

Exo 1 (8 pnt)

$$(10101101)_2 = (349)_{10} \quad \text{no } \textcircled{0.2}$$

$$(A9C)_{16} = (2716)_{10} \quad \text{no } \textcircled{0.2}$$

Exo 2 (3 pnt)

$$F_1 = \bar{x} + yz$$

- première forme canonique

$$F_{1,1} = \bar{x}\bar{y}\bar{z} + \bar{x}\bar{y}z + \bar{x}y\bar{z} + \bar{x}yz + xyz \quad \text{no } \textcircled{0.2}$$

- seconde forme canonique.

$$F_{1,2} = (\bar{x} + y + z)(\bar{x} + y + \bar{z})(\bar{x} + \bar{y} + z) \quad \text{no } \textcircled{0.2}$$

x	y	z	F ₁
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

$$F_2 = xy + yz + xz$$

- première forme canonique

$$F_{2,1} = \bar{x}yz + x\bar{y}z + xy\bar{z} + xyz \quad \text{no } \textcircled{0.2}$$

- seconde forme canonique.

$$F_{2,2} = (x + y + z)(x + y + \bar{z})(x + \bar{y} + z) \quad \text{no } \textcircled{0.2}$$

x	y	z	F ₂
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

page (01)

$$F_3 = (X + Y)(\bar{X} + Y + Z)$$

première forme canonique

$$F_{3,1} = \bar{X}Y\bar{Z} + \bar{X}YZ + X\bar{Y}Z + XY\bar{Z} + XYZ$$

seconde forme canonique

$$F_{3,2} = (X + Y + Z)(X + Y + \bar{Z})(\bar{X} + Y + Z)$$

Ex 3 (9 pts).

- compteur modulo 5 bascule JK mode synchrone:

	entrée			Sortie					
	Q_2	Q_1	Q_0	T_2	K_2	T_1	K_1	T_0	K_0
0	0	0	0	0	$\emptyset$	0	$\emptyset$	1	$\emptyset$
1	0	0	1	0	$\emptyset$	1	$\emptyset$	$\emptyset$	1
2	0	1	0	0	$\emptyset$	$\emptyset$	0	1	$\emptyset$
3	0	1	1	1	$\emptyset$	$\emptyset$	1	$\emptyset$	1
4	1	0	0	$\emptyset$	1	0	$\emptyset$	0	$\emptyset$
	0	0	0						

tableaux de Karnaugh

T_2

$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	0	0	1	0
1	ϕ	ϕ	ϕ	ϕ

K_2

$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	ϕ	ϕ	ϕ	ϕ
1	1	ϕ	ϕ	ϕ

T_1

$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	0	1	ϕ	ϕ
1	0	ϕ	ϕ	ϕ

K_1

$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	ϕ	ϕ	1	0
1	ϕ	ϕ	ϕ	ϕ

T_0

$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	1	ϕ	ϕ	1
1	0	ϕ	ϕ	ϕ

K_0

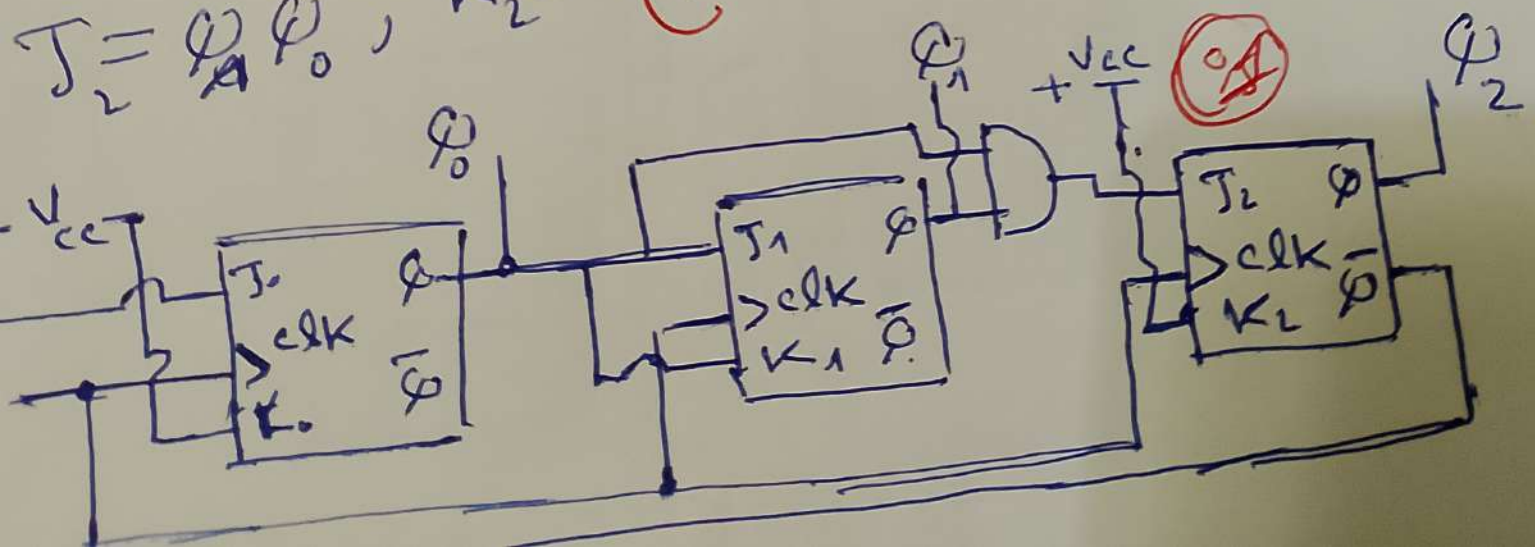
$\phi_2 \backslash \phi_1 \phi_0$	00	01	11	10
0	ϕ	1	1	ϕ
1	ϕ	ϕ	ϕ	ϕ

les équations logique simplifiées

$$T_0 = \bar{\phi}_2, K_0 = 1$$

$$T_1 = K_1 = \phi_0$$

$$T_2 = \phi_1 \phi_0, K_2 = 1$$



5 Synchrone Bascule "D"

φ_3	φ_2	φ_1	D_3	D_2	D_1
0	0	0	0	0	1
0	0	1	0	1	0
1	1	0	0	1	1
1	1	1	1	0	0
0	0	0	0	0	0

$$D_1 = \overline{\varphi_1} \times \overline{\varphi_3}$$

$\varphi_3 \backslash \varphi_1$	00	01	11	10
0	1	0	0	1
1	0	X	X	X

(9,5)

$$D_2 = \overline{\varphi_1} \overline{\varphi_2} + \overline{\varphi_2} \varphi_1$$

$\varphi_3 \backslash \varphi_2$	00	01	11	10
0	0	1	0	1
1	0	X	X	X

(9,5)

$$D_3 = \varphi_1 \times \varphi_2$$

$\varphi_3 \backslash \varphi_2$	00	01	11	10
0	0	0	1	0
1	0	X	X	X

(9,5)

