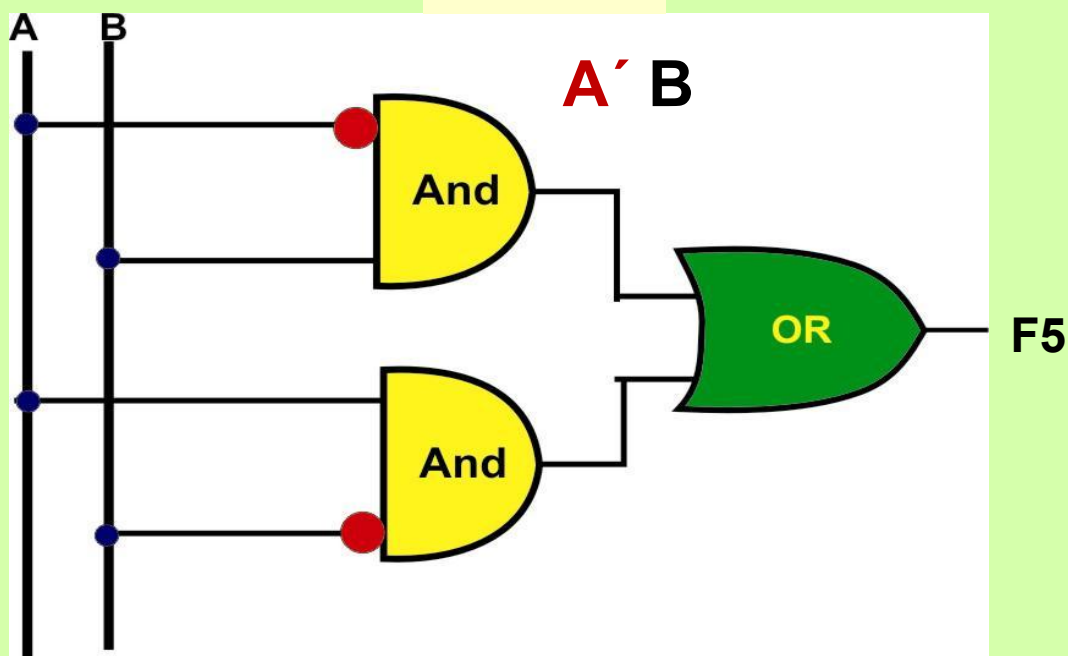


F5

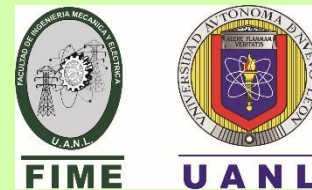


Pasaremos ahora del circuito a la ecuación

Circuito

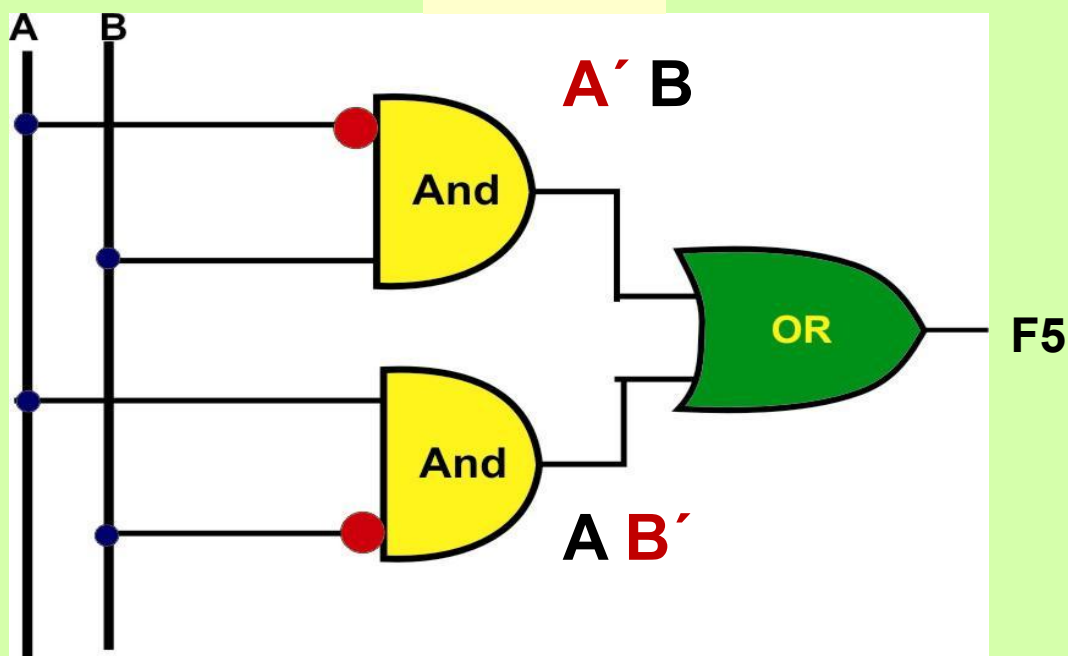


F5

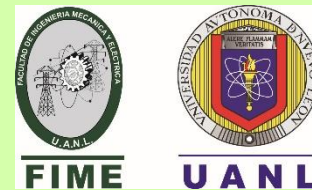


Pasaremos ahora del circuito a la ecuación

Circuito

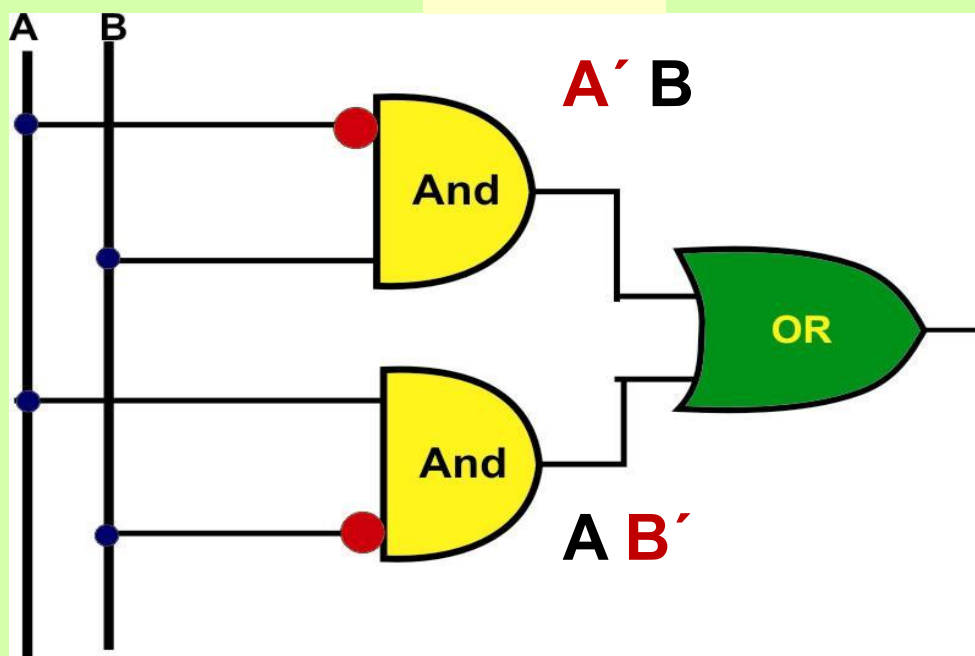


F5



Pasaremos ahora del circuito a la ecuación

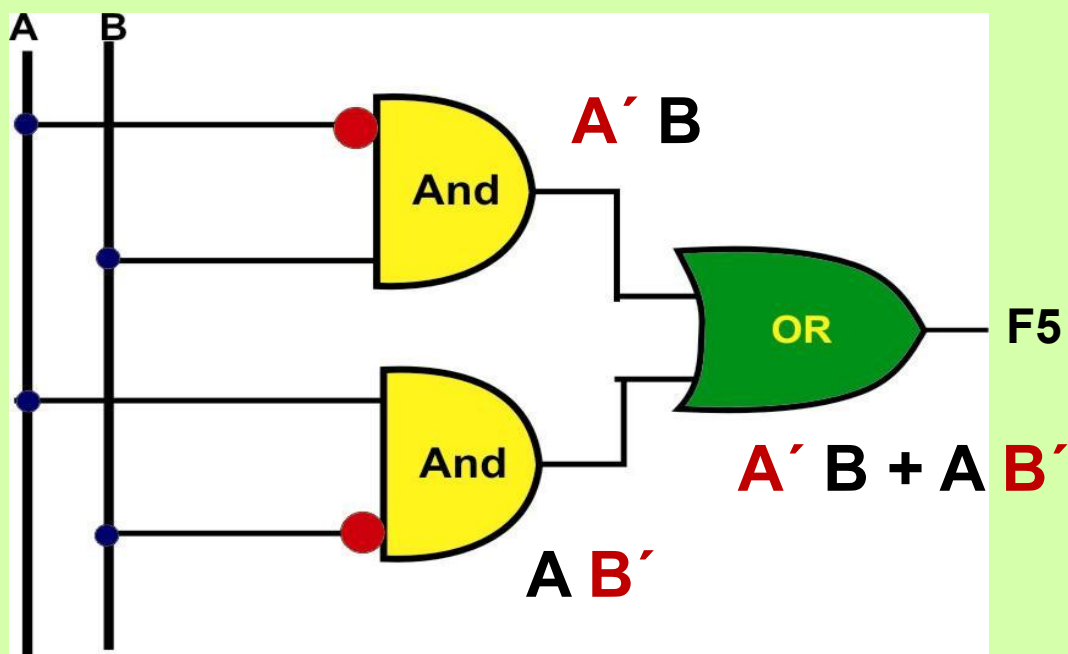
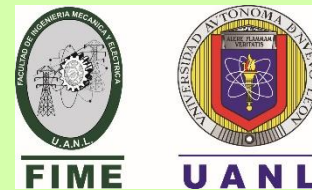
Circuito



Ecuación

$$F5_{(A,B)} = A' B + A B'$$

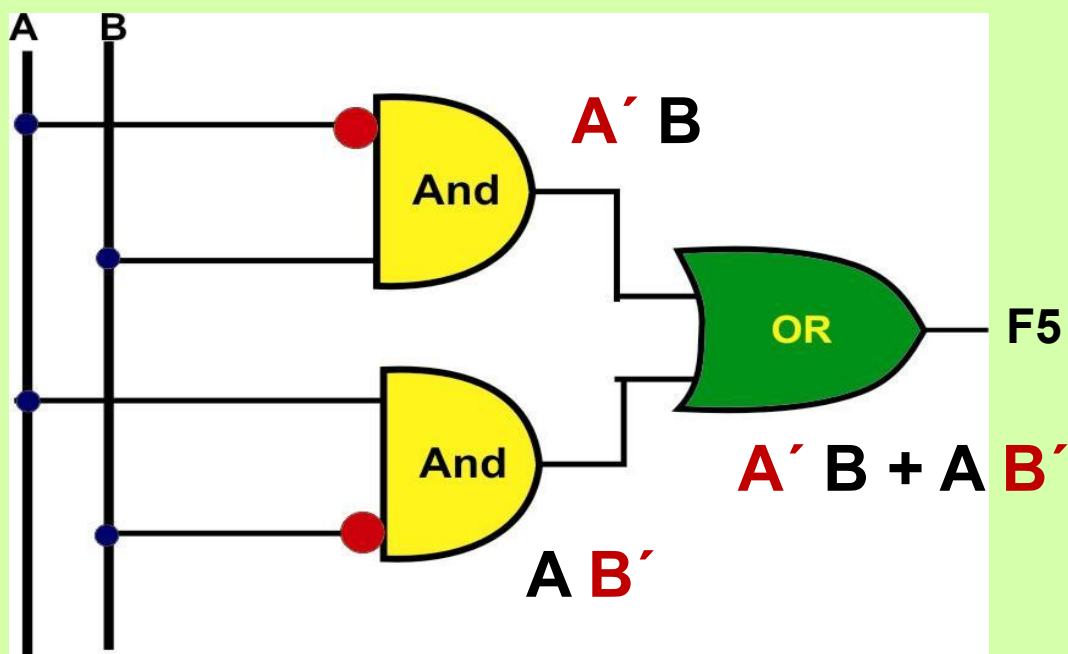
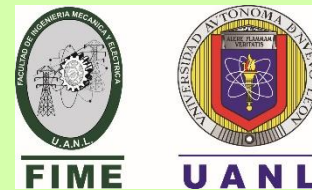
**F5**



| m | A | B | F5 |
|---|---|---|----|
| 0 | 0 | 0 |    |
| 1 | 0 | 1 |    |
| 2 | 1 | 0 |    |
| 3 | 1 | 1 |    |

**Tabla de Verdad**

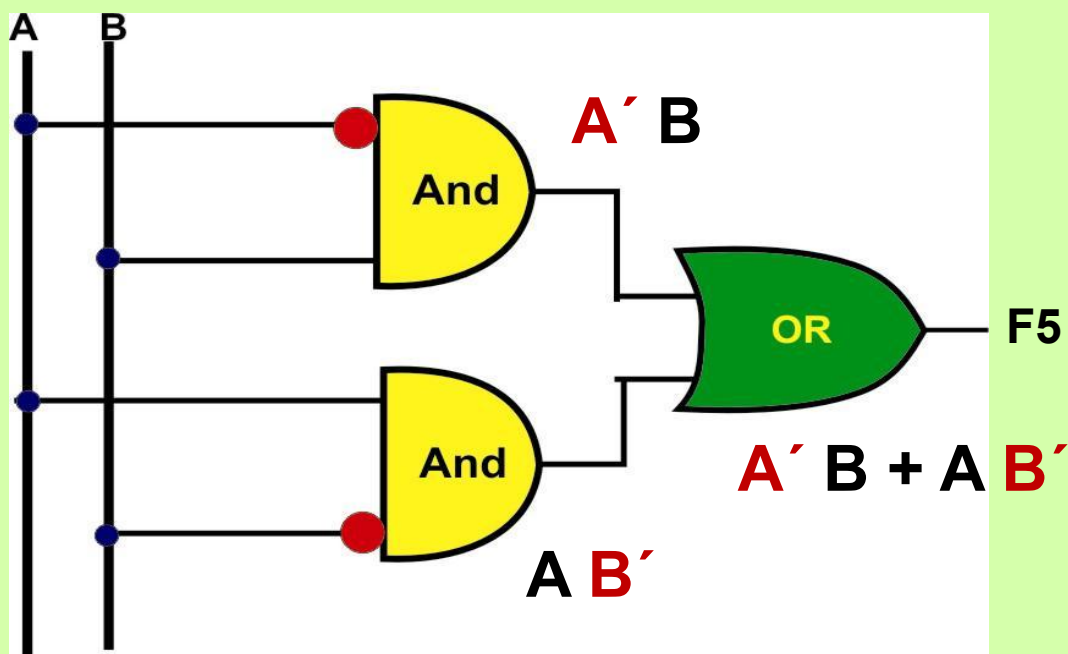
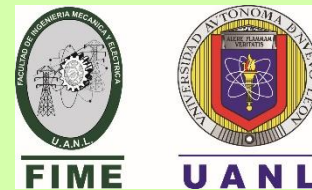
**F5**



| m | A | B | F5 |
|---|---|---|----|
| 0 | 0 | 0 |    |
| 1 | 0 | 1 | 1  |
| 2 | 1 | 0 |    |
| 3 | 1 | 1 |    |

**Tabla de Verdad**

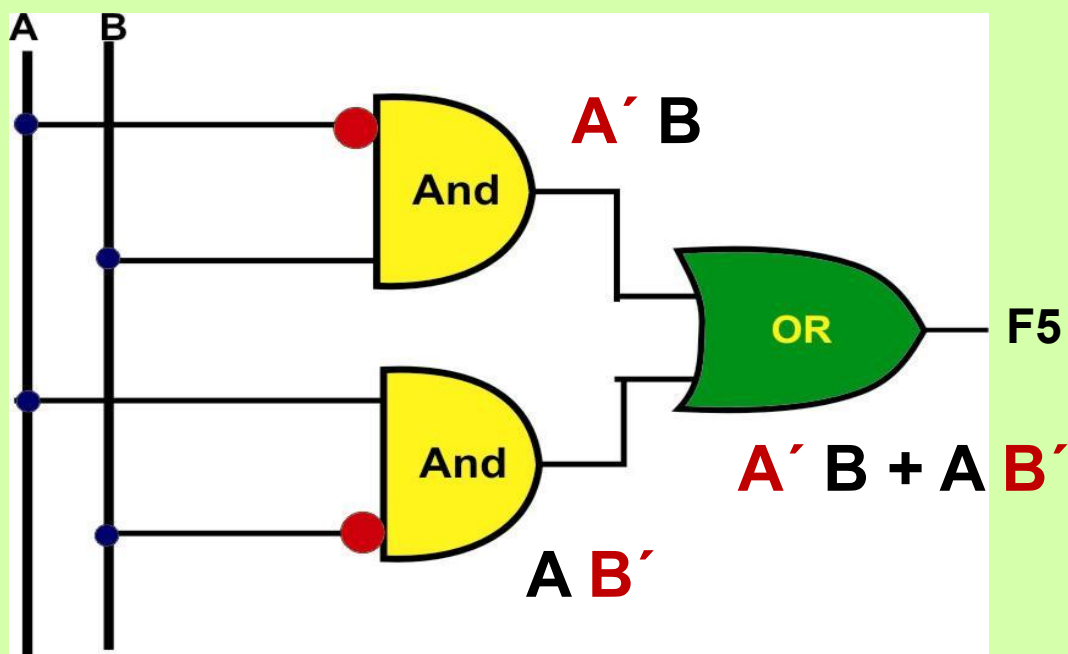
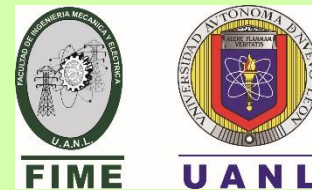
**F5**



| m | A | B | F5 |
|---|---|---|----|
| 0 | 0 | 0 |    |
| 1 | 0 | 1 | 1  |
| 2 | 1 | 0 | 1  |
| 3 | 1 | 1 |    |

Tabla de Verdad

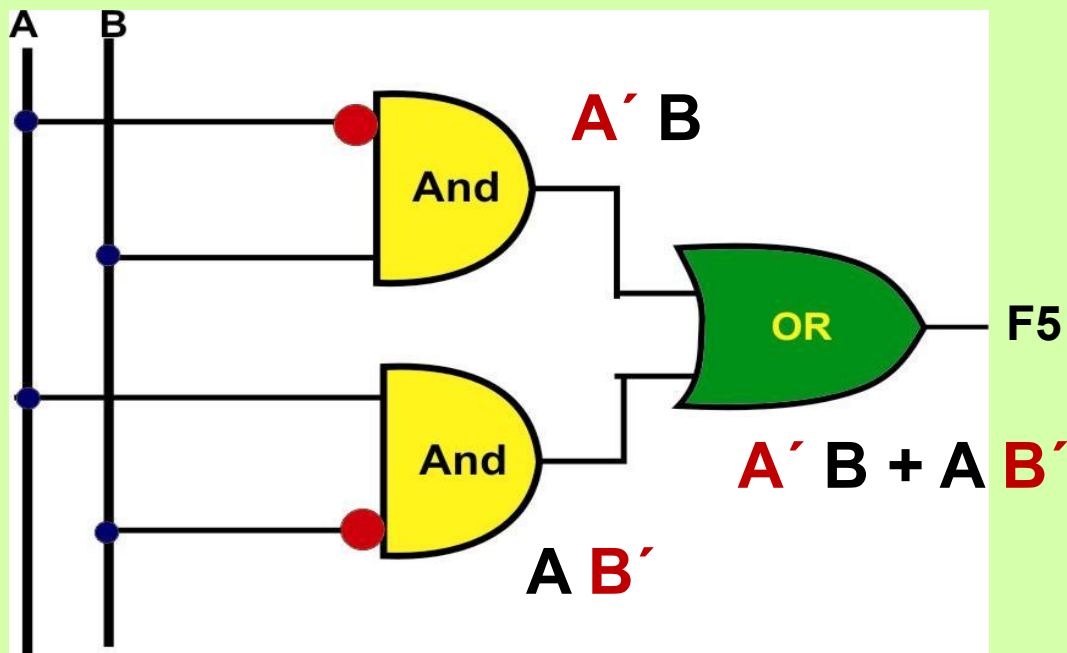
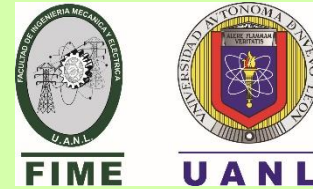
**F5**



| m | A | B | F5 |
|---|---|---|----|
| 0 | 0 | 0 | 0  |
| 1 | 0 | 1 | 1  |
| 2 | 1 | 0 | 1  |
| 3 | 1 | 1 | 0  |

**Tabla de Verdad**

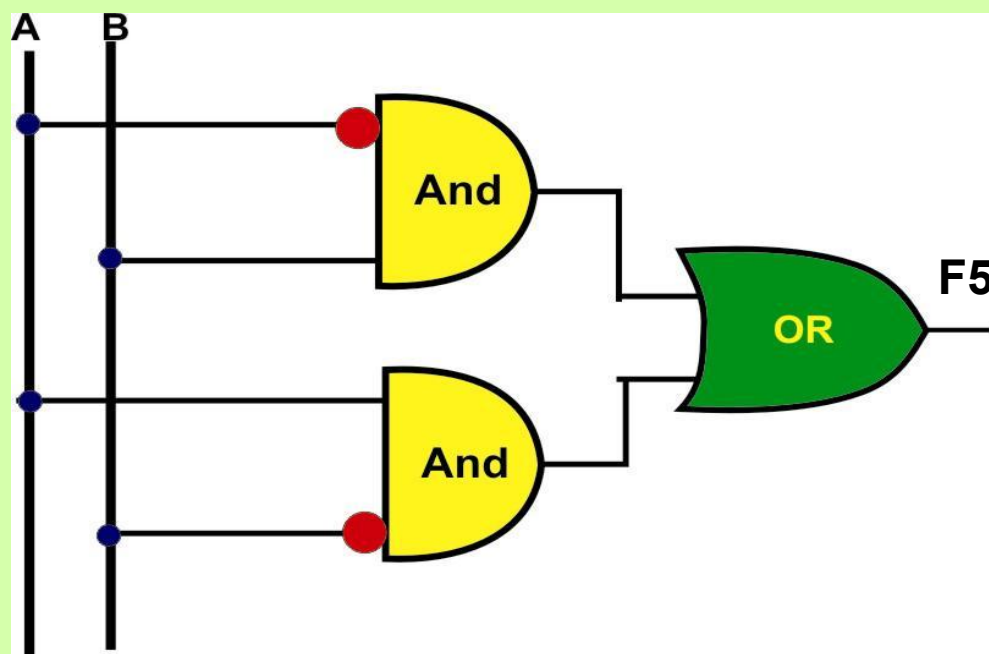
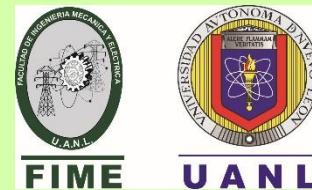
**F5**



| m | A | B | F5 |
|---|---|---|----|
| 0 | 0 | 0 | 0  |
| 1 | 0 | 1 | 1  |
| 2 | 1 | 0 | 1  |
| 3 | 1 | 1 | 0  |

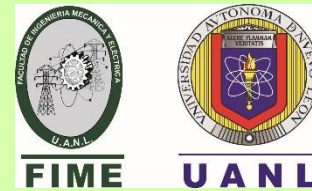
$$F5_{(A,B)} = A' B + A B' = A \oplus B$$

F5

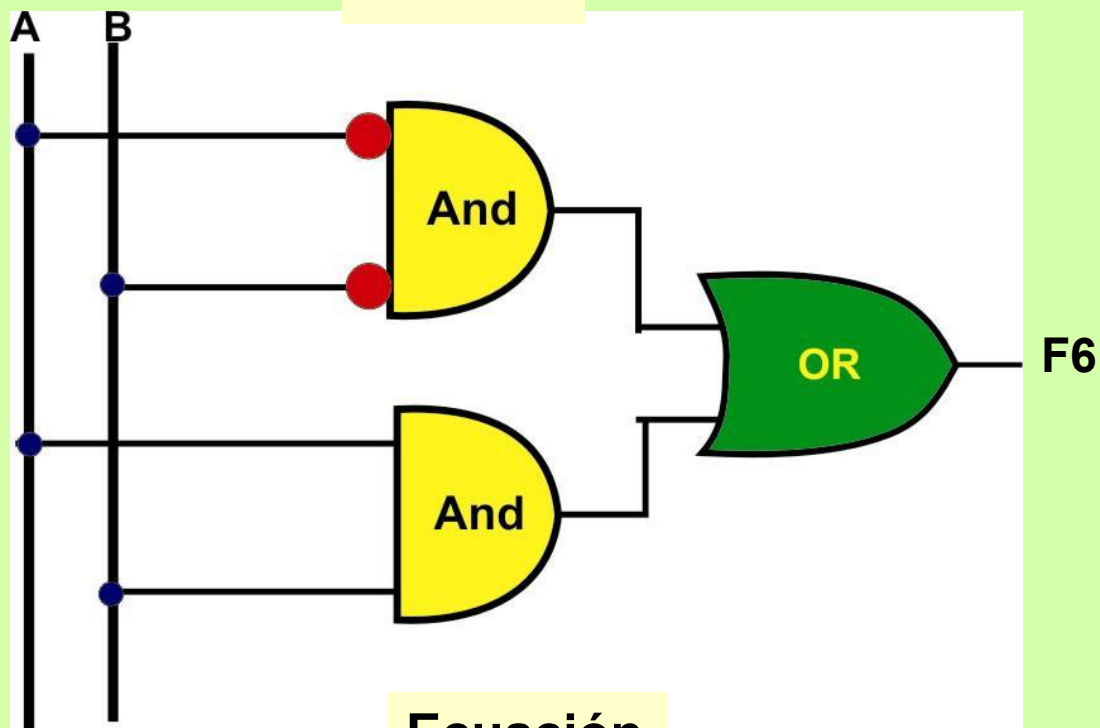


$$F5_{(A,B)} = A' B + A B' = A \oplus B$$

**F6**



**Circuito**



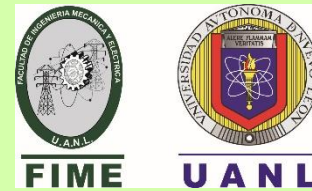
**Ecuación**

$$F6_{(A,B)} = A' B' + A B$$

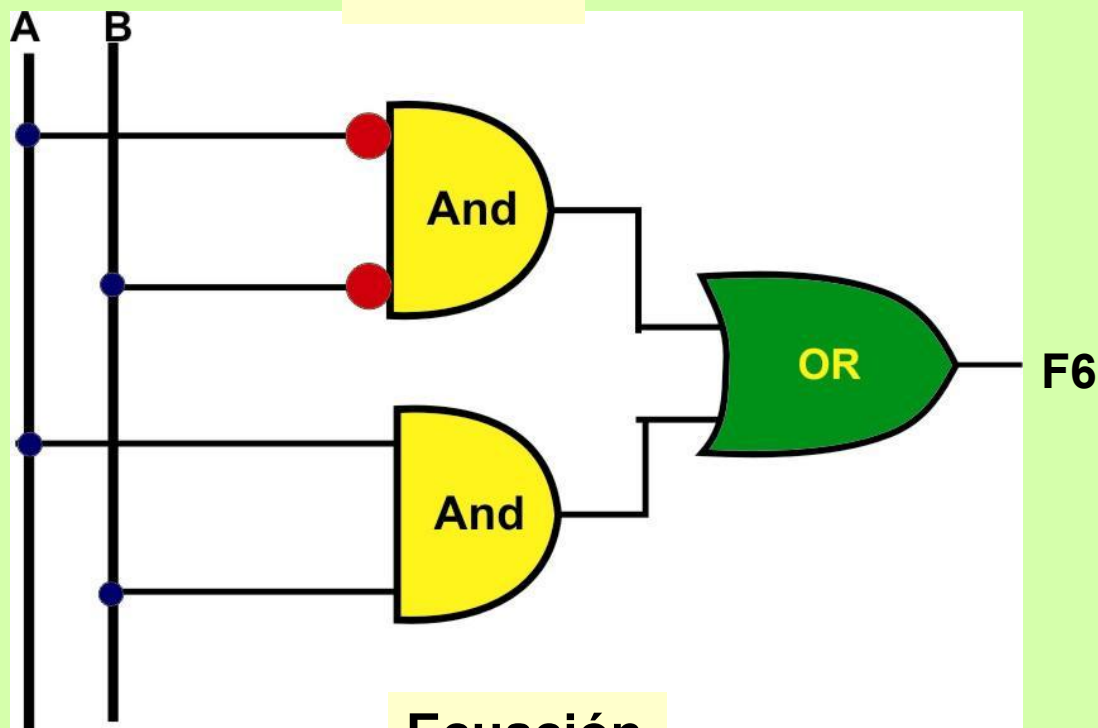
| m | A | B | F6 |
|---|---|---|----|
| 0 | 0 | 0 |    |
| 1 | 0 | 1 |    |
| 2 | 1 | 0 |    |
| 3 | 1 | 1 |    |

**Tabla de Verdad**

**F6**



**Circuito**

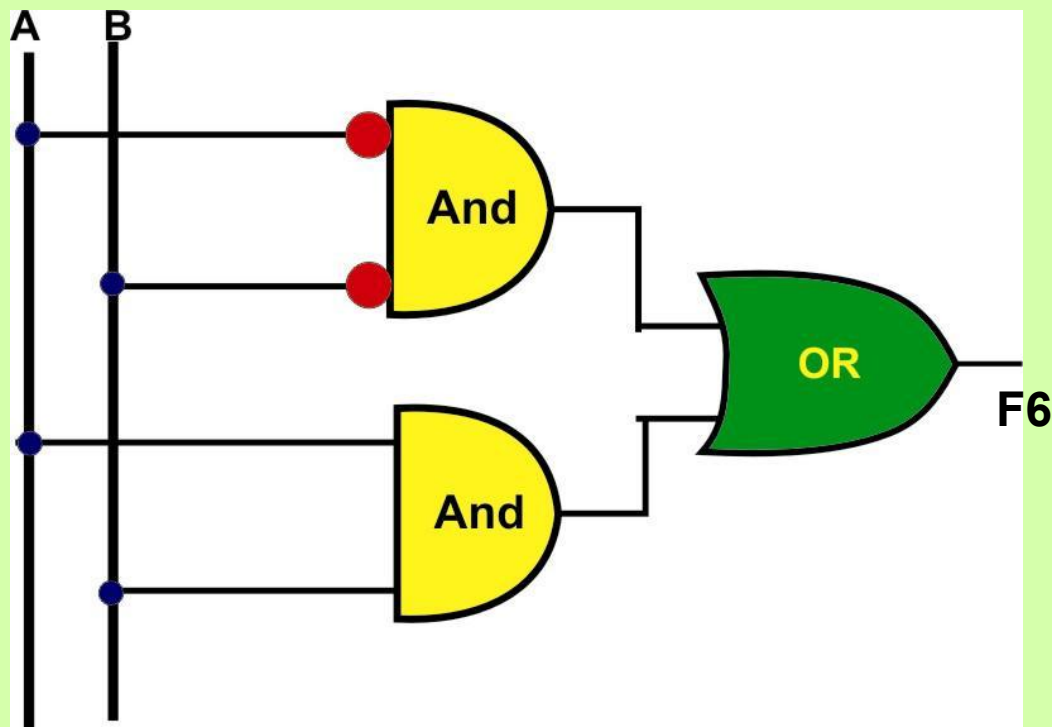
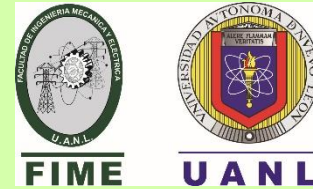


**Ecuación**

$$F6_{(A,B)} = A' B' + A B$$

| m | A | B | F6 |
|---|---|---|----|
| 0 | 0 | 0 | 1  |
| 1 | 0 | 1 | 0  |
| 2 | 1 | 0 | 0  |
| 3 | 1 | 1 | 1  |

**F6**

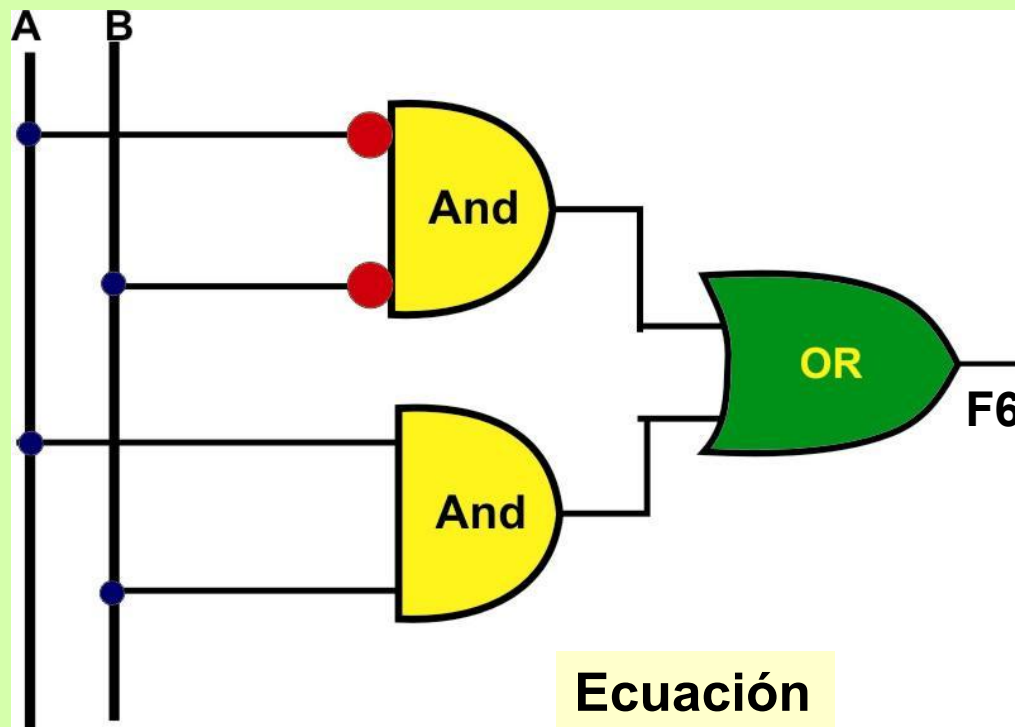
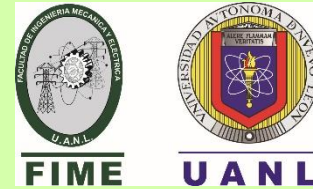


| m | A | B | F6 |
|---|---|---|----|
| 0 | 0 | 0 | 1  |
| 1 | 0 | 1 | 0  |
| 2 | 1 | 0 | 0  |
| 3 | 1 | 1 | 1  |

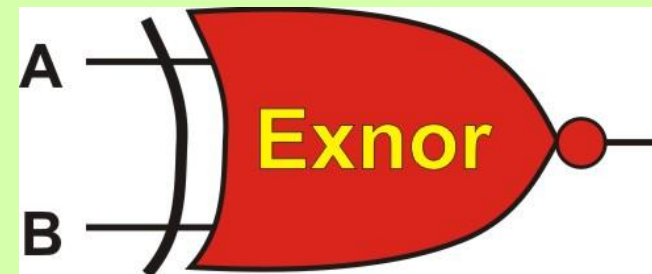
$$F6_{(A,B)} = A' B' + A B = \overline{A \oplus B}$$

**F6**

**Circuito**



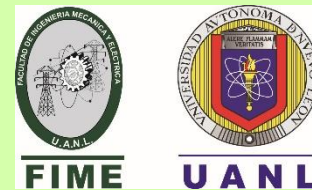
**=**



**Ecuación**

$$F6_{(A,B)} = A' B' + A B = \overline{A \oplus B}$$

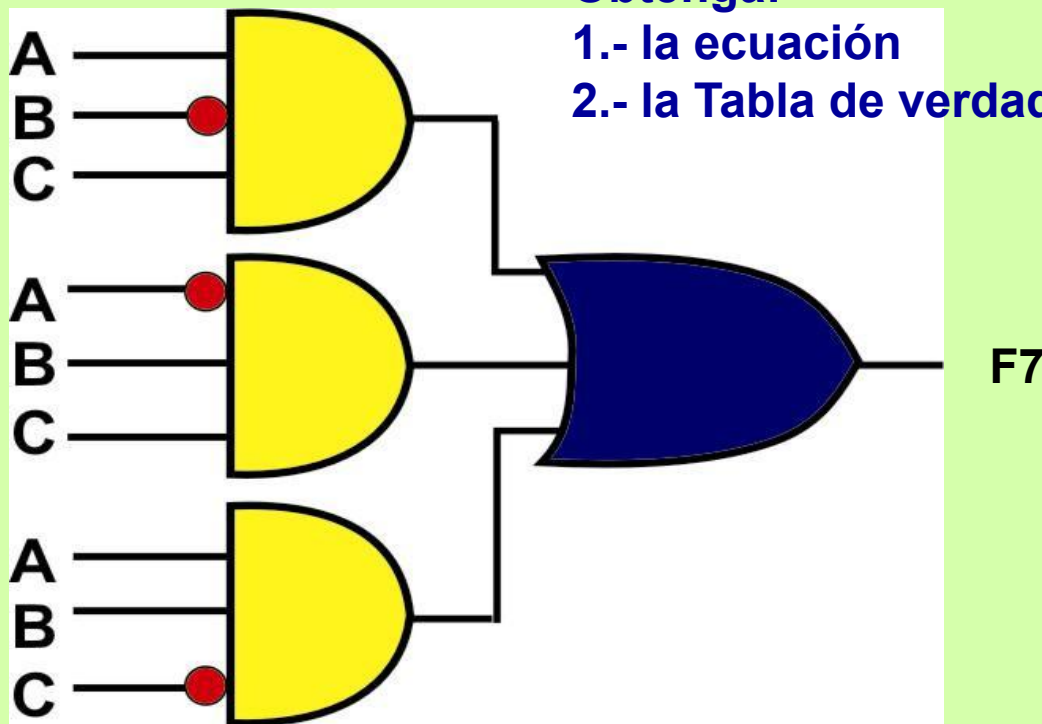
**F7**



**Obtenga:**

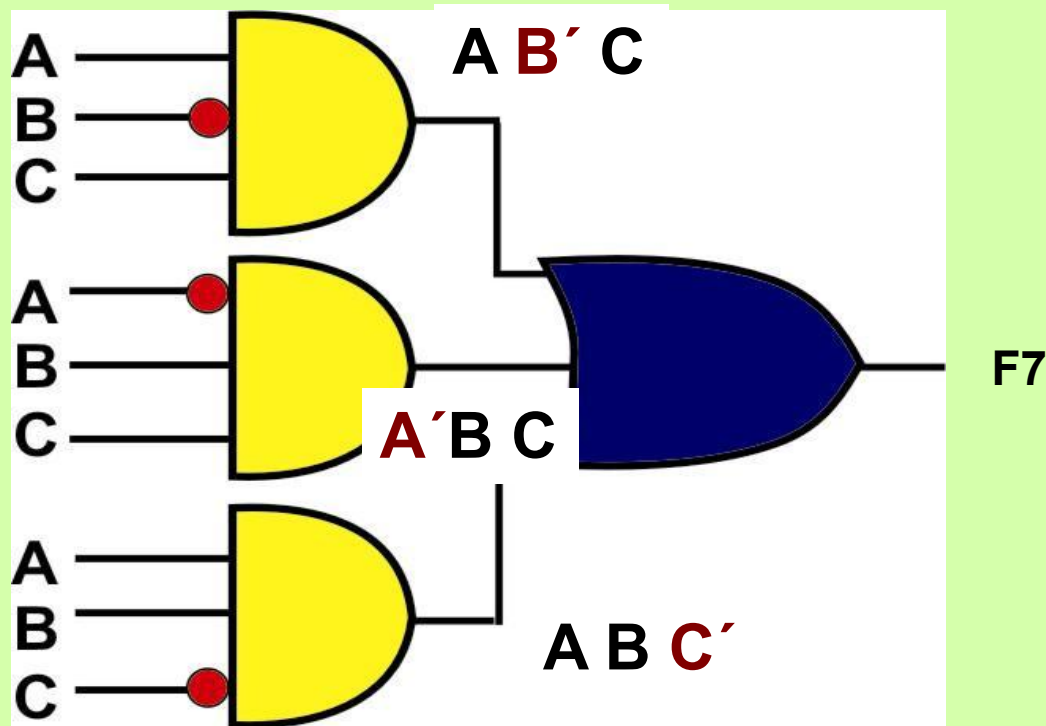
**1.- la ecuación**

**2.- la Tabla de verdad**



**F7**

Obtenga:  
1.- la ecuación  
2.- la Tabla de verdad



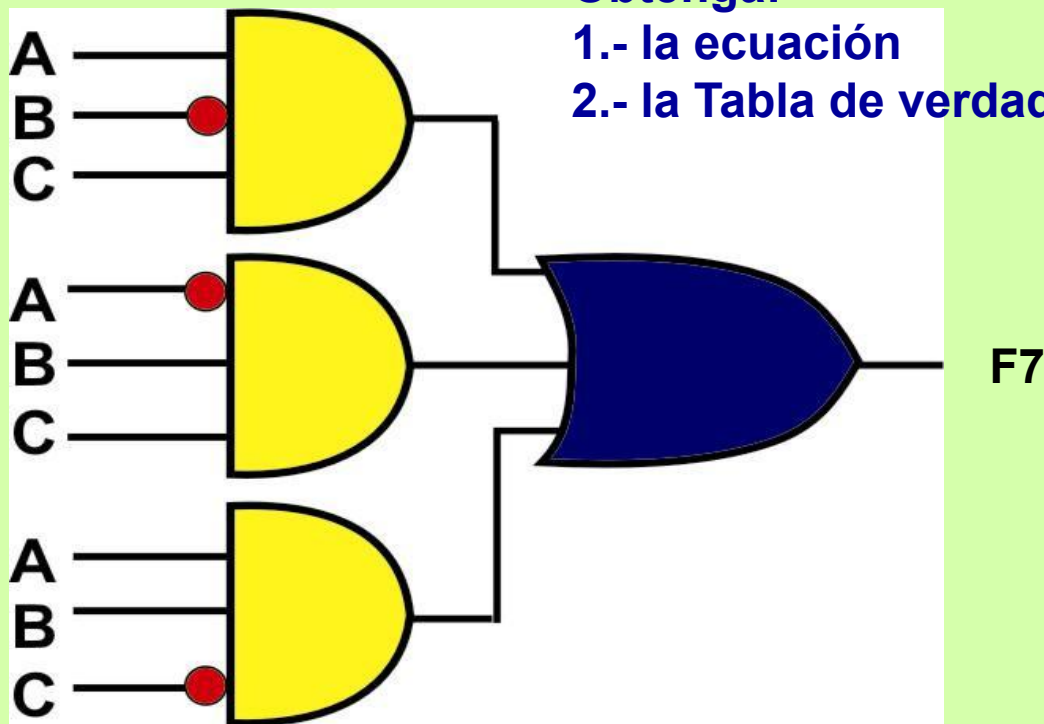
$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

**F7**

Obtenga:

1.- la ecuación

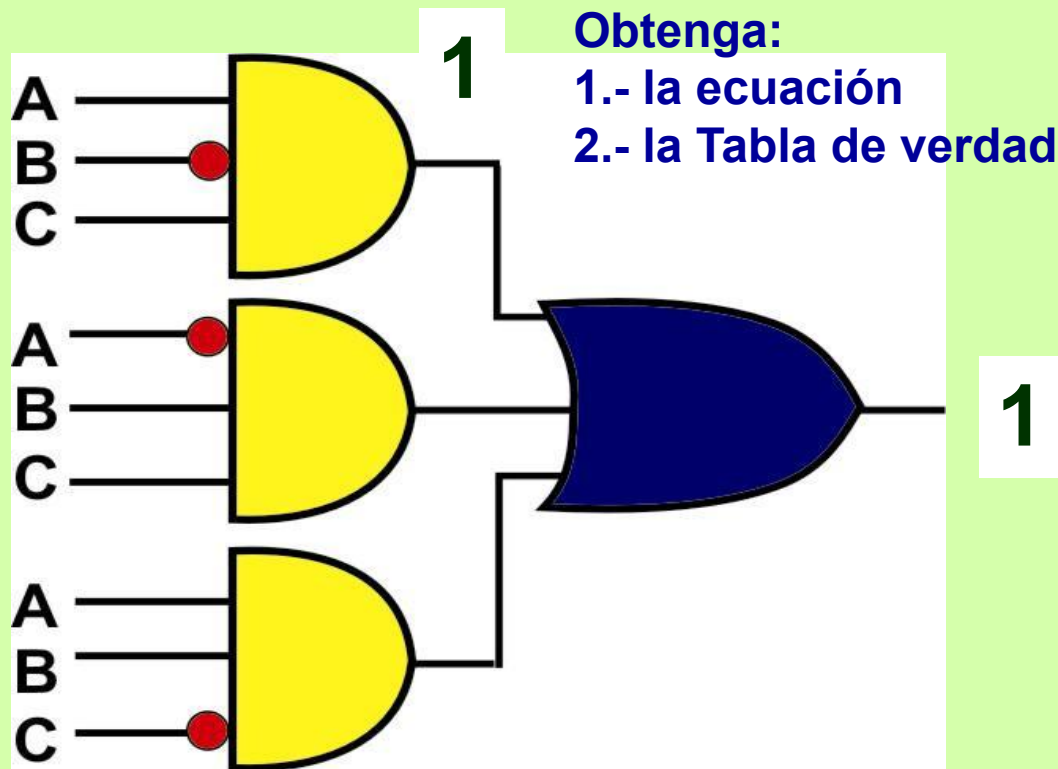
2.- la Tabla de verdad



$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

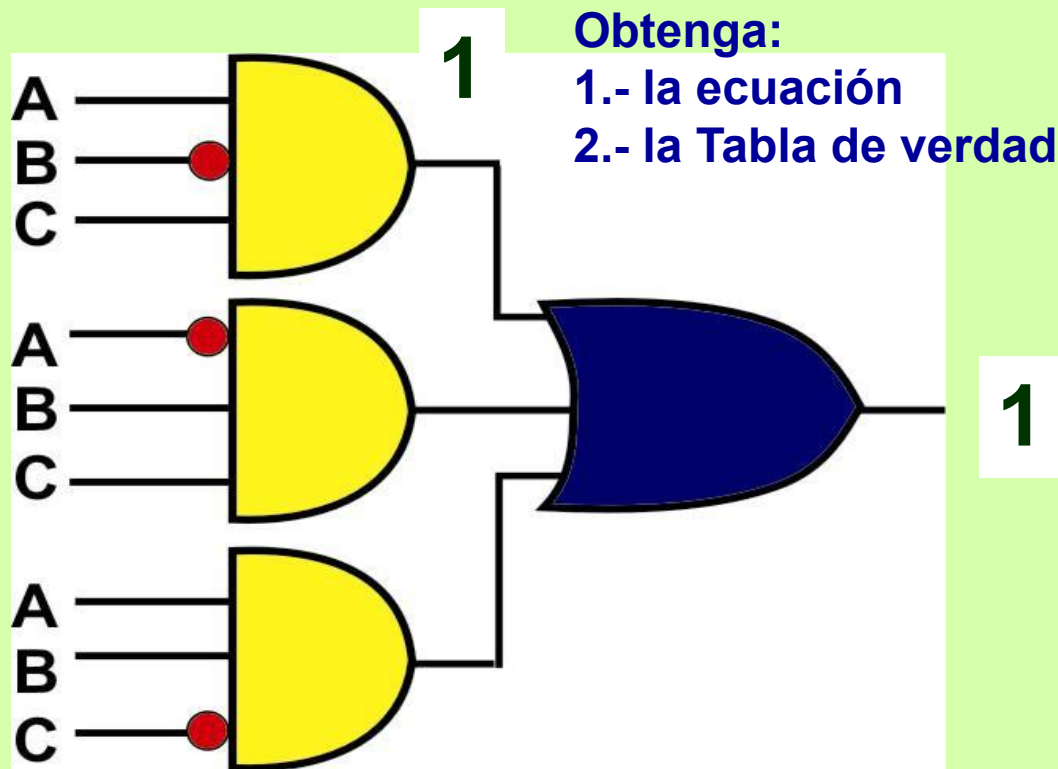
**F7**



$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

**F7**



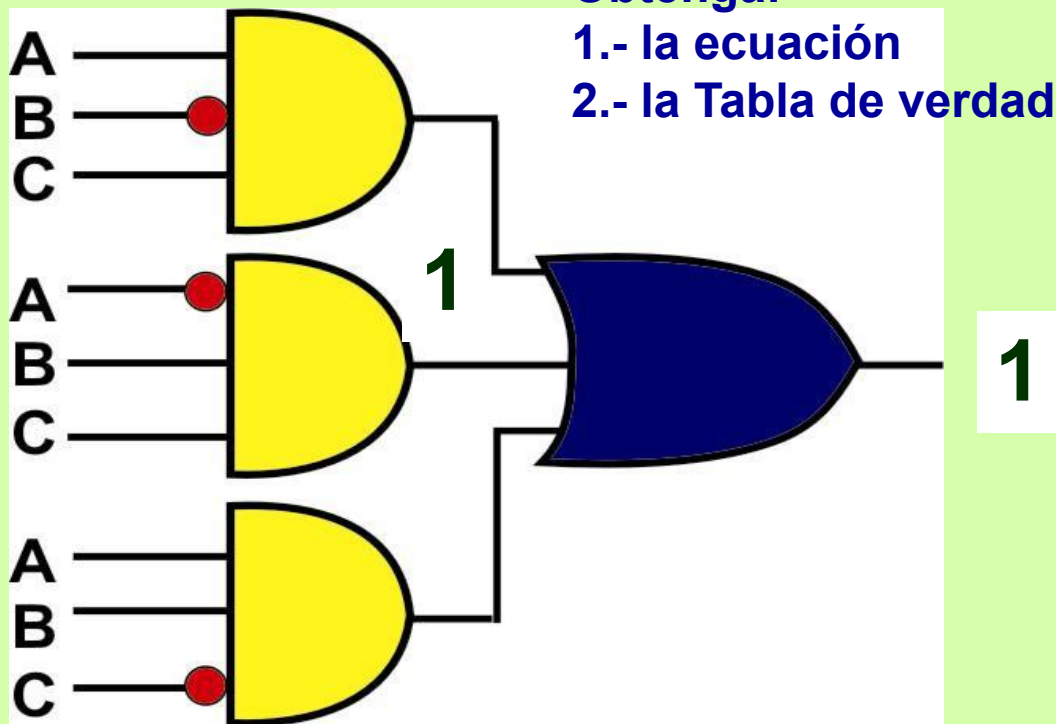
$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

**F7**

Obtenga:

- 1.- la ecuación
- 2.- la Tabla de verdad



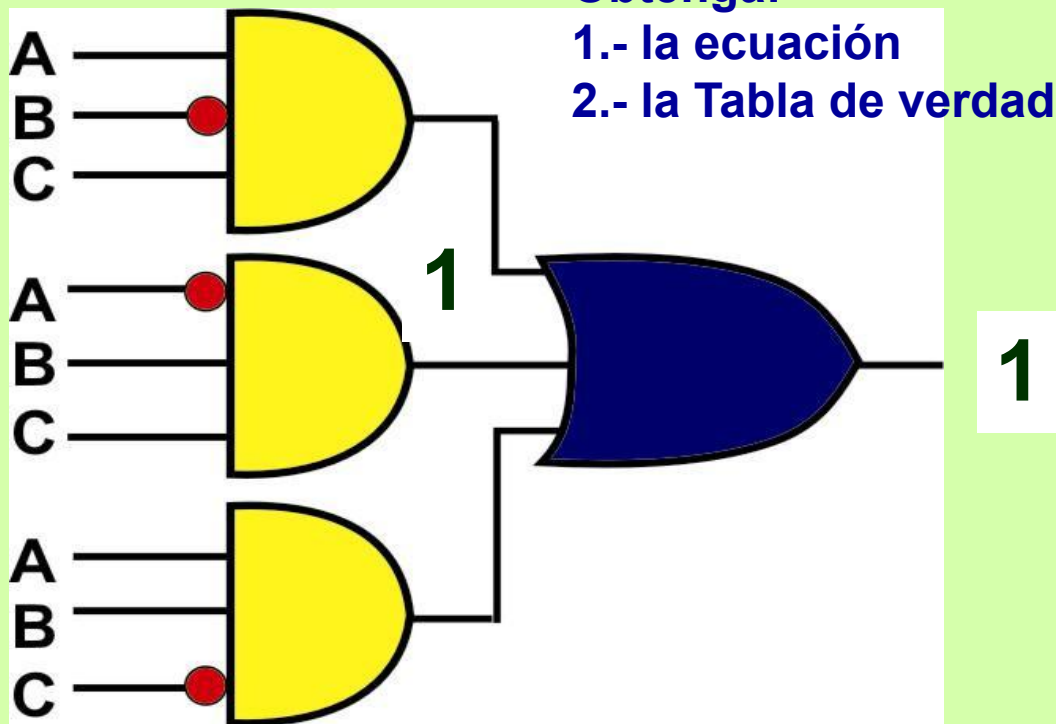
$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

**F7**

Obtenga:

- 1.- la ecuación
- 2.- la Tabla de verdad



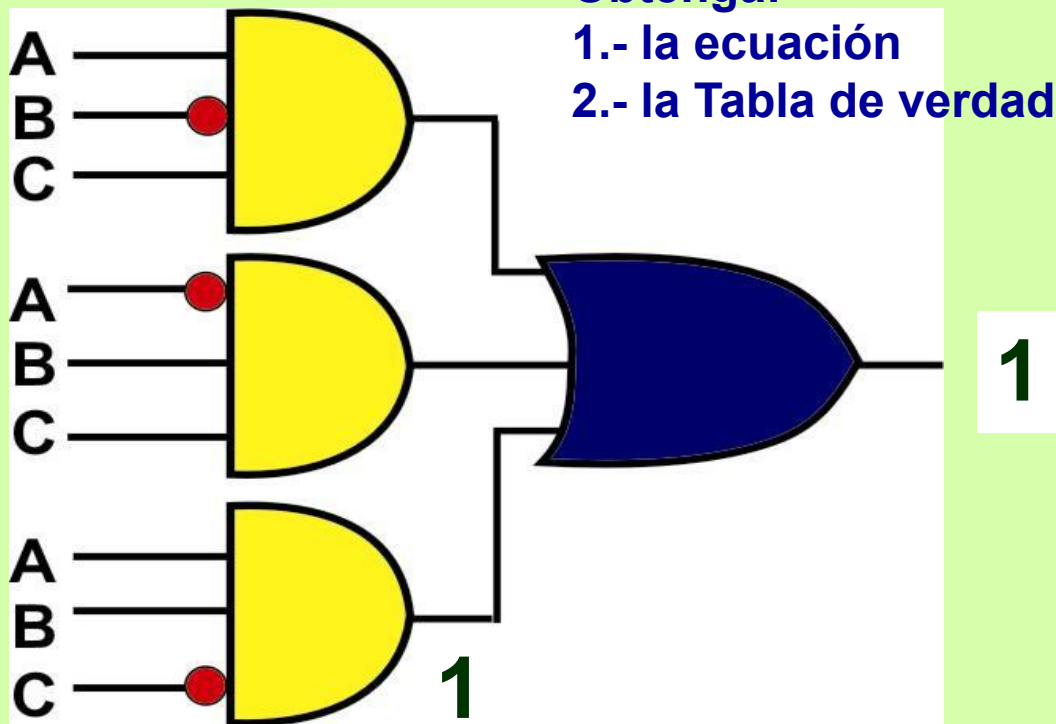
$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 1  |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

**F7**

Obtenga:

- 1.- la ecuación
- 2.- la Tabla de verdad



$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

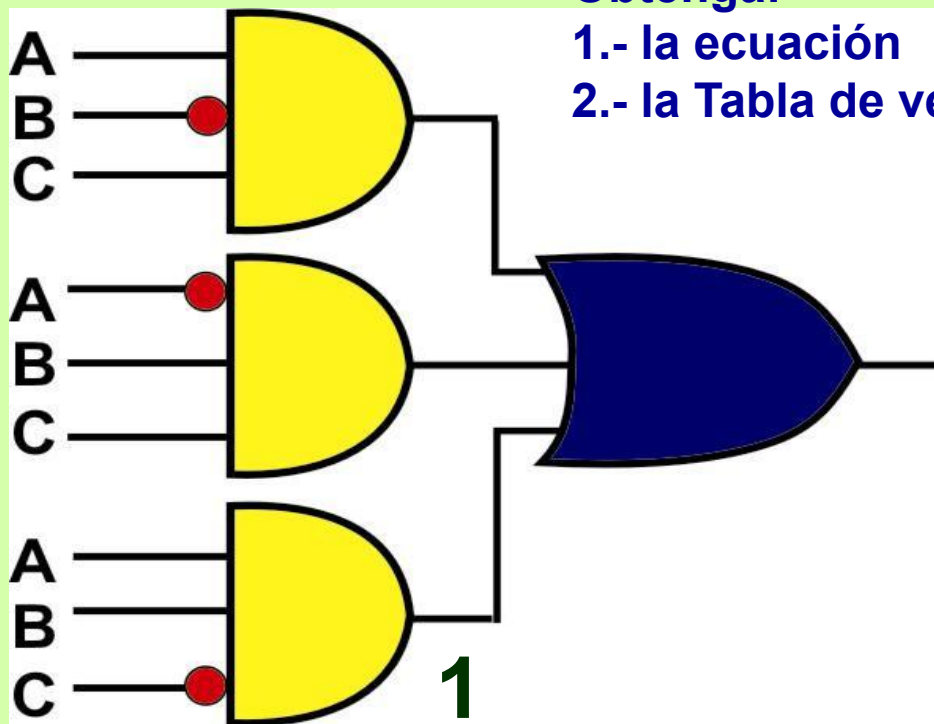
| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 1  |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

**F7**

Obtenga:

1.- la ecuación

2.- la Tabla de verdad



$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

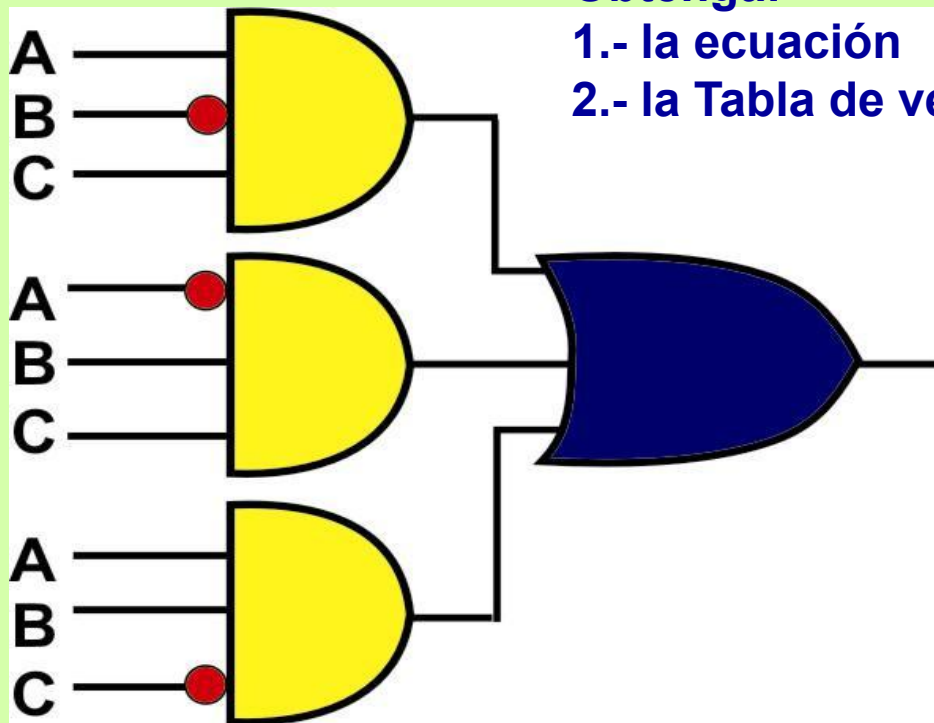
| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 1  |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 | 1  |
| 7 | 1 | 1 | 1 |    |

**F7**

Obtenga:

1.- la ecuación

2.- la Tabla de verdad

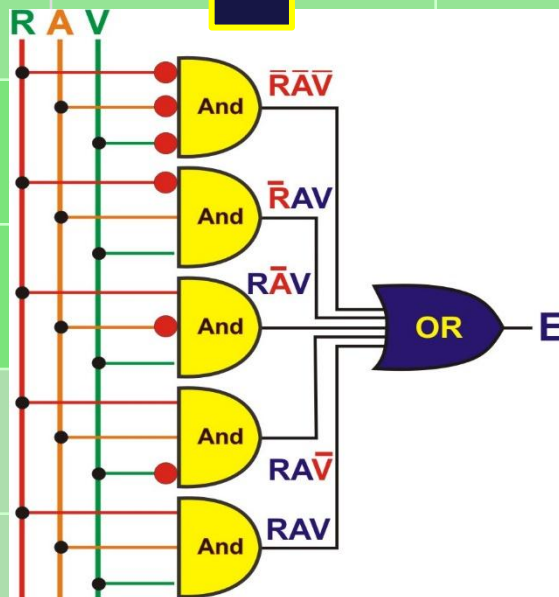


$$F7_{(A, B, C)} = A B' C + A' B C + A B C'$$

| m | A | B | C | F7 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 | 0  |
| 1 | 0 | 0 | 1 | 0  |
| 2 | 0 | 1 | 0 | 0  |
| 3 | 0 | 1 | 1 | 1  |
| 4 | 1 | 0 | 0 | 0  |
| 5 | 1 | 0 | 1 | 1  |
| 6 | 1 | 1 | 0 | 1  |
| 7 | 1 | 1 | 1 | 0  |

Tabla de Verdad

| m | R | A | V | E |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 0 | 1 | 1 | 1 |
| 4 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 1 | 1 |
| 6 | 1 | 1 | 0 | 1 |
| 7 | 1 | 1 | 1 | 1 |

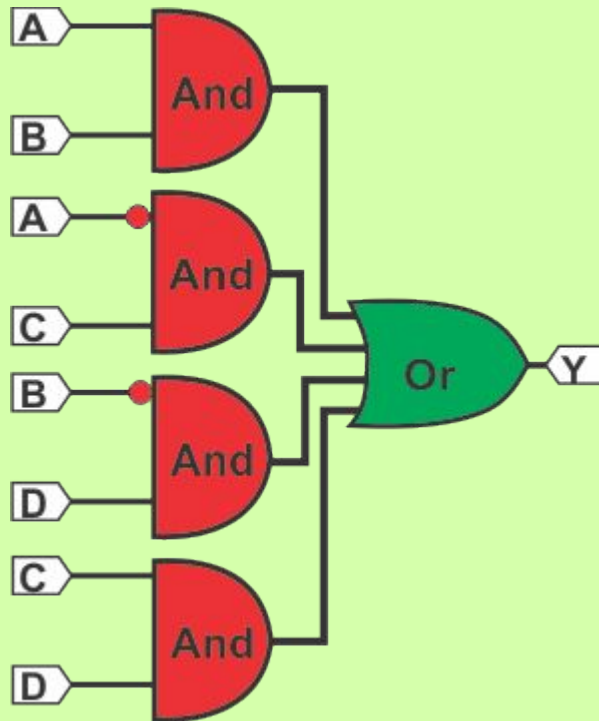


Circuito

$$FE_{(R,A,V)} = \bar{R}\bar{A}\bar{V} + \bar{R}AV + R\bar{A}V + RA\bar{V} + RAV$$

Ecuación

Obtenga:  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

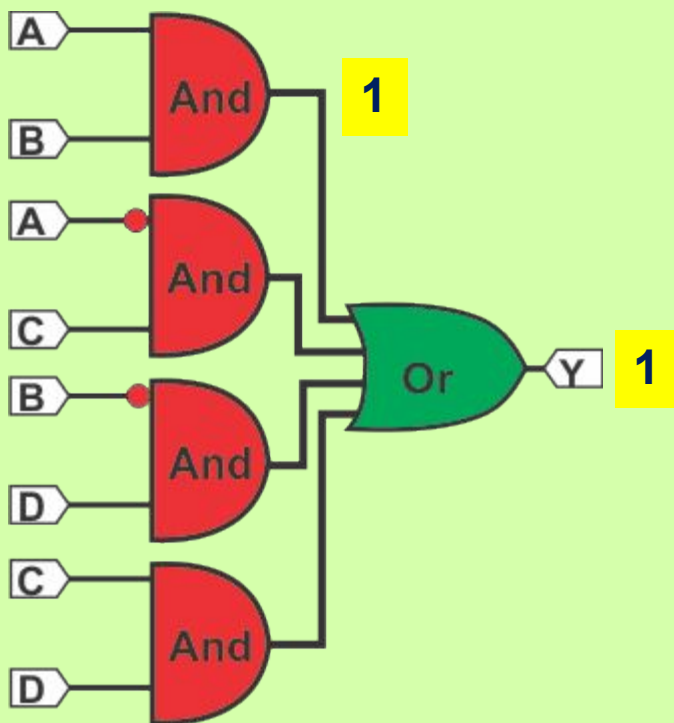
| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |



UANL

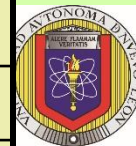
**F12**

Obtenga:  
2.- la Tabla de verdad



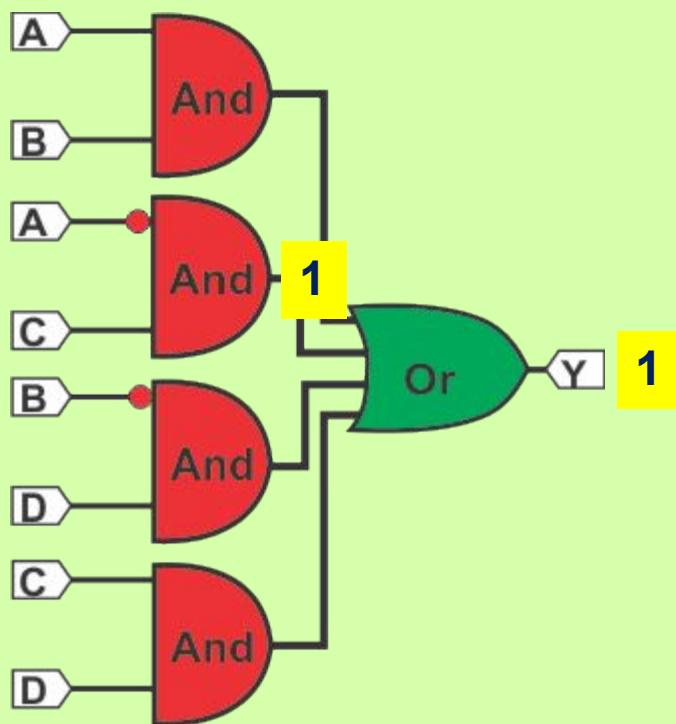
$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |



UANL

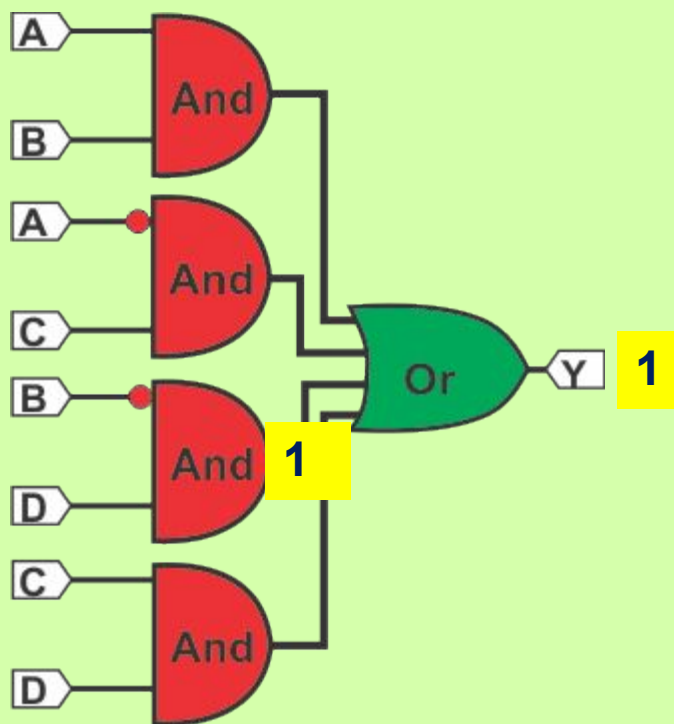
Obtenga:  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 | 1   |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 1   |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |

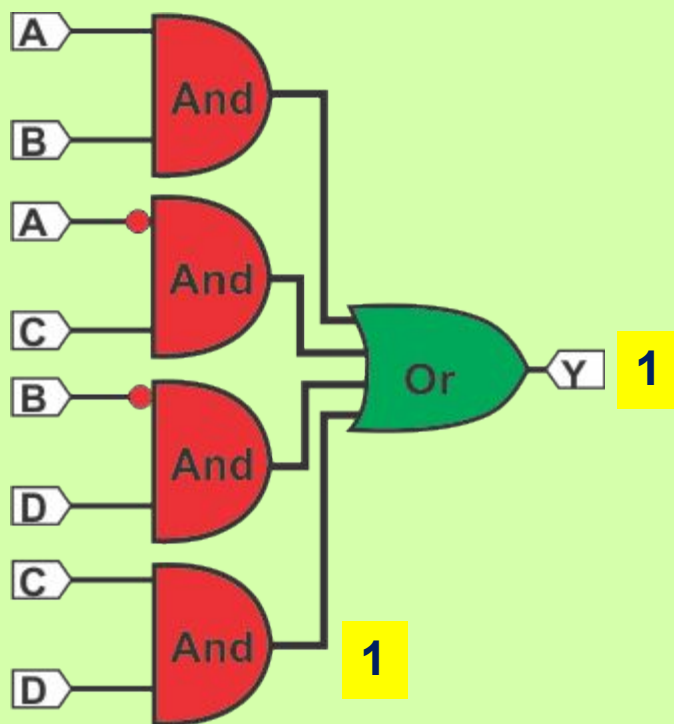
Obtenga:  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 | 1   |
| 2  | 0 | 0 | 1 | 0 | 1   |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 1   |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |

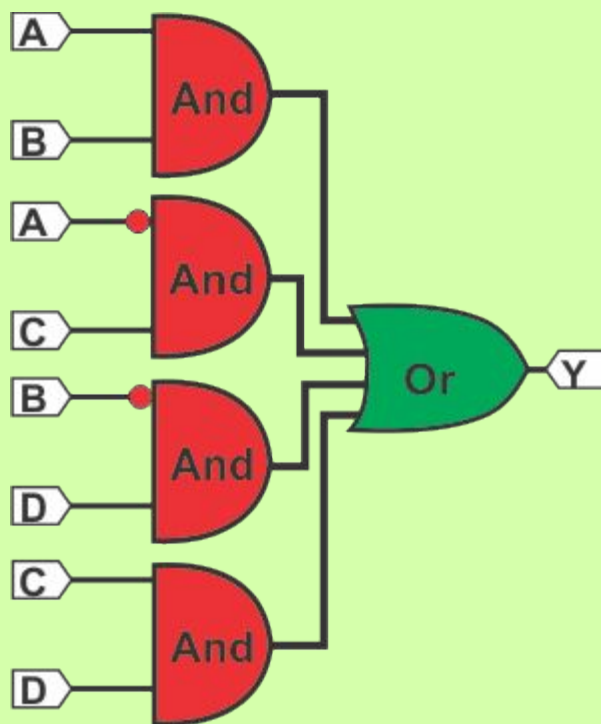
Obtenga:  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 | 1   |
| 2  | 0 | 0 | 1 | 0 | 1   |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 1   |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |

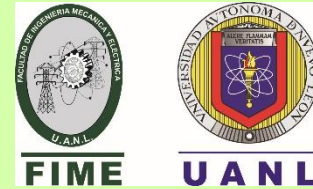
Obtenga:  
2.- la Tabla de verdad



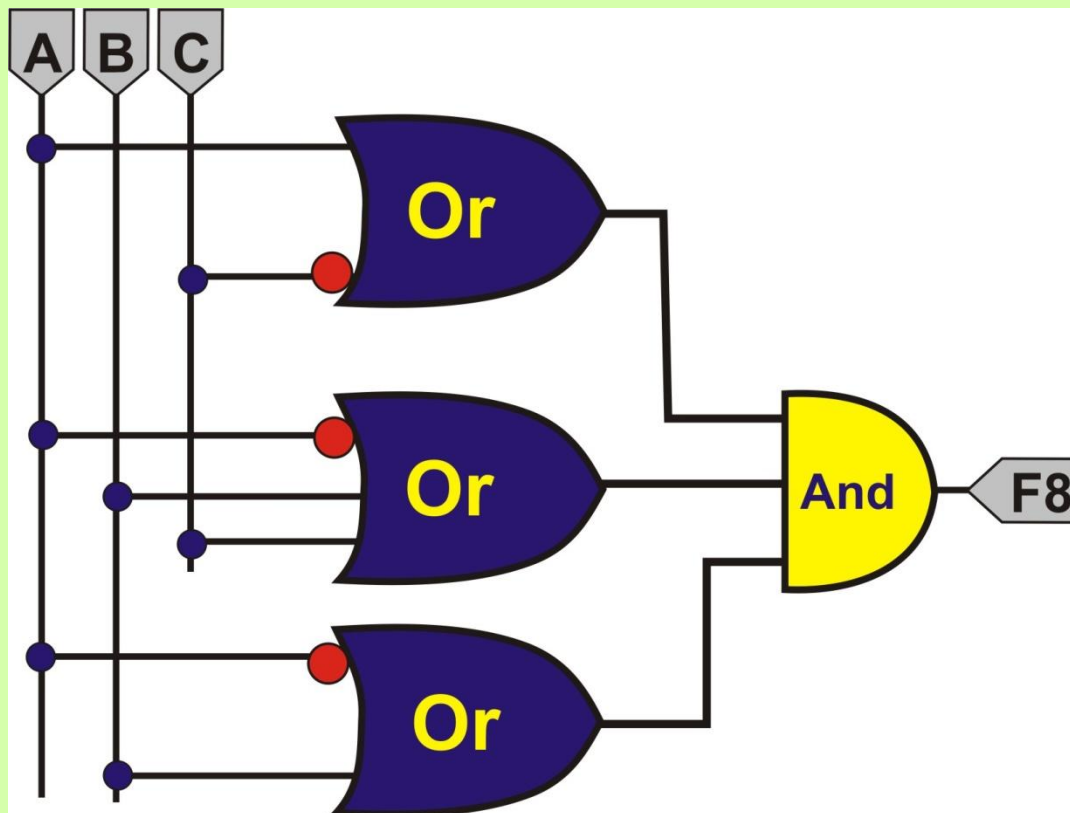
$$F_{(A,B,C,D)} = AB + A'C + B'D + CD$$

| m  | A | B | C | D | F12 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 | 0   |
| 1  | 0 | 0 | 0 | 1 | 1   |
| 2  | 0 | 0 | 1 | 0 | 1   |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 | 0   |
| 5  | 0 | 1 | 0 | 1 | 0   |
| 6  | 0 | 1 | 1 | 0 | 1   |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 | 0   |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 | 0   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |

# F8

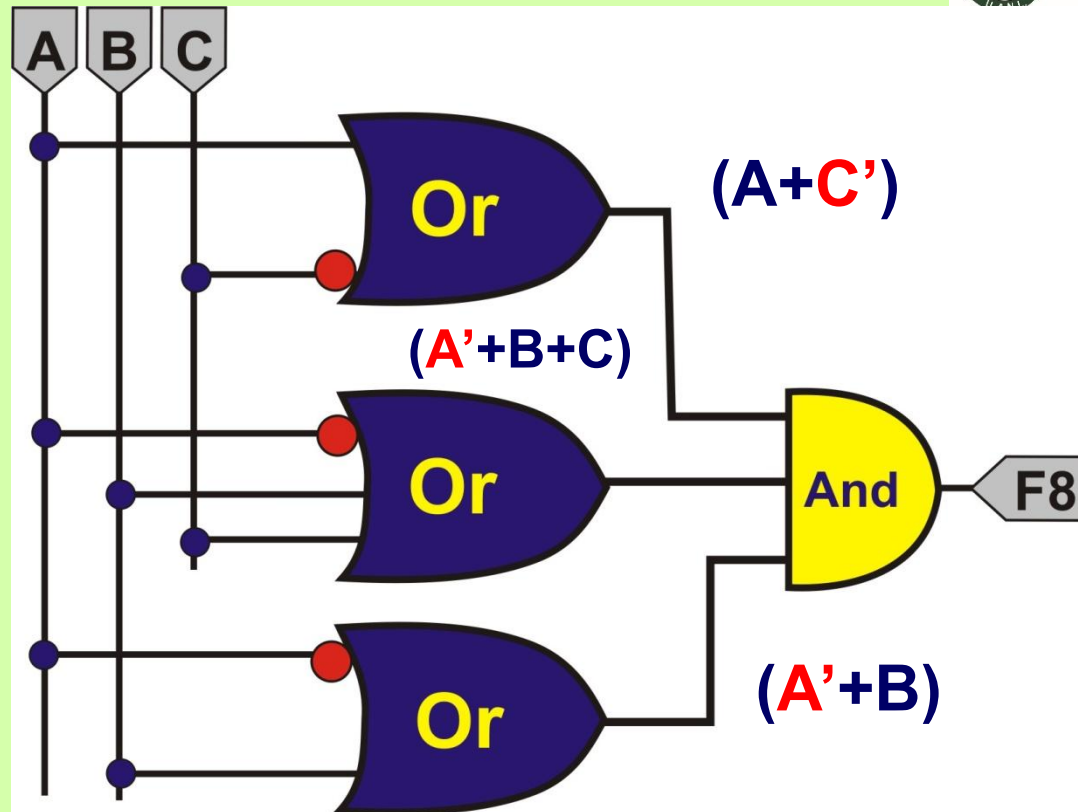


Obtenga:  
1.- La ecuación  
2.- la Tabla de verdad



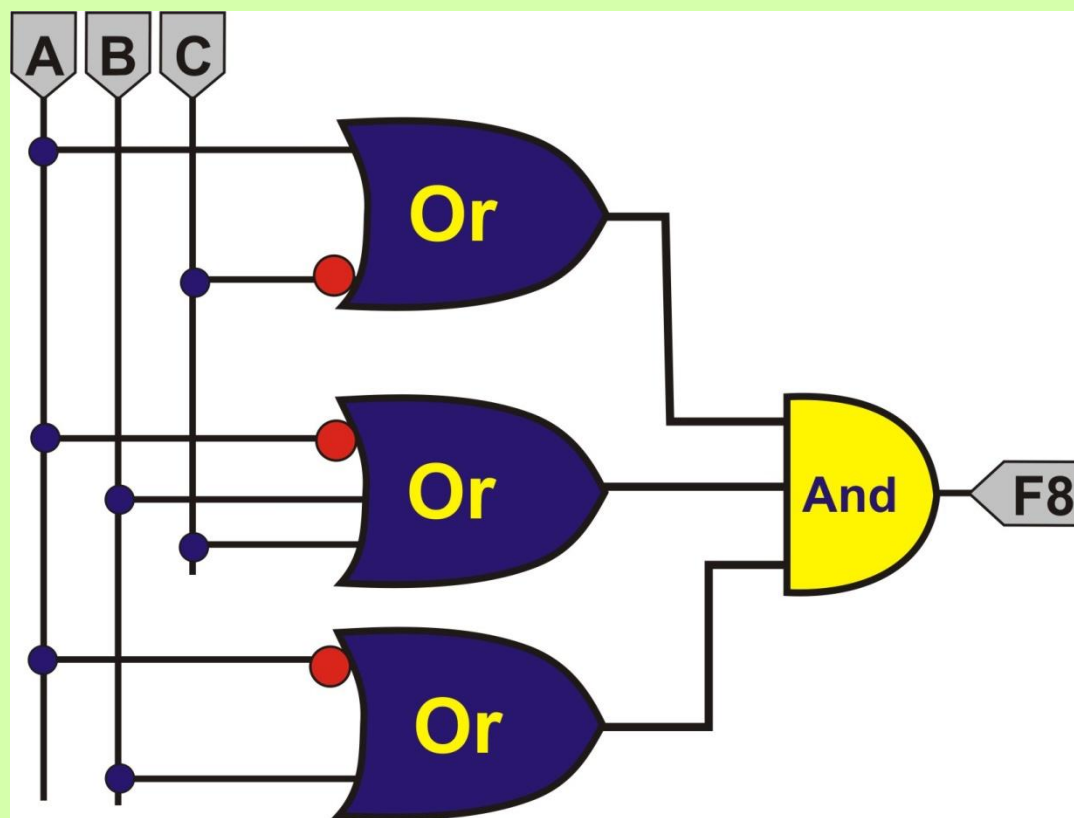
| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

Obtenga:  
1.- La ecuación



$$F8_{(A, B, C)} = (A+C')(A'+B+C)(A'+B)$$

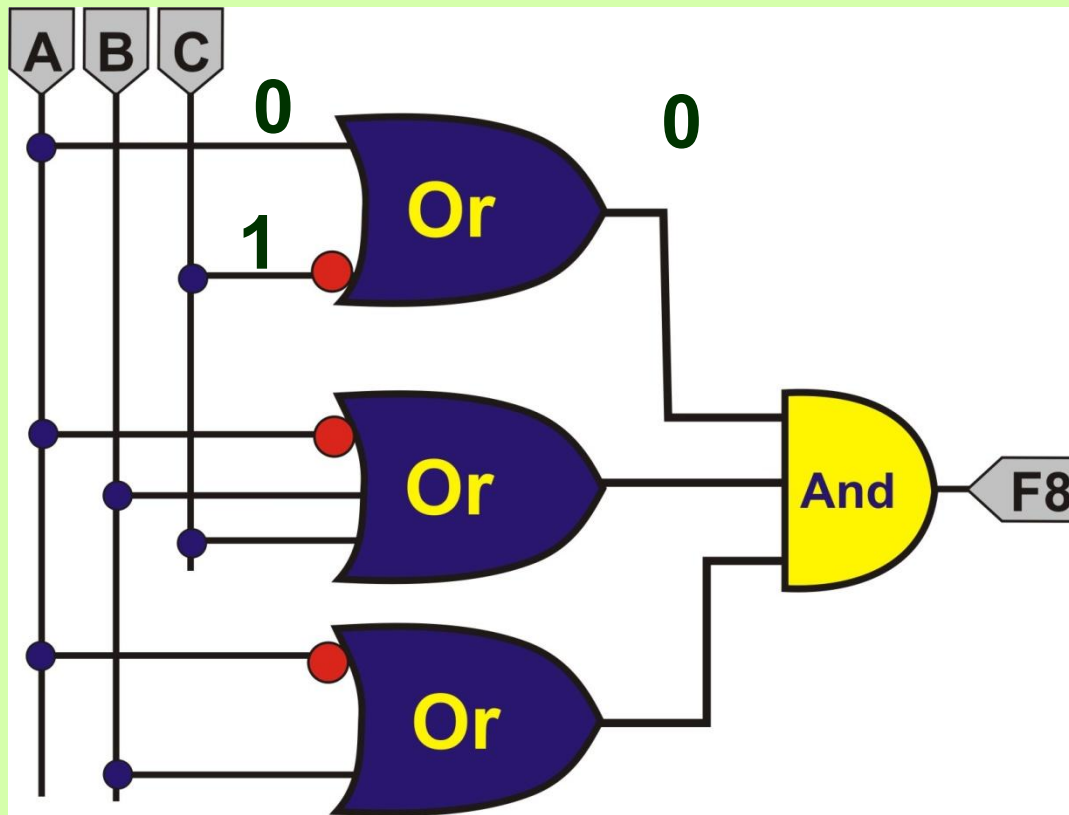
Obtenga:  
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

Obtenga:  
1.- Tabla de Verdad

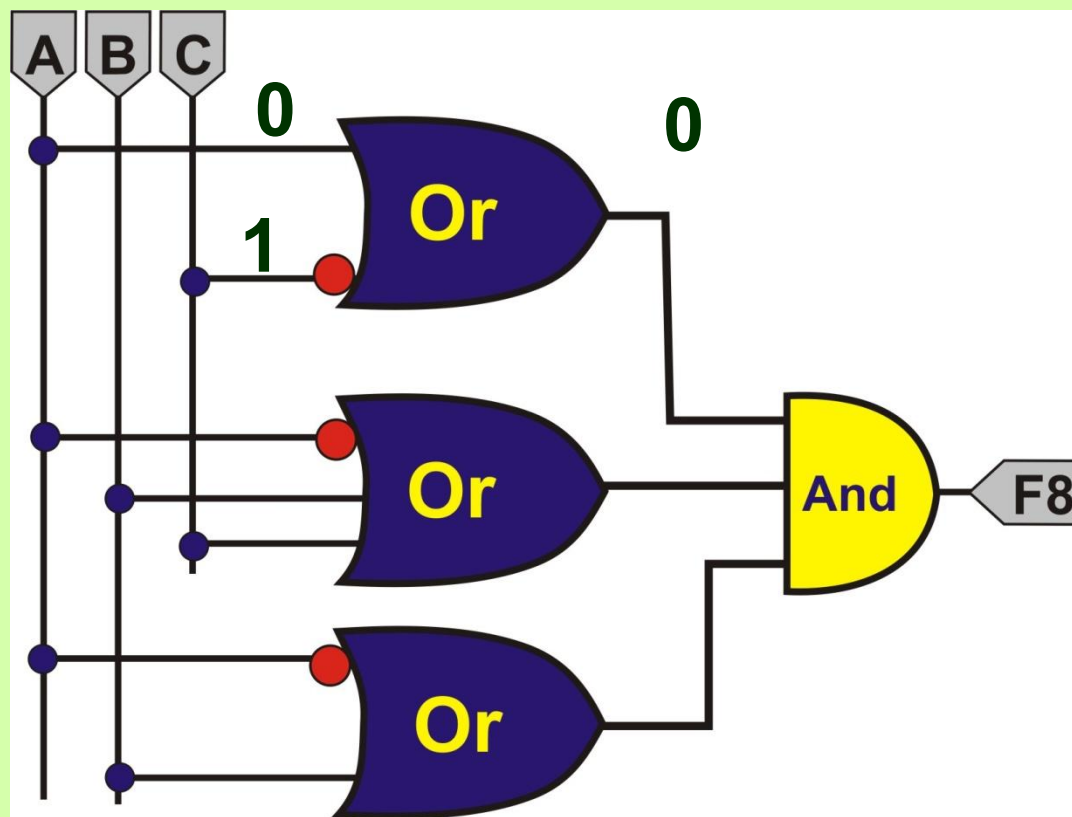


$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

Obtenga:

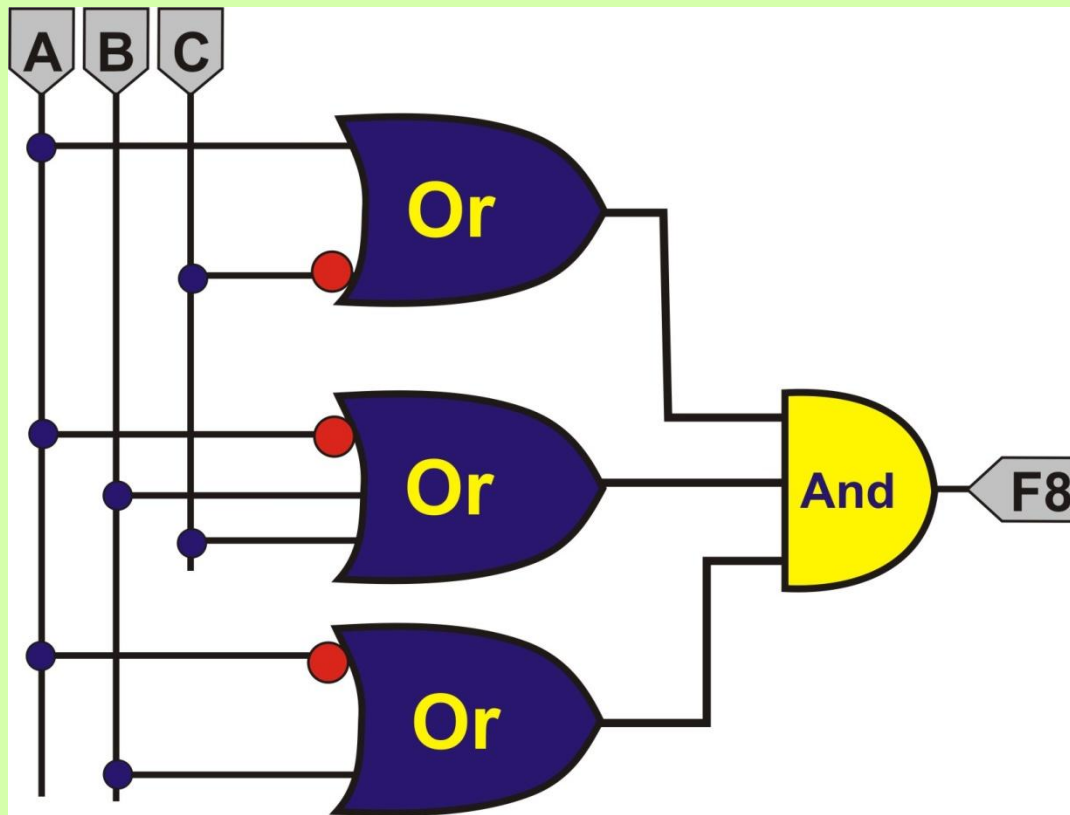
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 |    |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 |    |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

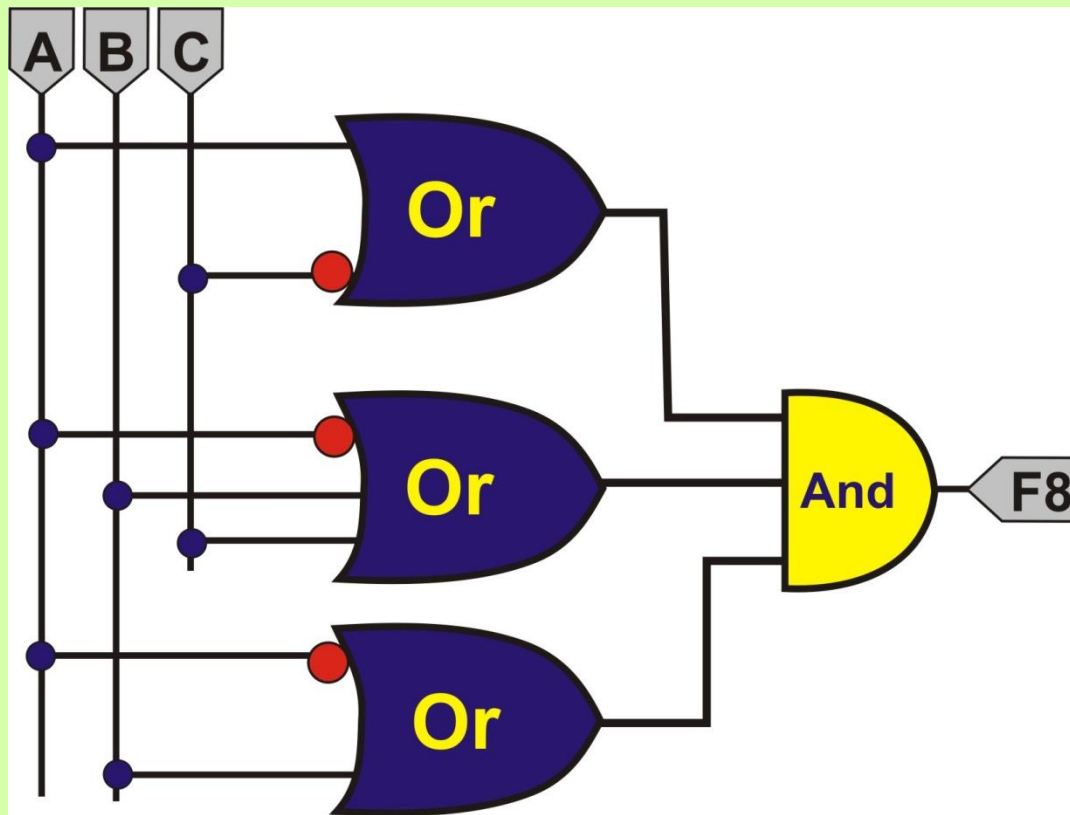
Obtenga:  
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 | 0  |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 0  |
| 4 | 1 | 0 | 0 |    |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

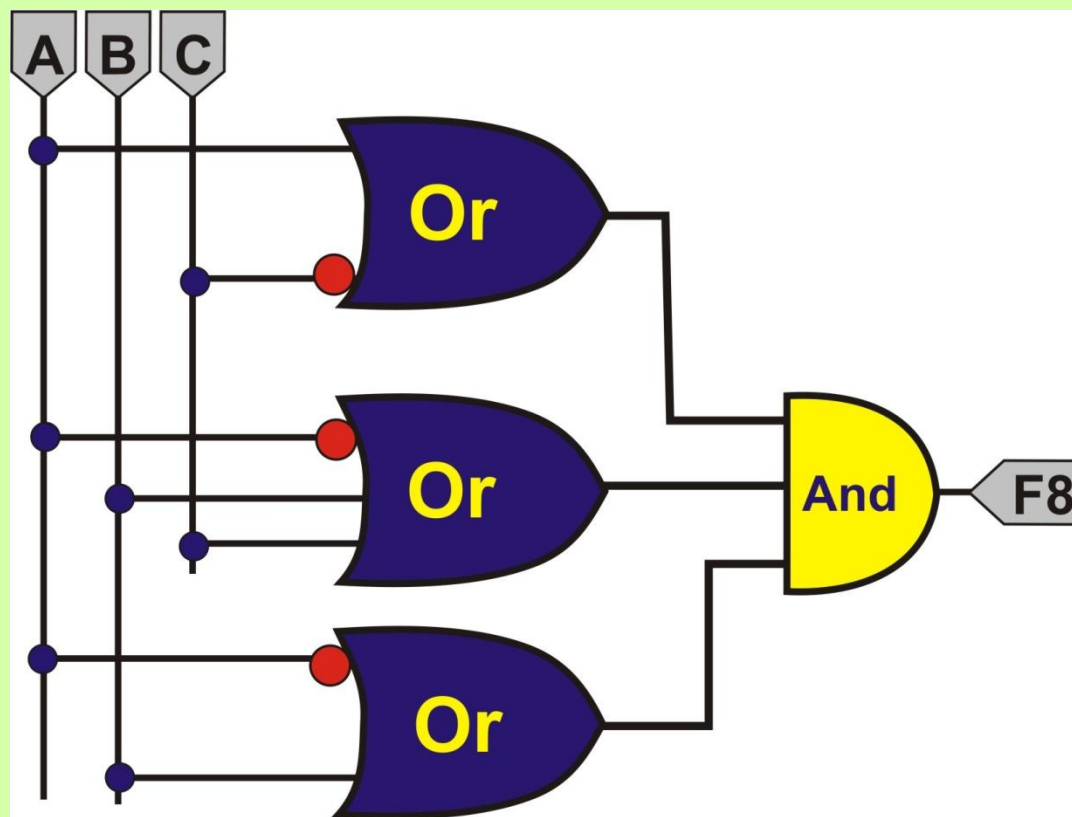
Obtenga:  
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 | 0  |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 0  |
| 4 | 1 | 0 | 0 | 0  |
| 5 | 1 | 0 | 1 |    |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

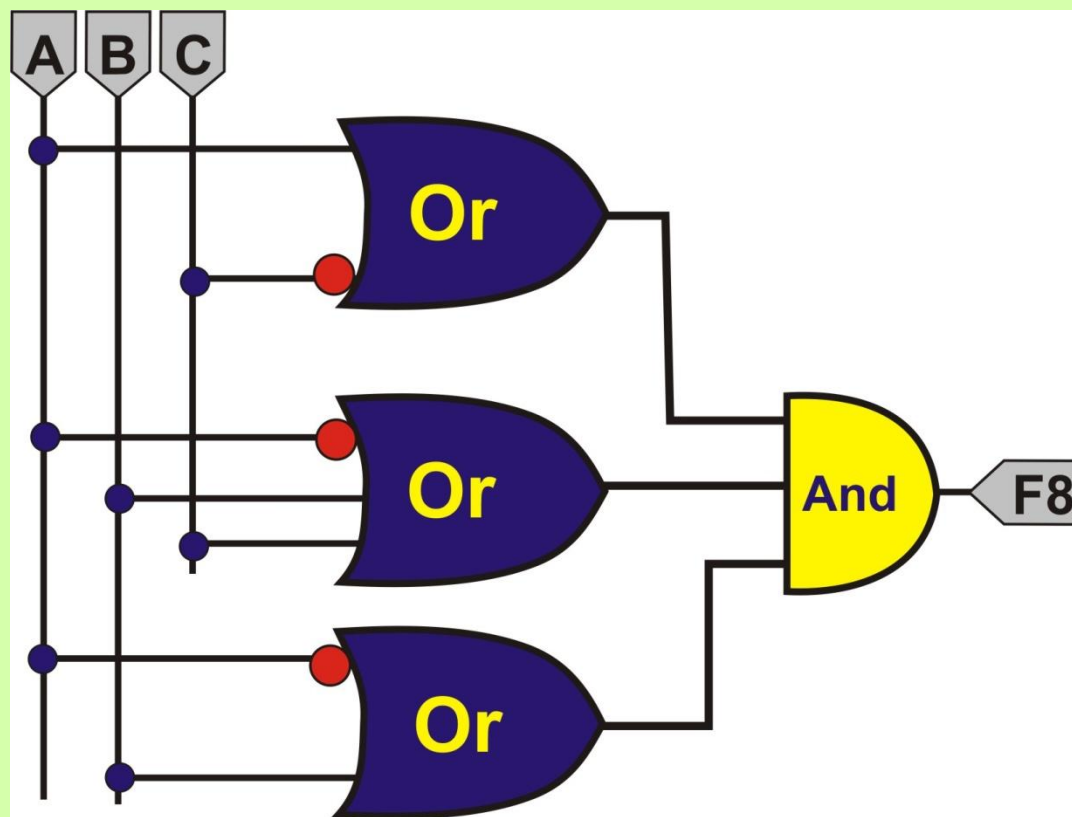
Obtenga:  
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 |    |
| 1 | 0 | 0 | 1 | 0  |
| 2 | 0 | 1 | 0 |    |
| 3 | 0 | 1 | 1 | 0  |
| 4 | 1 | 0 | 0 | 0  |
| 5 | 1 | 0 | 1 | 0  |
| 6 | 1 | 1 | 0 |    |
| 7 | 1 | 1 | 1 |    |

Obtenga:  
1.- Tabla de Verdad



$$F8_{(A, B, C)} = (A + C')(A' + B + C)(A' + B)$$

| m | A | B | C | F8 |
|---|---|---|---|----|
| 0 | 0 | 0 | 0 | 1  |
| 1 | 0 | 0 | 1 | 0  |
| 2 | 0 | 1 | 0 | 1  |
| 3 | 0 | 1 | 1 | 0  |
| 4 | 1 | 0 | 0 | 0  |
| 5 | 1 | 0 | 1 | 0  |
| 6 | 1 | 1 | 0 | 1  |
| 7 | 1 | 1 | 1 | 1  |

Obtenga:

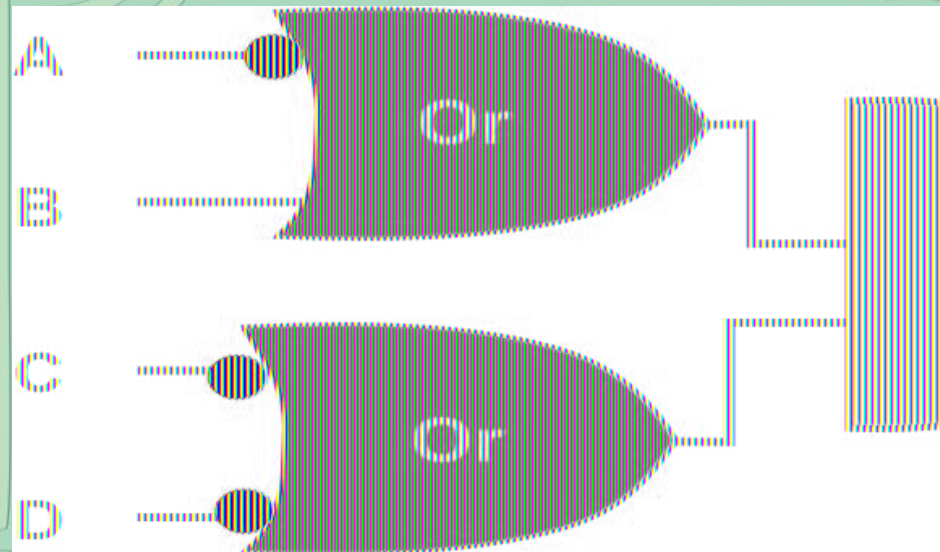
1.- El Circuito

2.- la Tabla de verdad

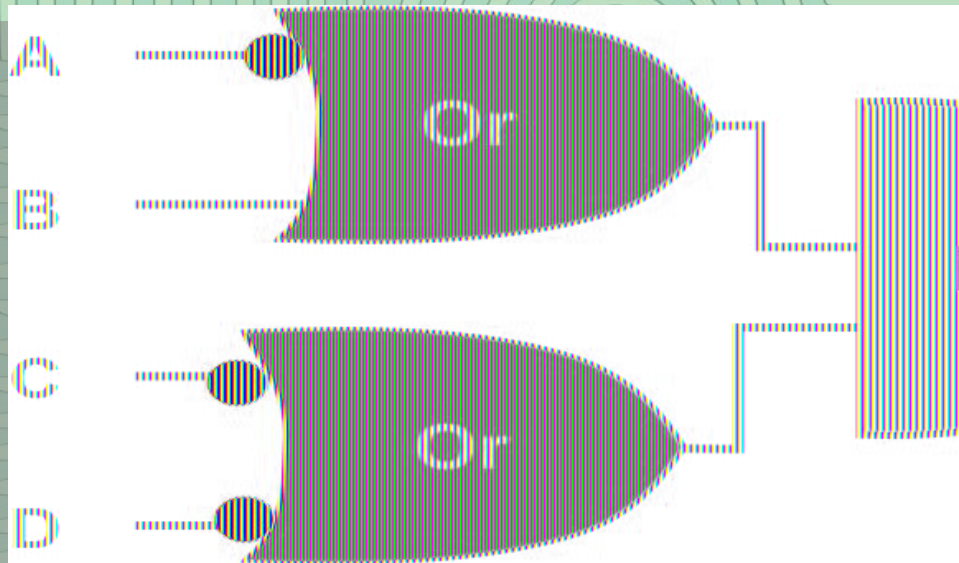
$$F10_{(A,B,C,D)} = (A' + B) (C' + D')$$

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad

$$F_{10}(A,B,C,D) = (A' + B)(C' + D')$$

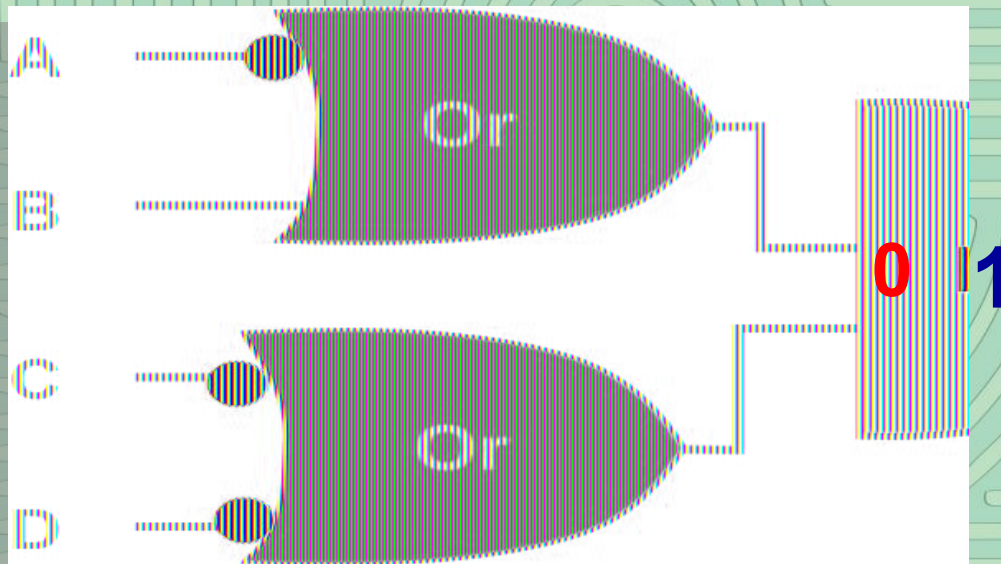


**Obtenga:**  
**1.- El Circuito**  
**2.- la Tabla de verdad**



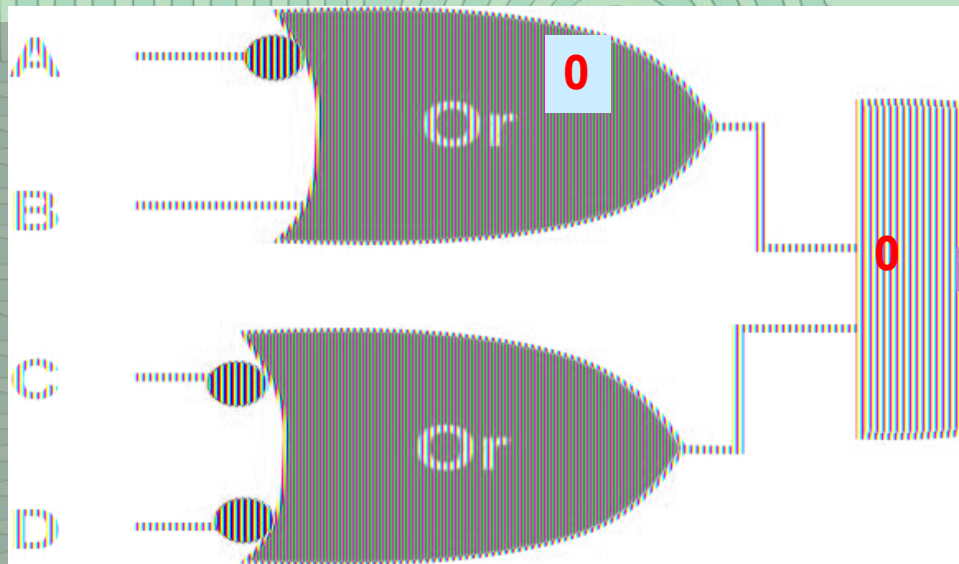
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

**Obtenga:**  
**1.- El Circuito**  
**2.- la Tabla de verdad**



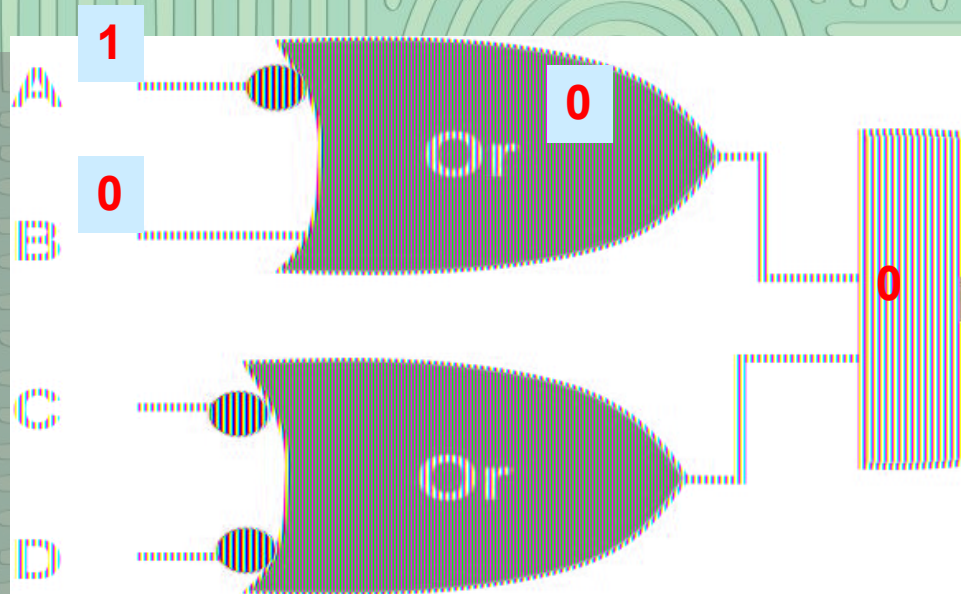
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

**Obtenga:**  
1.- El Circuito  
2.- la Tabla de verdad



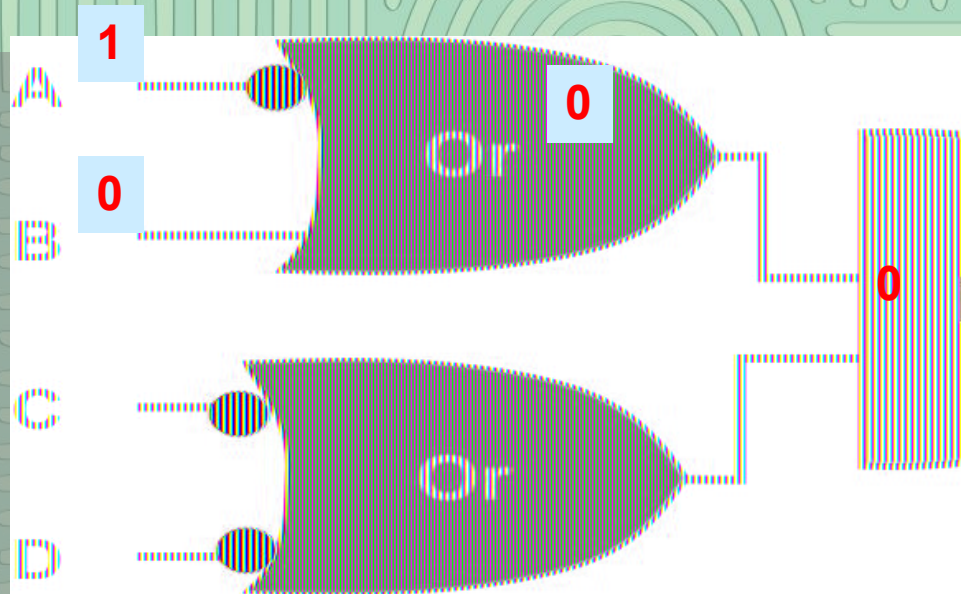
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



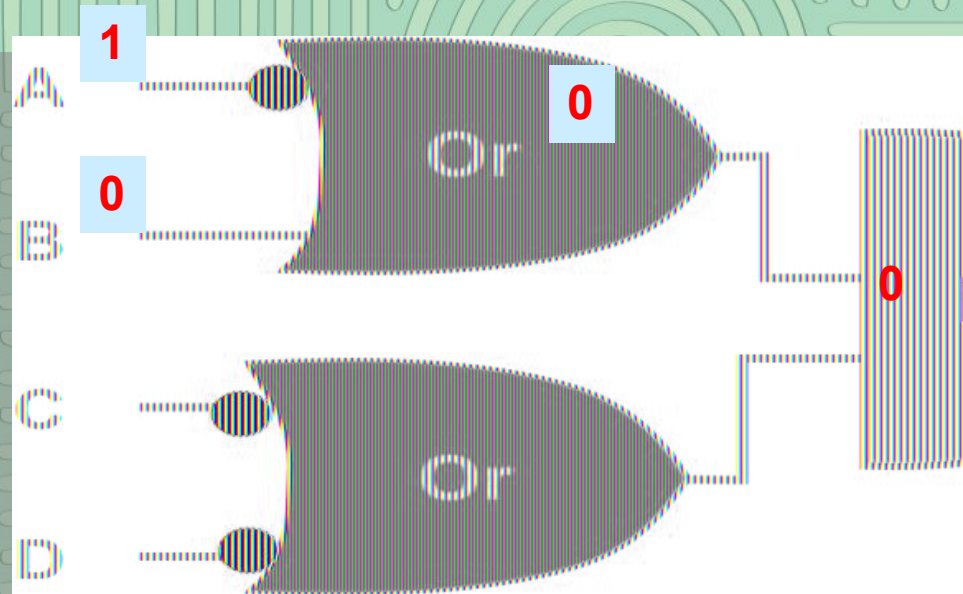
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



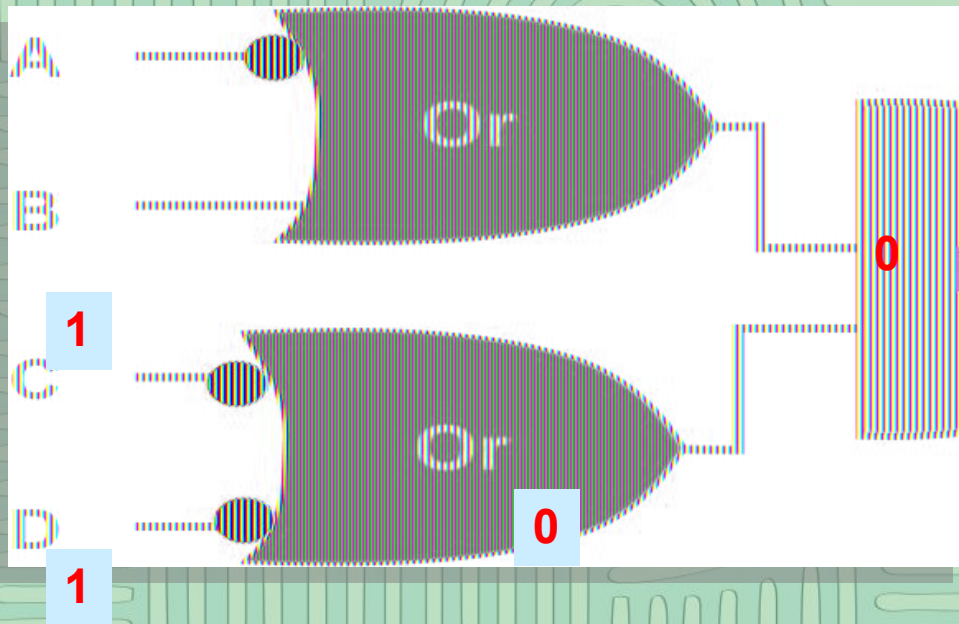
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



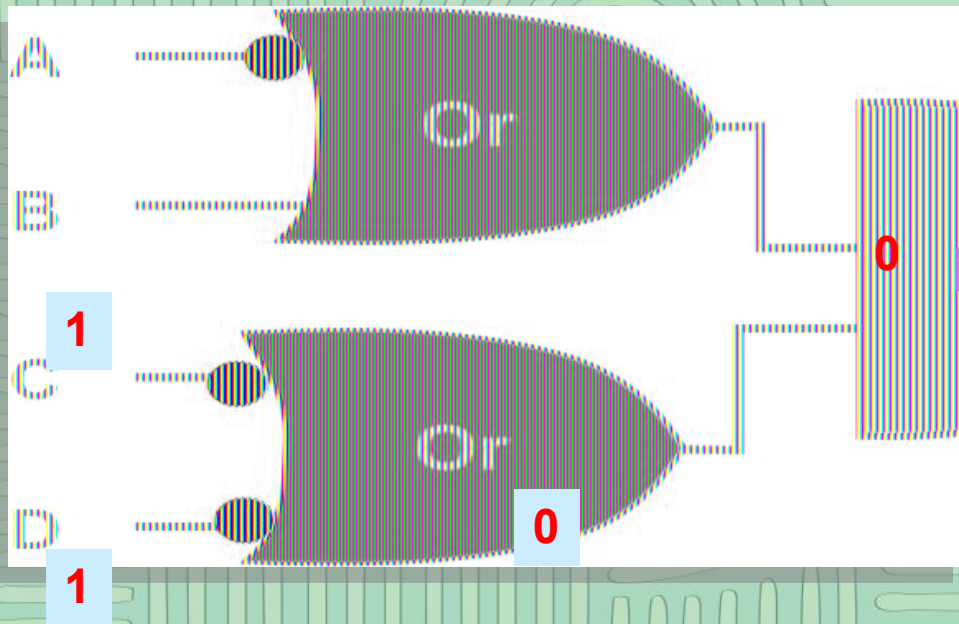
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 | 1   |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 | 1   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



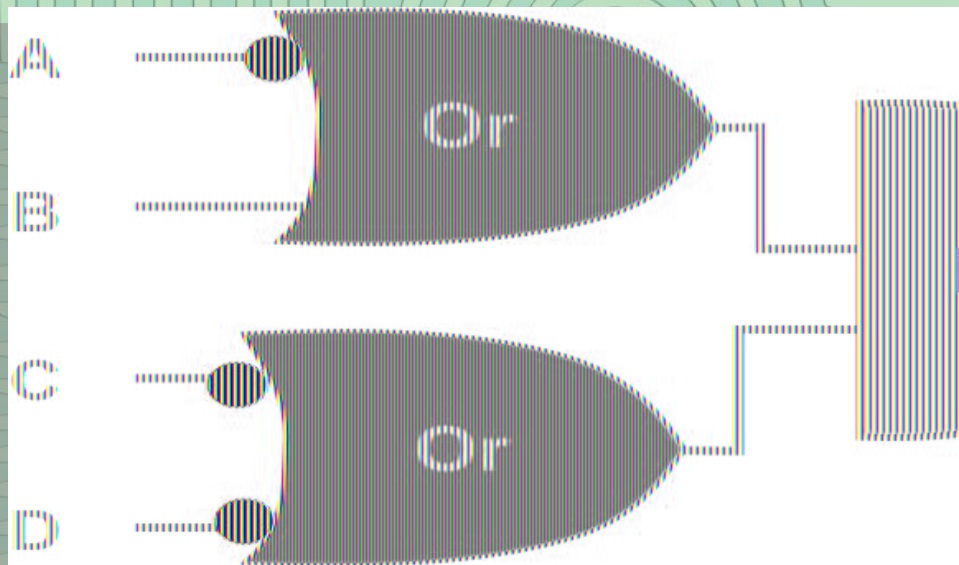
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 | 1   |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 | 1   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 | 1   |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 | 1   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 | 1   |

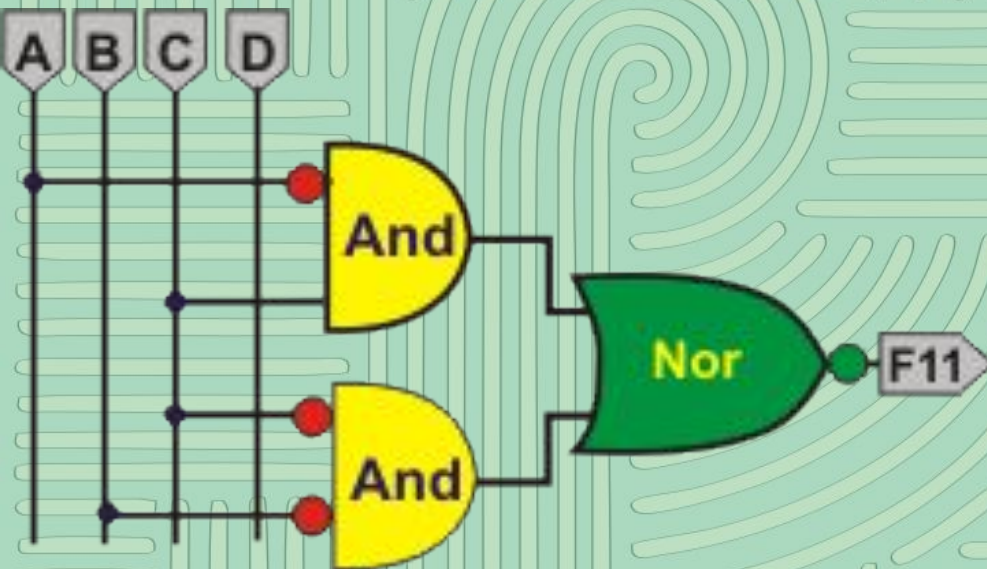
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F10_{(A,B,C,D)} = [(A' + B)(C' + D')]'$$

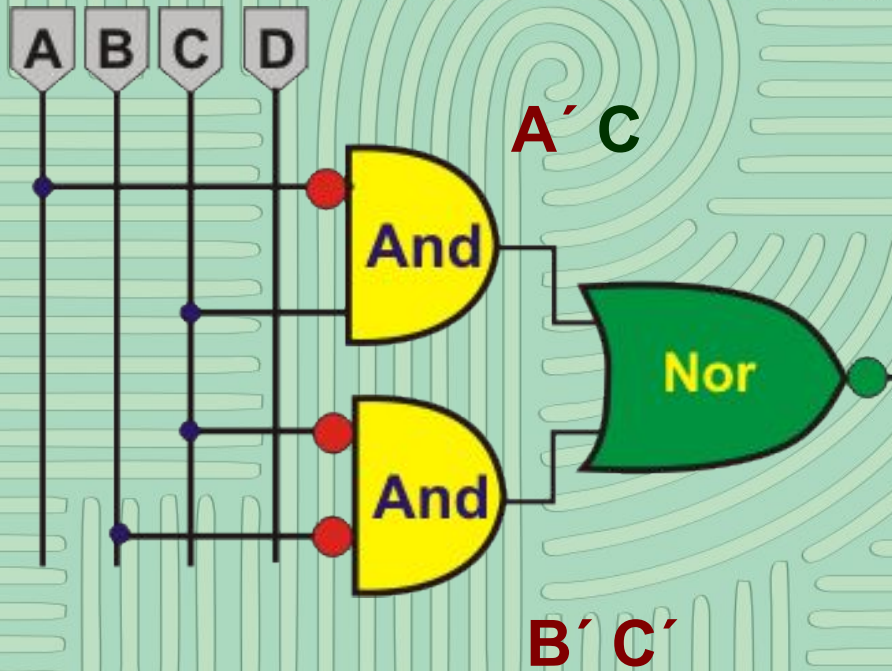
| m  | A | B | C | D | F10 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 | 0   |
| 1  | 0 | 0 | 0 | 1 | 0   |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 1   |
| 4  | 0 | 1 | 0 | 0 | 0   |
| 5  | 0 | 1 | 0 | 1 | 0   |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 1   |
| 8  | 1 | 0 | 0 | 0 | 1   |
| 9  | 1 | 0 | 0 | 1 | 1   |
| 10 | 1 | 0 | 1 | 0 | 1   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 | 0   |
| 13 | 1 | 1 | 0 | 1 | 0   |
| 14 | 1 | 1 | 1 | 0 | 0   |
| 15 | 1 | 1 | 1 | 1 | 1   |

Obtenga:  
1.- La Ecuación  
2.- la Tabla de verdad



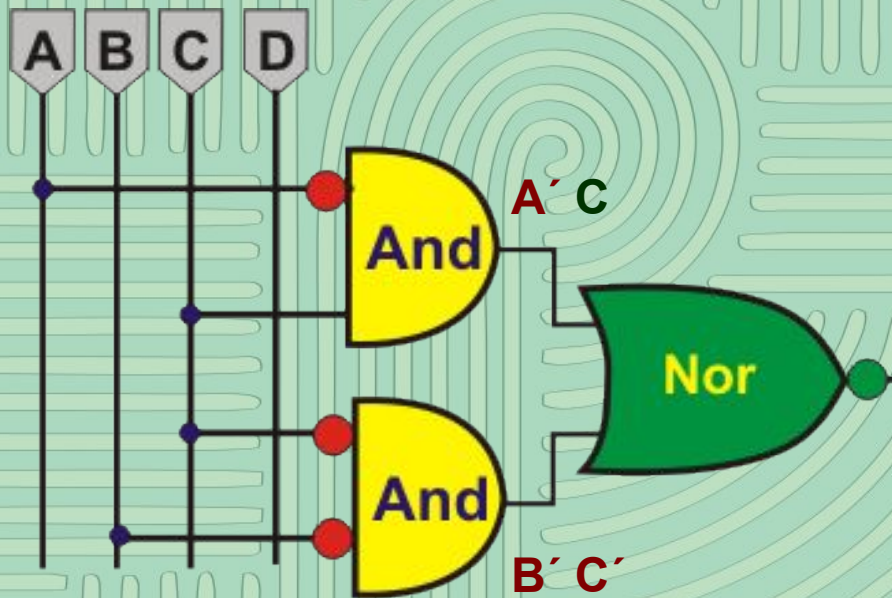
| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- La Ecuación  
2.- la Tabla de verdad



| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

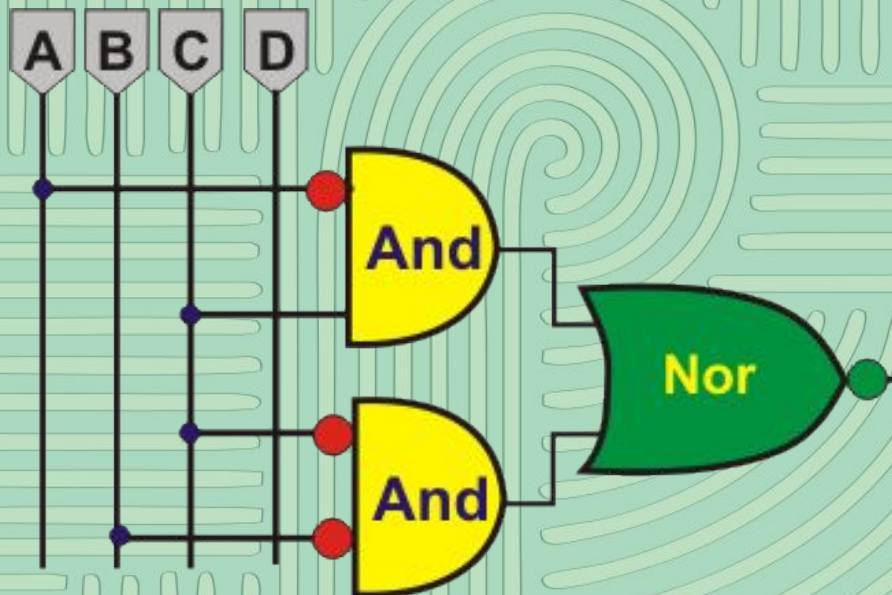
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



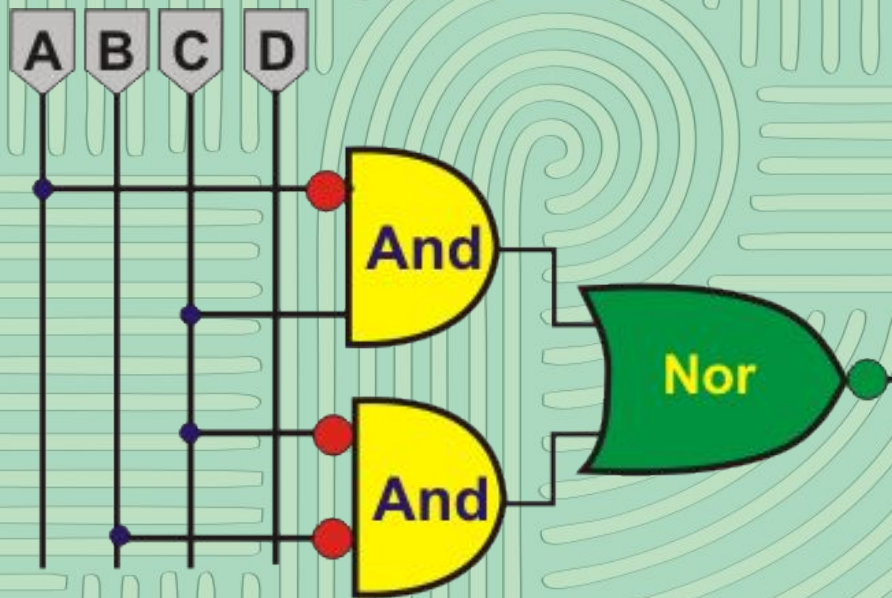
$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

Obtenga:

1.- El Circuito

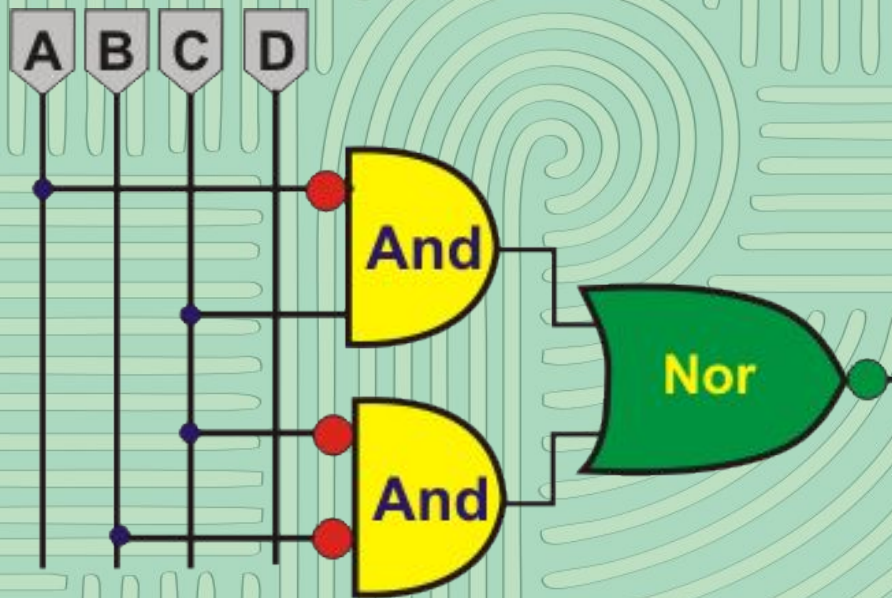
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 |     |
| 3  | 0 | 0 | 1 | 1 |     |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 |     |
| 7  | 0 | 1 | 1 | 1 |     |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

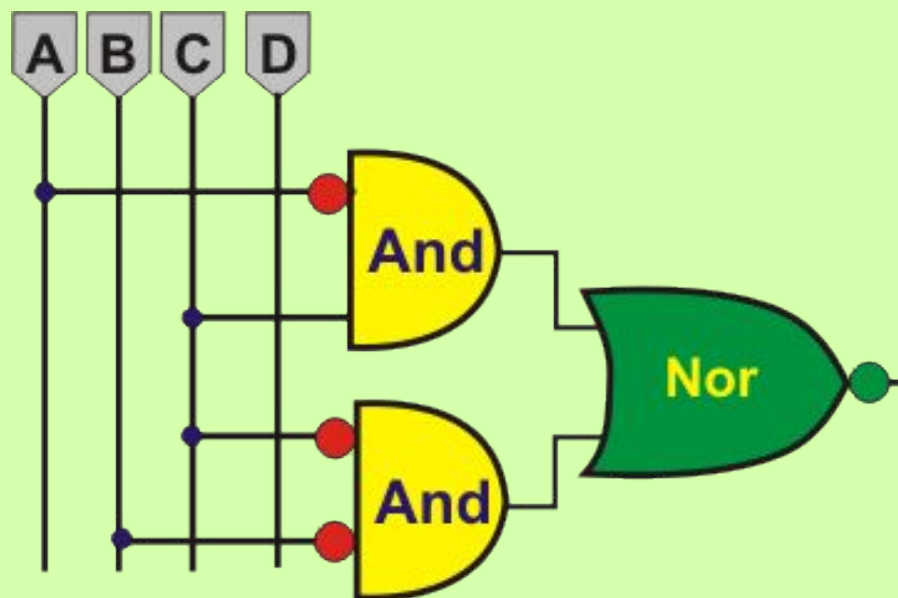
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 0   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 0   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

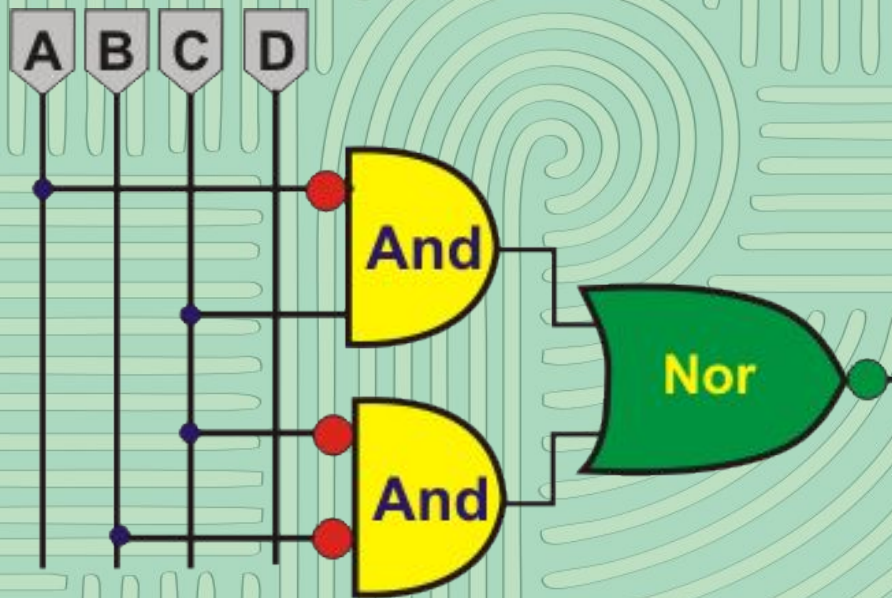
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 0   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 0   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

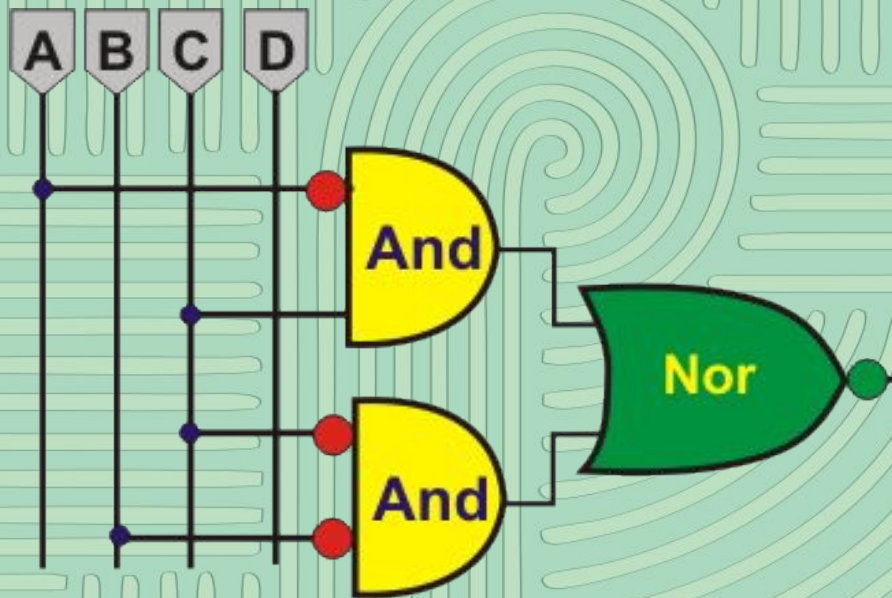
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 |     |
| 1  | 0 | 0 | 0 | 1 |     |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 0   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 0   |
| 8  | 1 | 0 | 0 | 0 |     |
| 9  | 1 | 0 | 0 | 1 |     |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

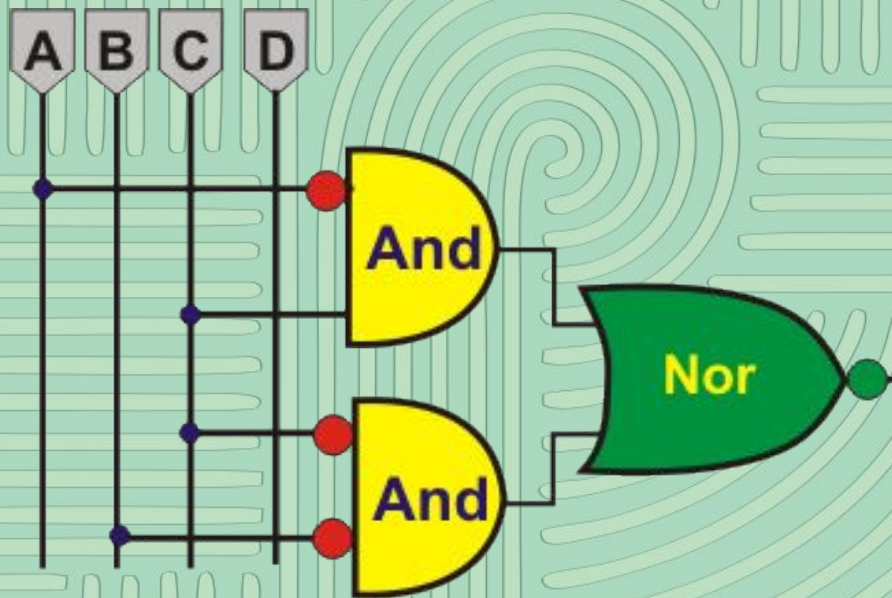
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 | 0   |
| 1  | 0 | 0 | 0 | 1 | 0   |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 0   |
| 4  | 0 | 1 | 0 | 0 |     |
| 5  | 0 | 1 | 0 | 1 |     |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 0   |
| 8  | 1 | 0 | 0 | 0 | 0   |
| 9  | 1 | 0 | 0 | 1 | 0   |
| 10 | 1 | 0 | 1 | 0 |     |
| 11 | 1 | 0 | 1 | 1 |     |
| 12 | 1 | 1 | 0 | 0 |     |
| 13 | 1 | 1 | 0 | 1 |     |
| 14 | 1 | 1 | 1 | 0 |     |
| 15 | 1 | 1 | 1 | 1 |     |

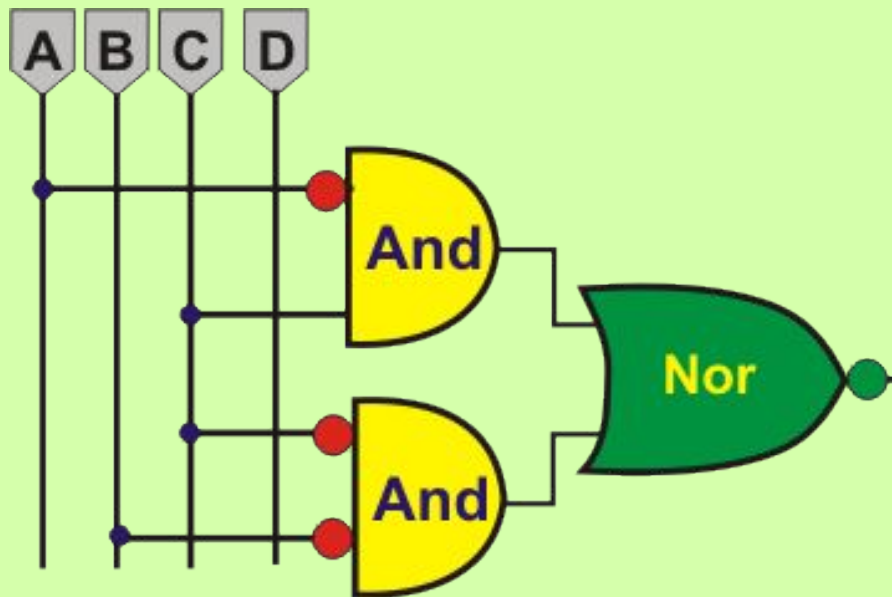
Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



$$F_{(A,B,C,D)} = A' C + B' C'$$

| m  | A | B | C | D | F11 |
|----|---|---|---|---|-----|
| 0  | 0 | 0 | 0 | 0 | 0   |
| 1  | 0 | 0 | 0 | 1 | 0   |
| 2  | 0 | 0 | 1 | 0 | 0   |
| 3  | 0 | 0 | 1 | 1 | 0   |
| 4  | 0 | 1 | 0 | 0 | 1   |
| 5  | 0 | 1 | 0 | 1 | 1   |
| 6  | 0 | 1 | 1 | 0 | 0   |
| 7  | 0 | 1 | 1 | 1 | 0   |
| 8  | 1 | 0 | 0 | 0 | 0   |
| 9  | 1 | 0 | 0 | 1 | 0   |
| 10 | 1 | 0 | 1 | 0 | 1   |
| 11 | 1 | 0 | 1 | 1 | 1   |
| 12 | 1 | 1 | 0 | 0 | 1   |
| 13 | 1 | 1 | 0 | 1 | 1   |
| 14 | 1 | 1 | 1 | 0 | 1   |
| 15 | 1 | 1 | 1 | 1 | 1   |

Obtenga:  
1.- El Circuito  
2.- la Tabla de verdad



| m | A | B | C | F11 |
|---|---|---|---|-----|
| 0 | 0 | 0 | 0 | 0   |
| 1 | 0 | 0 | 1 | 0   |
| 2 | 0 | 1 | 0 | 1   |
| 3 | 0 | 1 | 1 | 0   |
| 4 | 1 | 0 | 0 | 0   |
| 5 | 1 | 0 | 1 | 1   |
| 6 | 1 | 1 | 0 | 1   |
| 7 | 1 | 1 | 1 | 1   |

$$F_{(A,B,C,D)} = A' C + B' C'$$

- Descripción de un sistema digital
  - **Circuito, Ecuación y Tabla de verdad**
- **Jerarquía de las operaciones**
- **Equivalencias del Exor y Exnor**
- **Obtener la tabla de verdad a partir del circuito**
  - Si termina en Or suponer un uno a la salida
  - Si termina en And suponer un cero a la salida
- **Circuito a partir de la ecuación**
- **Ecuación a partir del circuito**

# Sistema Digital Binario

Universidad Autónoma de Nuevo León  
Facultad de Ingeniería Mecánica y Eléctrica

## Sesión 4 Sistemas Digitales Binarios



- Objetivo:
- Durante el desarrollo de esta práctica, el estudiante aplicará métodos para obtener las diferentes formas de representar los sistemas digitales binarios, tales como:



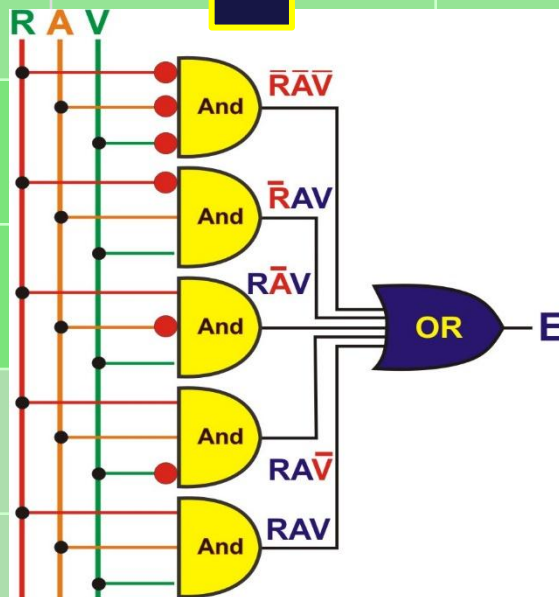
0:00 / 6:42

M. C. Juan Angel Garza Garza

[https://www.youtube.com/watch?v=GdWRZJd0oiw&t=52s&ab\\_channel=JuanAngelGarzaGarza](https://www.youtube.com/watch?v=GdWRZJd0oiw&t=52s&ab_channel=JuanAngelGarzaGarza)

Tabla de Verdad

| m | R | A | V | E |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 2 | 0 | 1 | 0 | 0 |
| 3 | 0 | 1 | 1 | 1 |
| 4 | 1 | 0 | 0 | 0 |
| 5 | 1 | 0 | 1 | 1 |
| 6 | 1 | 1 | 0 | 1 |
| 7 | 1 | 1 | 1 | 1 |



Circuito

$$FE_{(R,A,V)} = \bar{R}\bar{A}\bar{V} + \bar{R}AV + R\bar{A}V + RA\bar{V} + RAV$$

Ecuación

# Actividad Fundamental 1

| FASE |                                                                 | DETALLES                                                               | E2       |   |   |   |   |   |   |    | E3       |    |    |    |    |    |   |  |
|------|-----------------------------------------------------------------|------------------------------------------------------------------------|----------|---|---|---|---|---|---|----|----------|----|----|----|----|----|---|--|
|      |                                                                 |                                                                        | Semana 2 |   |   |   |   |   |   |    | Semana 3 |    |    |    |    |    |   |  |
|      |                                                                 |                                                                        | L        | M | M | J | V | S | D |    | L        | M  | M  | J  | V  | S  | D |  |
|      |                                                                 |                                                                        | 3        | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11       | 12 | 13 | 14 | 15 | 16 |   |  |
| 1    | Descarga, Instalación y Licencia de los programas de aplicación | Proteus<br>LogicAid<br>Screen To Giff<br><u>Isp Lever</u>              |          |   |   |   |   |   |   |    |          |    |    |    |    |    |   |  |
| 2    | Definición y planificación del proyecto                         | Diagrama de Bloques<br>Tabla de verdad<br>Miniterminos<br>Maxiterminos |          |   |   |   |   |   |   |    |          |    |    |    |    |    |   |  |

## **Periodo de Bajas Parciales**

**"Si por alguna razón no puedes cumplir con las actividades y proyectos de este semestre, te animamos a reflexionar sobre la posibilidad de dar de baja algunas de tus unidades de aprendizaje y cursarlas en un momento más propicio.**

**Entendemos que la vida está llena de imprevistos y que las circunstancias a veces no son ideales.**

**No obstante, queremos recordarte que aún tienes tiempo para tomar decisiones que beneficien tu bienestar y rendimiento académico.**

**El periodo para realizar bajas parciales estará abierto del**

**18 al 22 de agosto.**

**Aprovecha esta oportunidad para ajustar tu carga académica según tus necesidades y circunstancias actuales**



***La noche estrellada***  
*Vincent van Gogh*