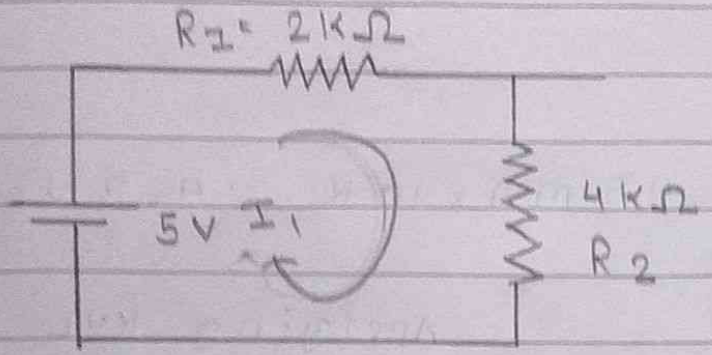
1)




Applying KVL -

$5 - 2\times10^{3} I_1 - 4\times10^{3} I_1 = 0$

$5 = 6\times10^{3} I_1$

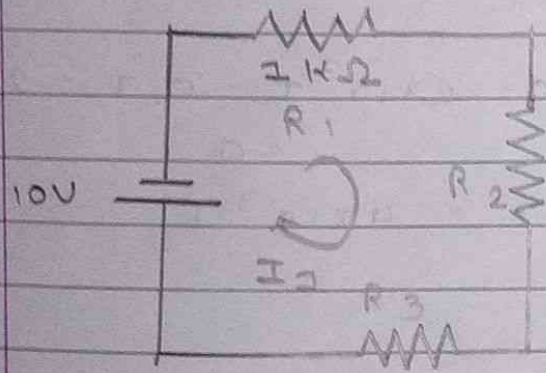
$I_1 = \frac{5}{6}\ mA = 0.83\ mA$

$\therefore V_{R1} = I_1 R_1 = 0.83\times10^{-3}\times2\times10^{3}$

$= 1.66\ V$

$\therefore V_{R2} = 3.32$

2)




Applying KVL -

$10 - 1\times10^{3} I_1 - 3\times10^{3} I_1 - 5\times10^{3} I_1 = 0$

$10 = 9\times10^{3} I_1$

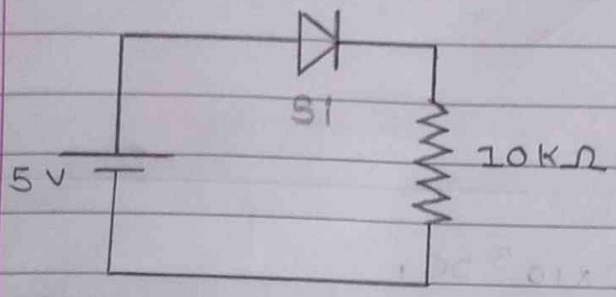
$I_1 = 1.1\ mA$

$V_{R1} = 1 \times 10^3 \times 1.1 \times 10^{-3} = 1.1\ V$

$V_{R2} = 3 \times 10^3 \times 1.1 \times 10^{-3} = 3.3\ V$

$V_{R3} = 5 \times 10^3 \times 1.1 \times 10^{-3} = 5.5\ V$

3)




Applying KVL

$5 - 0.7 - 10 \times 10^3\ I_D = 0$

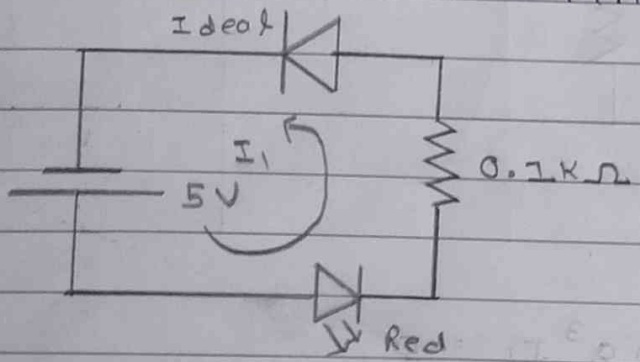
$4.3 = 10 \times 10^3\ I_D$

$I_D = 0.43\ mA$

$V_D = 0.7\ V$

$V_R = I_D R_1 = 0.43\ mA \times 10K = 4.3\ V$

4)




Applying KVL

$5 - 1.8 - 0.1 \times 10^3\ I = 0$

$3.2 = 0.1 \times 10^3\ I$

$I = 32\ mA$

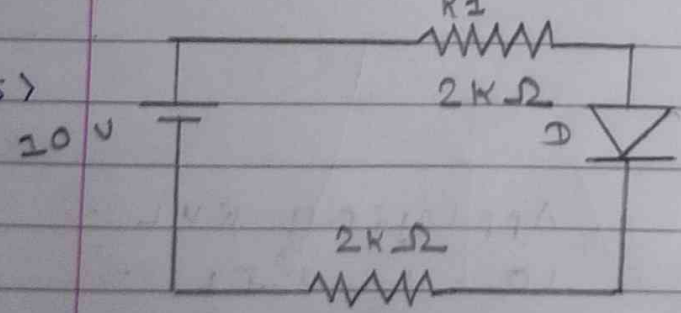
$V_D = 0\ V$ (∵ Diode is Ideal)

$V_{LED} = 1.8\ V$

$V_R = IR_1 = 0.1 \times 10^3 \times 32 \times 10^{-3}$

$= 3.2\ V$

5)




Applying KVL

$10 - 2 \times 10^3\ I - 0.7 - 2 \times 10^3\ I = 0$

$9.3 = 4 \times 10^3\ I$

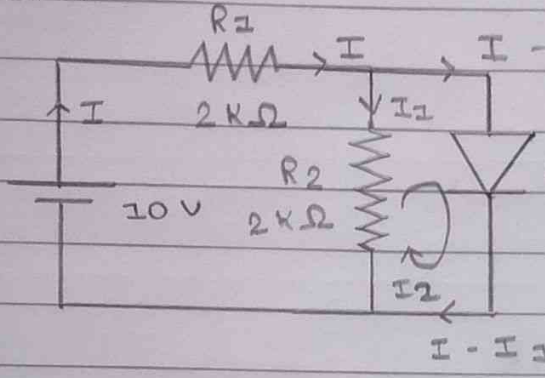
$I = 2.325\ mA$

$V_{R1} = V_{R2} = 2.325 \times 10^{-3} \times 2 \times 10^{3} =$

$= 4.65\ V$

$V_D = 0.7\ V$

6>




Applying KVL

$10 - 2 \times 10^{3} I - 2 \times 10^{3} I_1 = 0$

$10 - 2 \times 10^{3} (I - I_1) = 0$

$I - I_1 = \frac{10}{2}\ mA = 5\ mA \quad - (1)$

$-0.7 - 2 \times 10^{3} (-I_1) = 0$

$0.7 = 2 \times 10^{3} I_1 \quad - (2)$

$I_1 = \frac{0.7}{2}\ mA = 0.35\ mA \quad - (2)$

$\therefore \quad I - 0.35 = 5$

$I_0 = 3.65\ mA$

$I_d = 5\ mA$

$V_{R1} = V - 0.7$

$V_{R1} = 10 - 0.7 = 9.3\ V$

$V_{R2} = 0.7\ V$