Name:

       Sheh Raza

Section:

       B

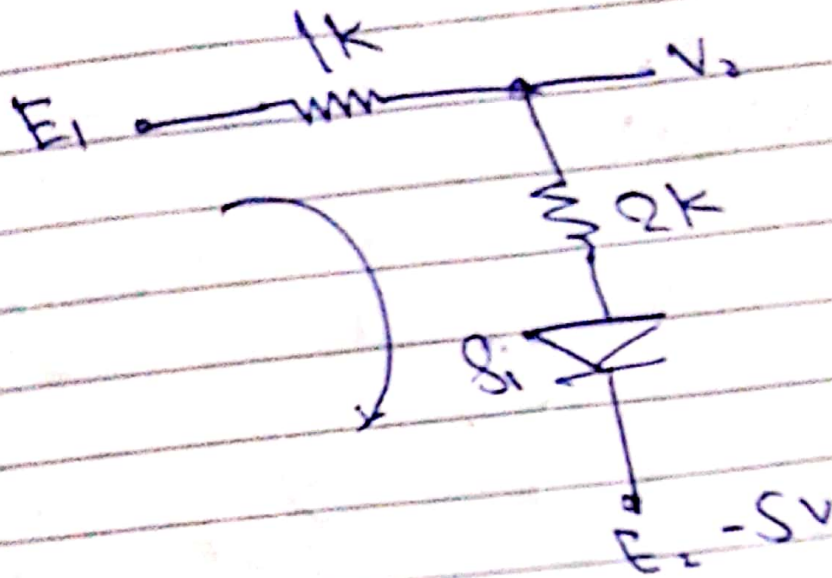Reg -No:

       BPWCSE1658

Course :

       EC

Exame:

       Spring 2020 - Mid

Q ⇒ 2

E_1 ———1K——— V_2

≷2K

S₁ ◁

$E_2 = -5v$

Solution:

$$E_1 = \frac{6+5+3}{3} = 6.3$$

$$\Rightarrow \quad 6.3 = (1)I_D + 2I_D + 0.7 - 5$$

$$\Rightarrow \quad 6.3 = (1+2)I_D + 0.7 - 5$$

$$\Rightarrow \quad \frac{3I_D}{\not{3}} = \frac{6.3 + 4.3}{3}$$
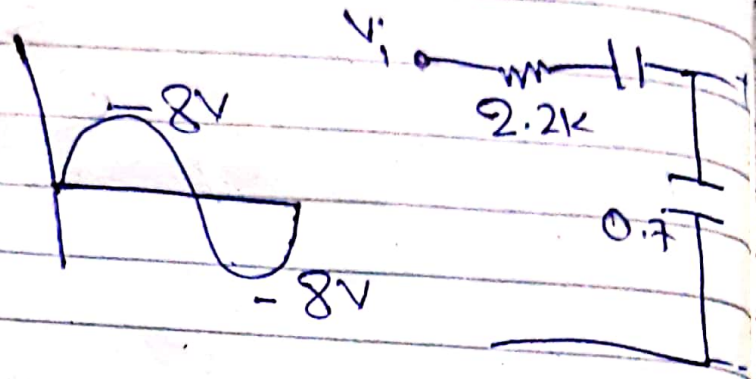
$$I_D = 3.53$$

$\Rightarrow$

Now

$$V_o = E_1 - R_1(I_D)$$

$$\boxed{V_o = 6.3 - (1)(3.53) = 2.7v}$$

Q => 3

Solution:

$$E = \frac{6+5+8}{3} \Rightarrow 6.3$$

(+ive peak):

$$V_0 (+ \cdot peak) = 0.7$$

V_0 (-ive peak):

$$V_i = V_0 - E$$

$$V_0 = -8 - 6.3 \Rightarrow -14.3$$

Transition Voltage:

$$\Rightarrow 8 - 7.3 = 0.7v$$

Qu =)

Solution:

$$V_{in} = 20V$$

$$V_z = \frac{6+5+8}{3} \Rightarrow 6.3$$

$$P_z (max) = 400mv$$

$$R = 220\Omega$$

Solution:

We know that

$$R_{min} = \frac{V_z R}{V - V_2}$$

$$R_{min} = \frac{(6.3)(220)}{20 - 6.3}$$

$$R_{min} = 63\Omega$$

Now $\quad V_R = V_1 - V_2$

$$20 - 6.3$$

$$\Rightarrow 13.7 \text{V}$$

So

$$I_R = \frac{V_R}{R} = \frac{13.7}{220} = 0.92$$

$$I_m = \frac{P_{ae}}{V_2}$$

$$I_m = \frac{400 \times 10^3}{6.3}$$

$$I_m = 0.06$$

Now

$$I_L = I_R - I_z$$

$$I_L = 0.368 \quad 0.08$$
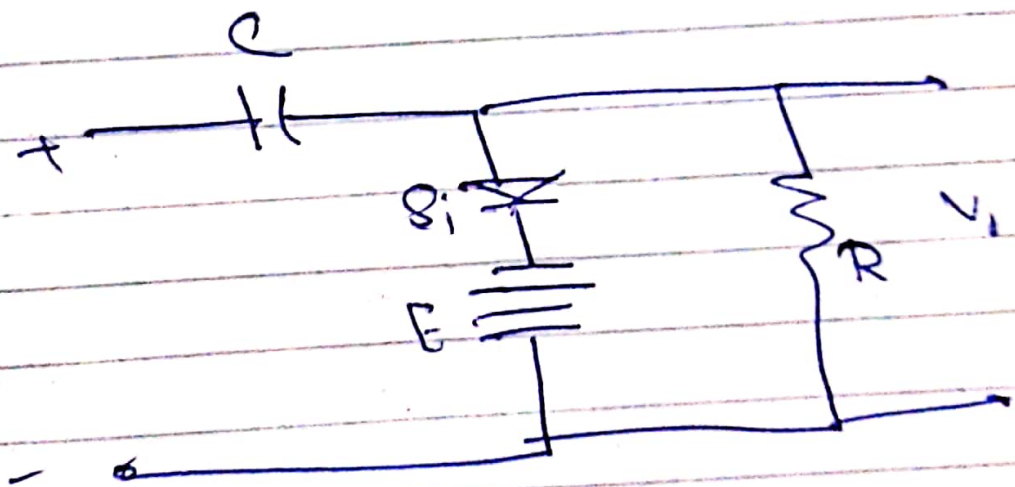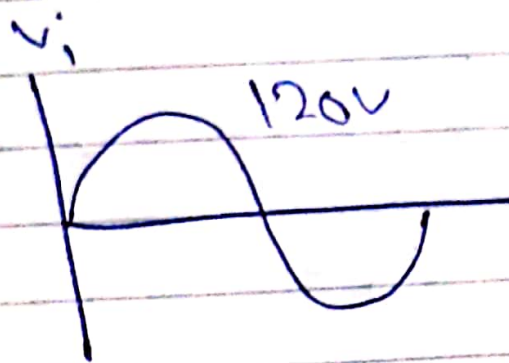
$$I_z$$

$$I_L = 0.286 - 0.06$$

$$I_L = -0.22$$

As

$$R_{mo} = \frac{V_2}{T_L} = \frac{63}{-0.22}$$

$$\boxed{R_{mx} = -28.36}$$

Q5:

Solution:

Apply KVL:

$$-120 + V_c + 0.7 + 630$$

$$V_c = 120 - 7$$

$$V_c = 113v$$

$$V_0 = 6.3 + 0.7$$

$$V_0 = 7v$$

Now

$$V_0(-) :$$

$$V_0 = -(120 + 113)$$

$$\boxed{V_0 = -233v}$$