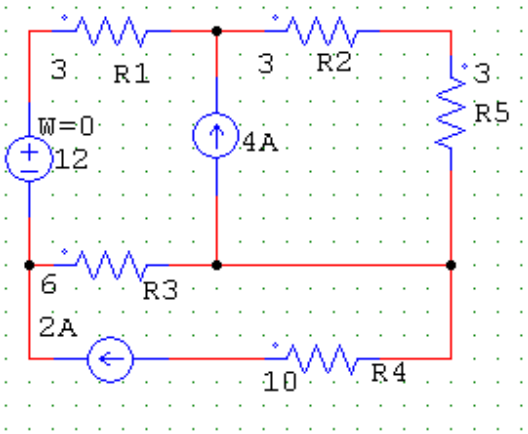
1) V, F, V,F,F , V,V,F,F,F

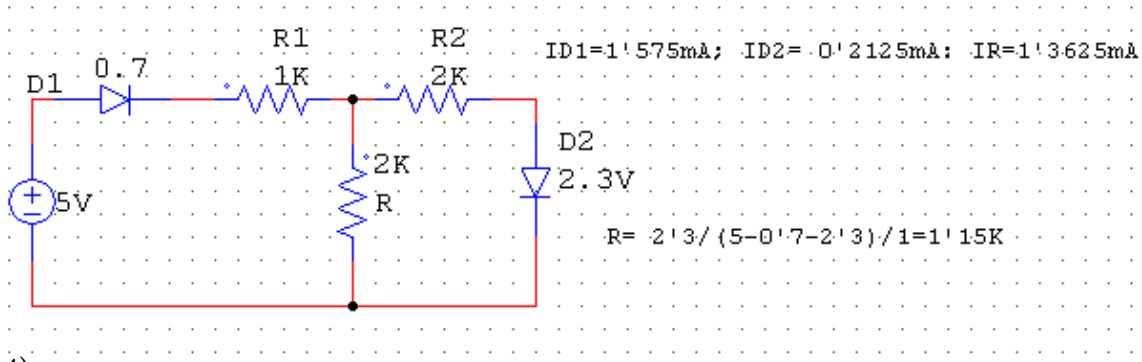
2)



IR1=0A V=0 W=0
IR2=4A V=12 W=48
IR3=2A V=12 W=24
IR4=2A(-) V=20 W=40
IR5=4A V=12 W=48
V12 W=0
I4 24V 96W
I2 32V 64W
VAB=12V
Rno=3'6 Ohms
Ino=3'333A

La Rl, como la potencia Norton es de 20 W, la resistencia añadida que consume 10W (la mitad) tiene que ser de 3'6 Ohms

3)



ID1=1'575mA; ID2= 0'2125mA; IR=1'3625mA
R= 2'3/(5-0'7-2'3)/1=1'15K

4)

$V_c = R_B \cdot I = 12V$

$v_c(0^-) = 12V$

$v_c(0^+) = 12V$

$i_c(0^-) = 0A$

$i_c(0^+) = -2A$

$i_c(\infty) = 0A$

$t = -6 \cdot 10^{-4} \cdot \ln 0{,}2 = 965'66\,\mu s$

$f = \frac{1}{T} = \frac{1}{48 \cdot 10^{-3}} = 208'3\,Hz$

$v_c(\infty) = 12 \cdot \frac{6}{6+2} = 9V$

⑤

Ⓐ

$V_0 = 5V. \rightarrow$ NO SATURACION $\Rightarrow$ ESTA EN ACTIVA

$I_C = 2mA \rightarrow$ NO CORTE

ACTIVA $\quad I_{R_1} = \frac{5 - 0'7}{R_1}$

$0'7 - (-15) = (I_{R_1} - I_B)\,100 \Rightarrow 15'7 = \left(I_{R_1} - \frac{2}{100}\right) \cdot 100$

$I_{R_1} = \frac{15'7 + 2}{100} = 0'177\ mA$

$R_1 = \frac{5 - 0'7}{I_{R_1}} = \frac{4'3}{0'177} = 24'29K.$

$I_{Rc} = 2 + 0'177 = 2'177 = \frac{15 - 5}{Rc} \Rightarrow Rc = \frac{10}{2'177} = 4'59K$

6)

CMOS

V_E	V_{E2}	V_S
0	1	0
1	0	1

Buffer