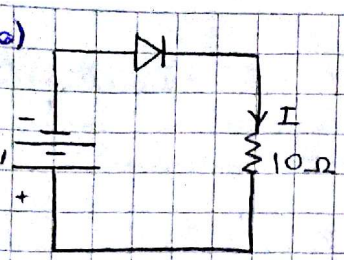
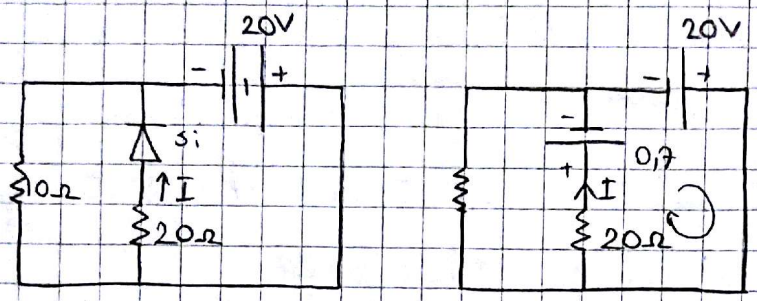
5) a)



diyot ters kutuplanmış $I = 0$ A

b)

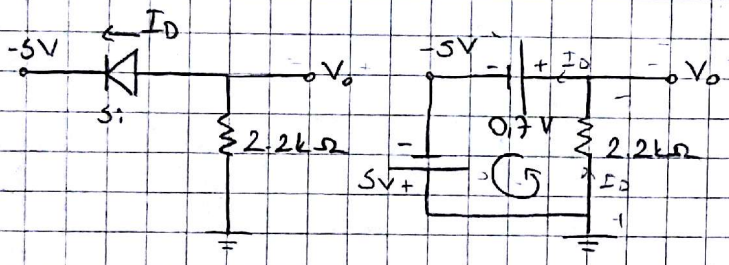


$-20 + I \cdot 20 + 0{,}7 = 0$

$\frac{19{,}3}{20} = I = 0{,}965$ A

8)

a)

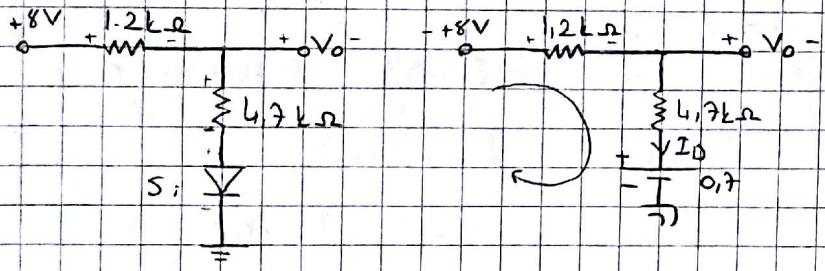


$-5V + I_D \cdot 2200 + 0{,}7 = 0$

$I_D = 1{,}955$ mA

$V_o = V_R = -4{,}3$ V

b)

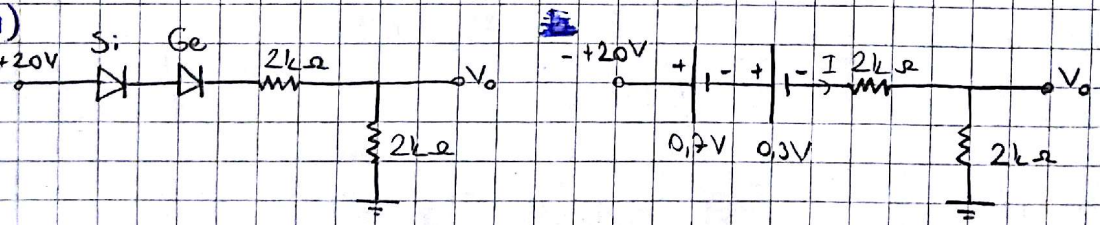


$-8V + I_D \cdot 1{,}2k\Omega + I_D \cdot 4{,}7k\Omega + 0{,}7 = 0$

$I_D = 1{,}24$ mA

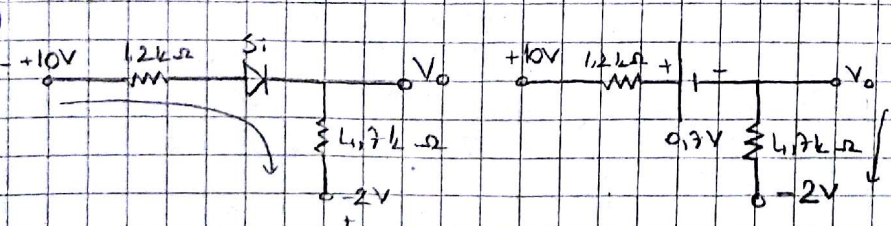
$V_o = 4{,}7k\Omega \cdot 1{,}24$ mA $+ 0{,}7 = 6{,}53$ V

7) a)



$-20V + 0{,}7 + 0{,}3 + I \cdot 4k\Omega = 0$ $\quad 4{,}75$ mA $\quad V_o = 2k\Omega \cdot 4{,}75$ mA $\quad V_o = 9{,}5$ V

b)

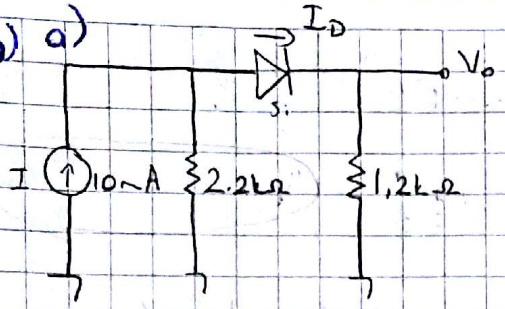


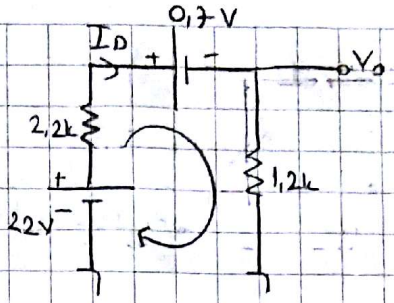
$-10 + I \cdot 1{,}2k\Omega + 0{,}7 + I \cdot 4{,}7k\Omega - 2 = 0$

$I = 1{,}315$ mA

$V_o = I \cdot 4{,}7k\Omega - 2 = 7$ V

8) a)





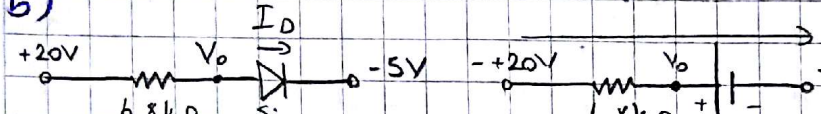
$-22 + I_D \cdot 2200 + 0,7 + I_D \cdot 1200 = 0$

$I_D = 6,26mA$

$V_o = I_D \cdot 1,2k\Omega = 7,51V$

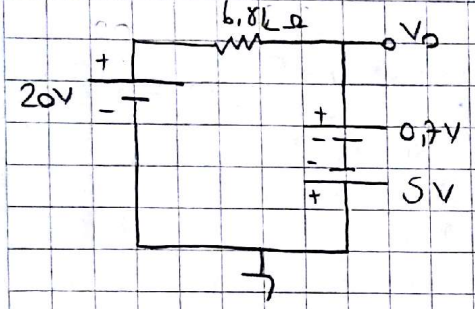
$V = I \cdot R = 22V$

b)



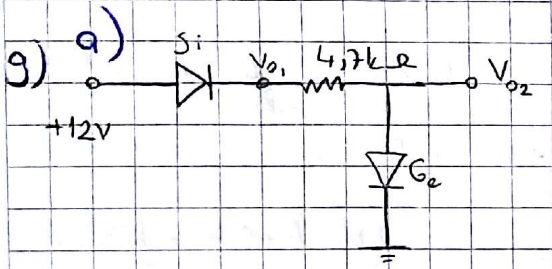
$-20 + I_D \cdot 6,8k + 0,7 - 5 = 0$

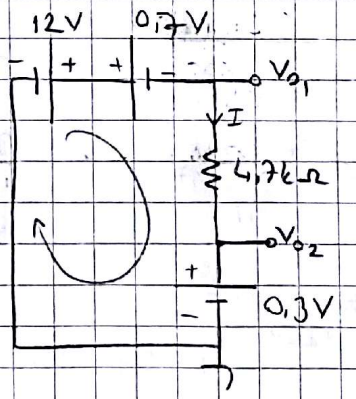
$I_D = 3,57mA$



$V_o = 0,7 - 5 = -4,3V$

9) a)





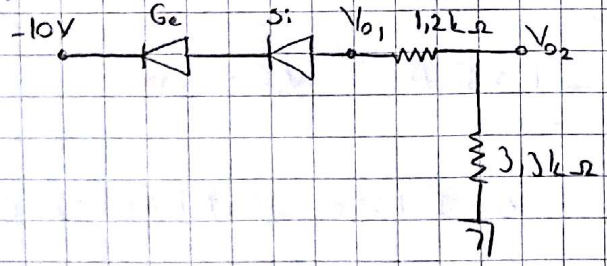
$-12 + 0,7 + I \cdot 4,7k + 0,3 = 0$

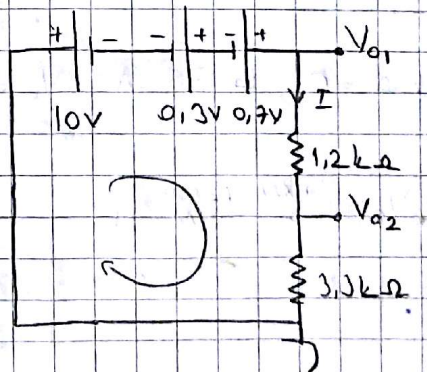
$I = 2,34mA$

$V_{o1} = I \cdot 4,7k + 0,3 = 11,3V$

$V_{o2} = 0,3V$

b)

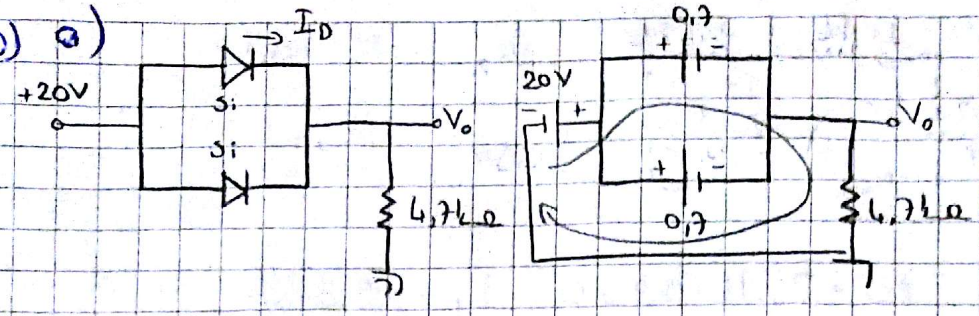




$10 - 0,3 - 0,7 + I \cdot 1,2k + I \cdot 3,3k = 0$

$I = 2mA$ $V_{o1} = -9V$ $V_{o2} = I \cdot 3,3k = -6,6V$

10) a)

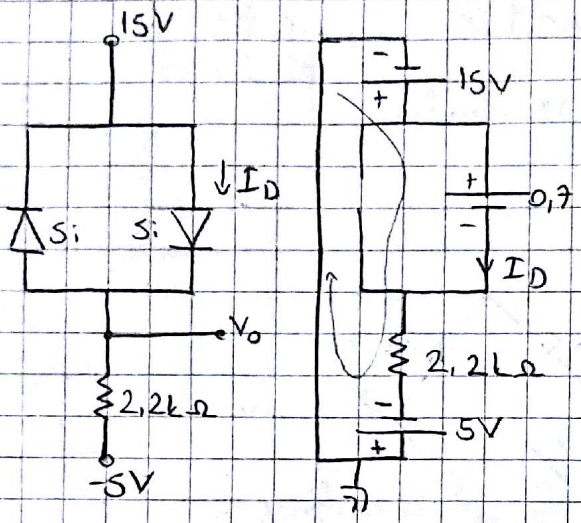


$-20 + 0,7 + I_D \cdot 4,7k = 0$

$I_D = 4,1 \sim A$

$V_o = I_D \cdot 4,7k = 19,27V$

b)

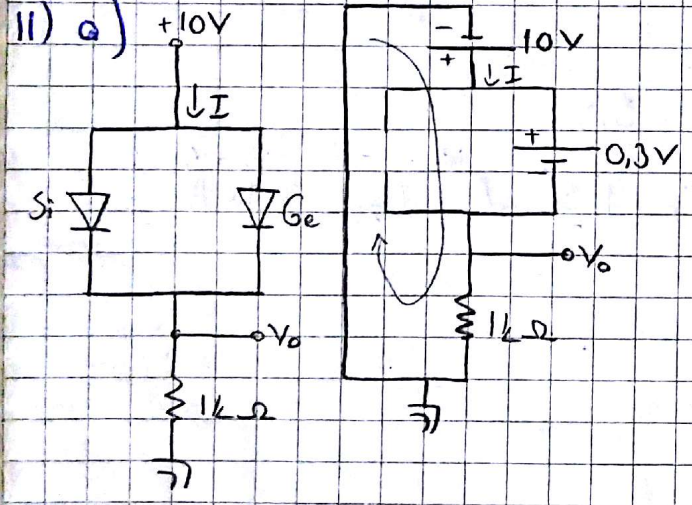


$-15 + 0,7 + I_D \cdot 2,2k - 5 = 0$

$I_D = 8,77 \sim A$

$V_o = I_D \cdot 2,2k - 5V = 14,234V$

11) a)

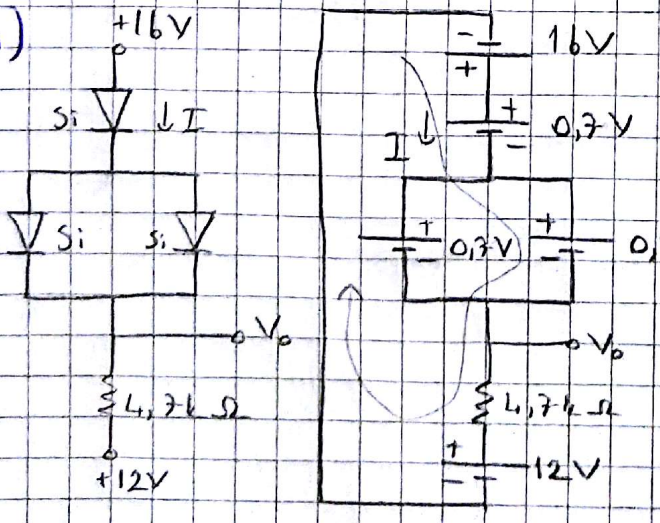


$-10 + 0,3 + I \cdot 1k = 0$

$I = 9,7 \sim A$

$V_o = I \cdot 1k\Omega = 9,7V$

b)

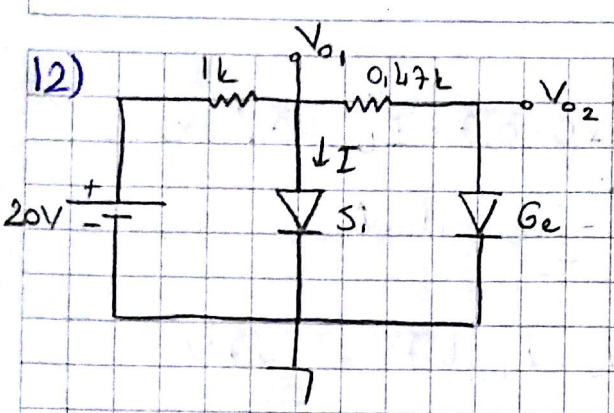


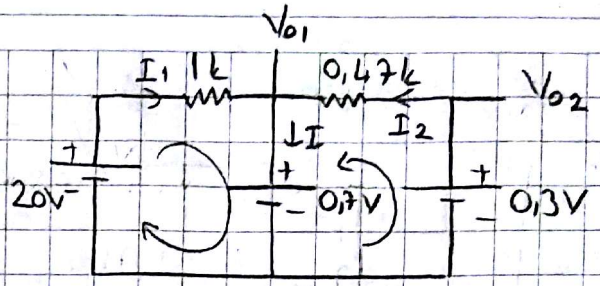
$-16 + 0,7 + 0,7 + I \cdot 4,7k + 12 = 0$

$I = 0,553 \sim A$

$V_o = I \cdot 4,7 + 12 \quad V_o = 14,553V$

12)





$V_{o1} = 0,7V$

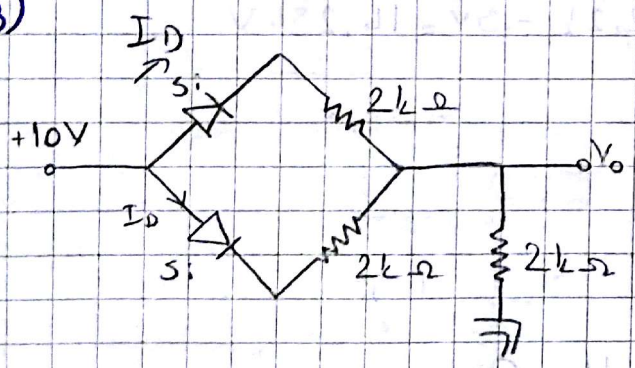
$V_{o2} = 0,3V$

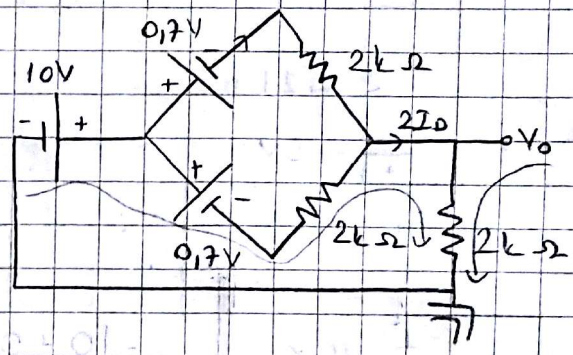
$-20 + I_1 \cdot 1k + 0,7 = 0 \quad I_1 = 18,3mA$

$-0,3 + I_2 \cdot 0,47k + 0,7 = 0 \quad I_2 = -0,851mA$

$I = 18,3 - 0,851 = 18,45mA$

13)

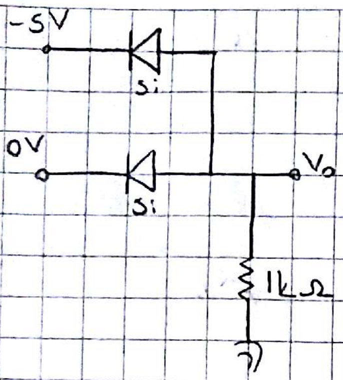


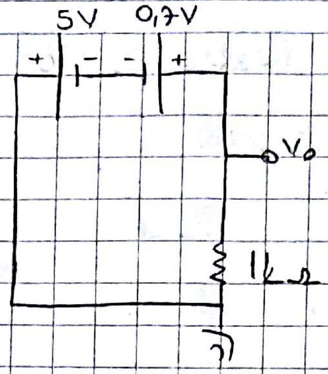


$-10 + 0,7 + I_D \cdot 2000 + 2I_D \cdot 2000 = 0 \quad 6000 I_D = 3,3$

$V_o = 2I_D \cdot 2000 = 4000 I_D \quad V_o = 6,2V \quad I_D = 1,55mA \quad I_{2k} = 3,1mA$

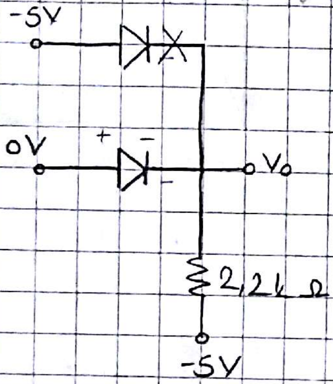
18)





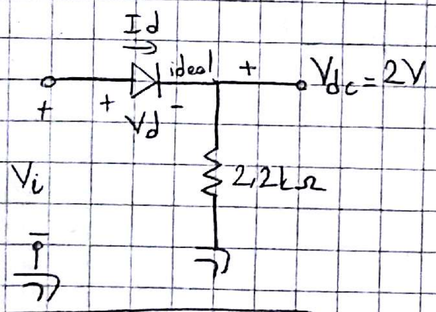
$V_o = -4,3V$

19)

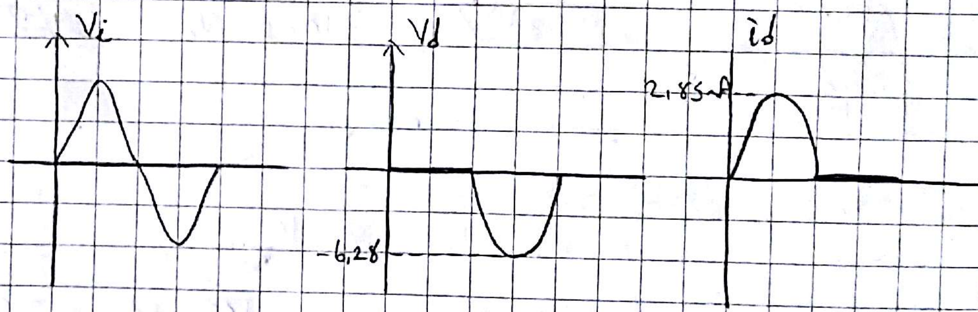


$V_o = -0,7V$

22)



Yarım dalga



$V_{dc} = 0,318 . V_m$

$V_m = \frac{V_{dc}}{0,318} = 6,28$

$I_m = \frac{V_m}{R} = \frac{6,28}{2,2k} = 2,85mA$