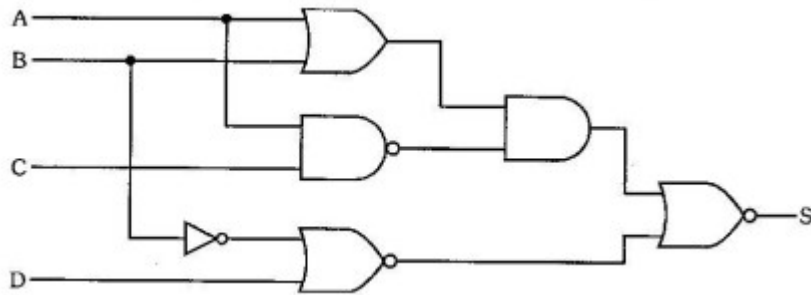


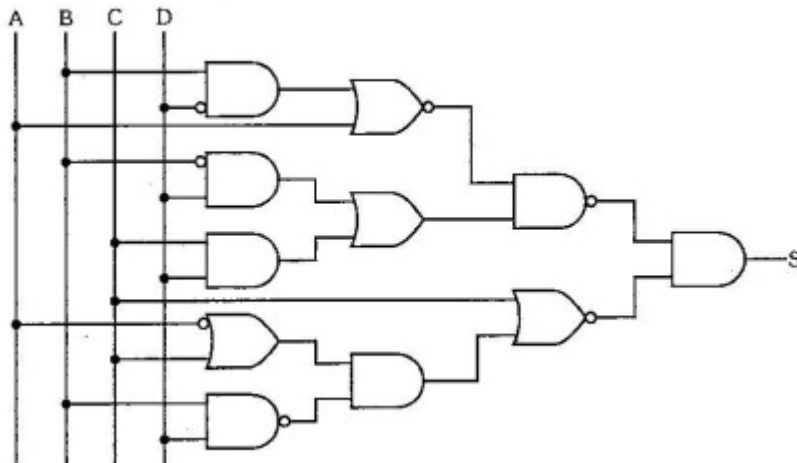
Lista 5 – Portas Lógicas

1 – Determine a expressão dos circuito:



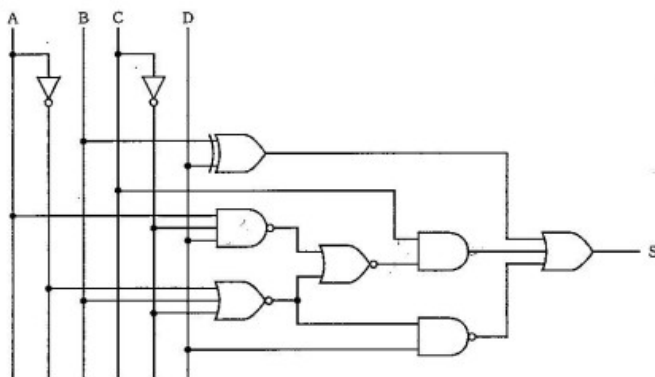
$$S = \left[(A + B)(\overline{A}\overline{C}) + (\overline{B} + D) \right]$$

2 – Determine a expressão dos circuito:



$$S = \left[(\overline{B}\overline{D} + A)(\overline{B}D + CD) \right] \left[C + (\overline{A} + C)(\overline{B}D) \right]$$

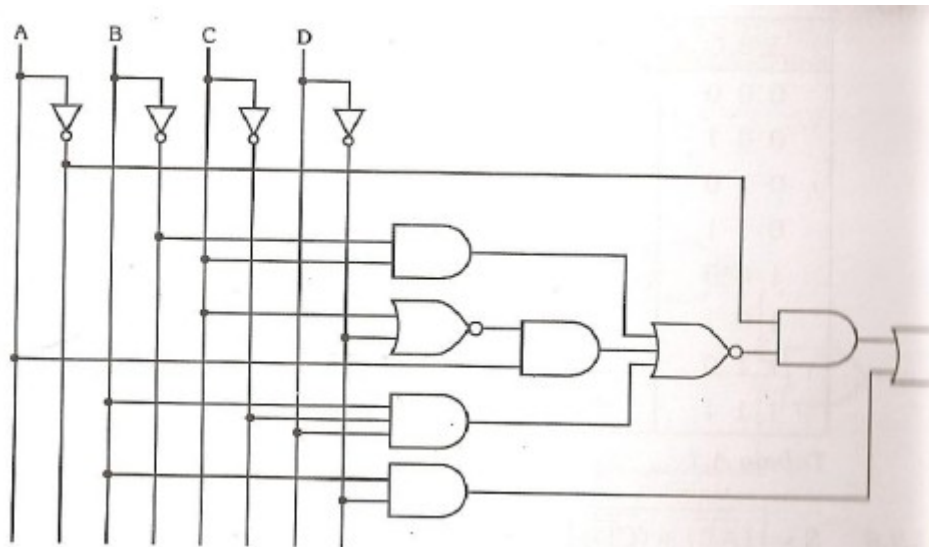
3 – Determine a expressão dos circuito:



$$S = B \oplus D + C \left[(\overline{A}\overline{C}D) + (\overline{A} + B + \overline{C}) \right] + \left[(\overline{A} + B + \overline{C})D \right]$$

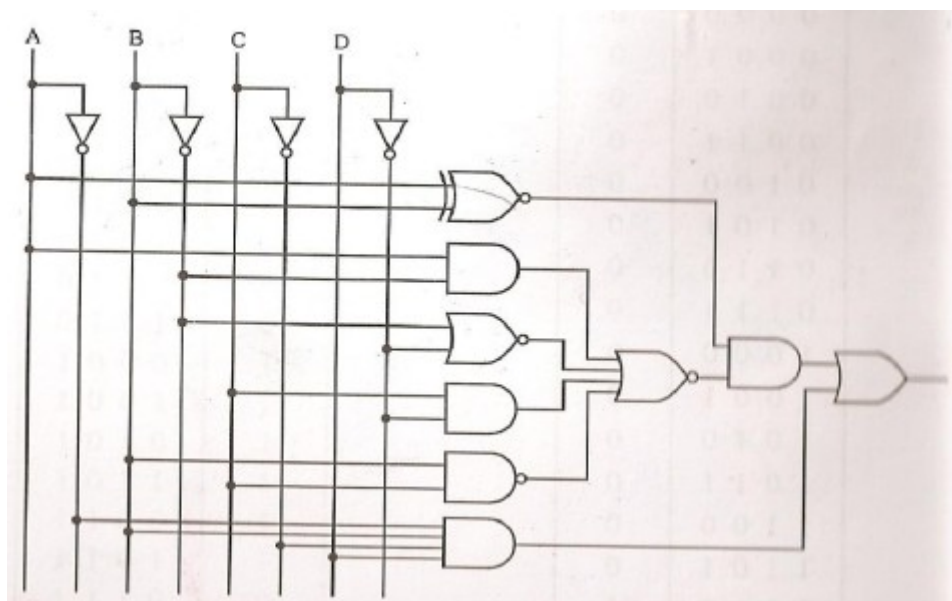
4 – Desenhe o circuito que representa a expressão:

$$S = \overline{A} \cdot [\overline{B} \cdot C + A \cdot (C + \overline{D}) + B \cdot \overline{C} \cdot D] + B \cdot \overline{D}$$

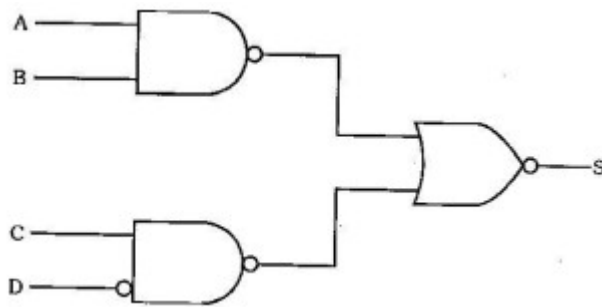


5 – Desenhe o circuito que representa a expressão:

$$S = (A \odot B) \cdot [\overline{A \cdot B + (\overline{B + D}) + C \cdot \overline{D} + (\overline{B \cdot C})}] + \overline{A} \cdot B \cdot \overline{C} \cdot D$$



6 – Escreva a expressão do circuito e determine sua tabela verdade:



$$S = \overline{(\overline{AB}) + (\overline{CD})}$$

A	B	C	D	S
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	0
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

7)

Prove que: $A \odot (B \oplus C) = A \oplus (B \odot C)$.

A	B	C	$A \odot (B \oplus C)$	$A \oplus (B \odot C)$
0	0	0	1	1
0	0	1	0	0
0	1	0	0	0
0	1	1	1	1
1	0	0	0	0
1	0	1	1	1
1	1	0	1	1
1	1	1	0	0

8)

Determine a expressão booleana a partir da tabela

A	B	C	S
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1

$$S = \overline{A} \overline{B} \overline{C} + \overline{A} B C + A \overline{B} \overline{C} + ABC$$

