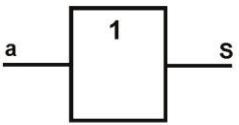

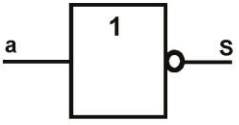
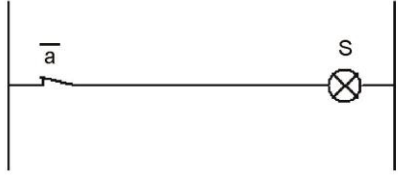
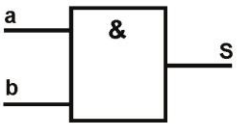
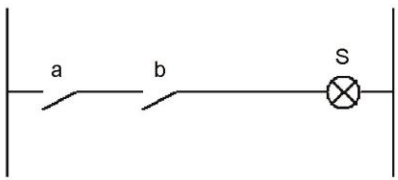
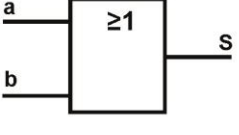



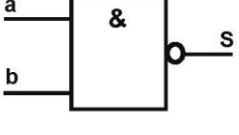
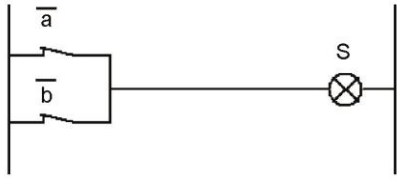
BUT

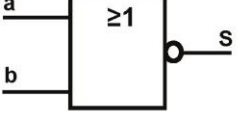
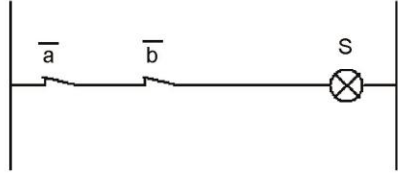
Connaitre les différentes fonctions logiques ainsi que leurs associations.
Déterminer les équations logiques par rapport aux logigrammes.

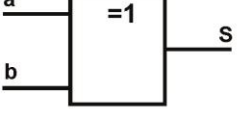
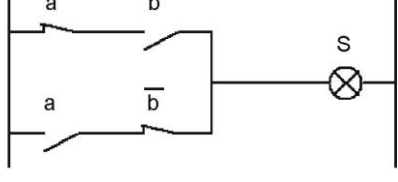
1) Les fonctions logiques.

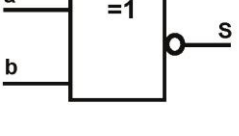
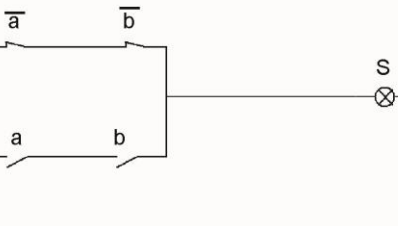
Fonction OUI																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1" style="margin: auto;"> <thead> <tr> <th>a</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> </tbody> </table>	a	S	0	0	1	1									
a	S																
0	0																
1	1																
Équation logique																	
$S = a$																	
Fonction NON																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1" style="margin: auto;"> <thead> <tr> <th>a</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> </tr> </tbody> </table>	a	S	0	1	1	0									
a	S																
0	1																
1	0																
Équation logique																	
$S = \bar{a}$																	
Fonction ET																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1" style="margin: auto;"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	a	b	S	0	0	0	0	1	0	1	0	0	1	1	1
a	b	S															
0	0	0															
0	1	0															
1	0	0															
1	1	1															
Équation logique																	
$S = a \cdot b$																	

Fonction OU																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	a	b	S	0	0	0	0	1	1	1	0	1	1	1	1
a	b	S															
0	0	0															
0	1	1															
1	0	1															
1	1	1															
Équation logique																	
$S = a + b$																	

Fonction NON-ET (NAND)																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	a	b	S	0	0	1	0	1	1	1	0	1	1	1	0
a	b	S															
0	0	1															
0	1	1															
1	0	1															
1	1	0															
Équation logique																	
$S = \overline{a \cdot b}$																	

Fonction NON-OU (NOR)																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	a	b	S	0	0	1	0	1	0	1	0	0	1	1	0
a	b	S															
0	0	1															
0	1	0															
1	0	0															
1	1	0															
Équation logique																	
$S = \overline{a + b}$																	

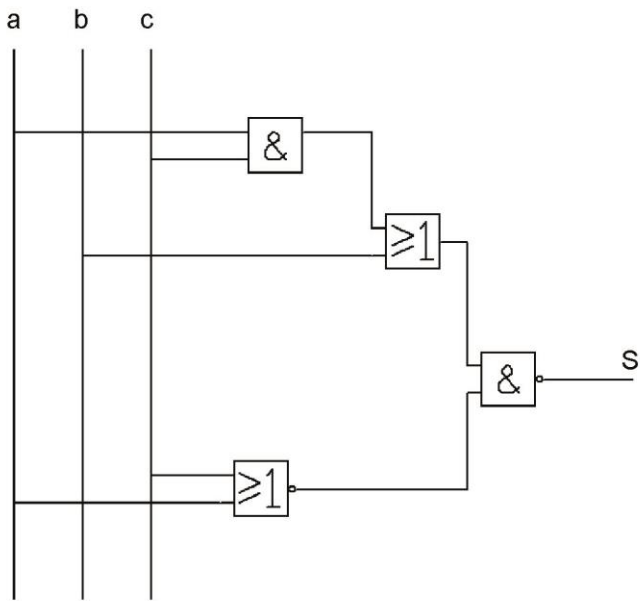
Fonction OU exclusif (XOR)																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	a	b	S	0	0	0	0	1	1	1	0	1	1	1	0
a	b	S															
0	0	0															
0	1	1															
1	0	1															
1	1	0															
Équation logique																	
$S = b \oplus a$																	

Fonction NON-OU exclusif (XNOR)																	
Symbole logique	Schéma à contacts	Table de vérité															
		<table border="1"> <thead> <tr> <th>a</th> <th>b</th> <th>S</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	a	b	S	0	0	1	0	1	0	1	0	0	1	1	1
a	b	S															
0	0	1															
0	1	0															
1	0	0															
1	1	1															
Équation logique																	
$S = \overline{a \oplus b}$																	

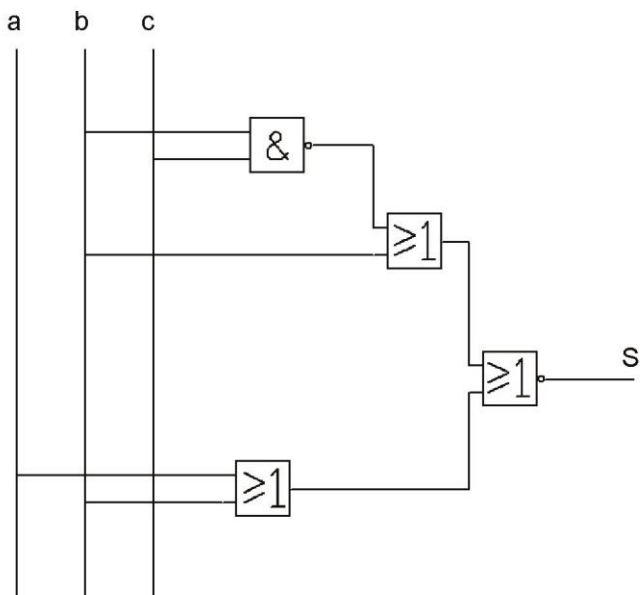
Remarque : il existe également les fonctions ET exclusif (XAND) et NON-ET exclusif (XNAND).

2) Logigrammes et équations logiques.

Pour les 2 schémas logiques appelés logigrammes, trouvez les équations logiques :



$$S = \overline{(ac+b)} \overline{(a+c)}$$



$$S = \overline{bc} + b + a + b$$