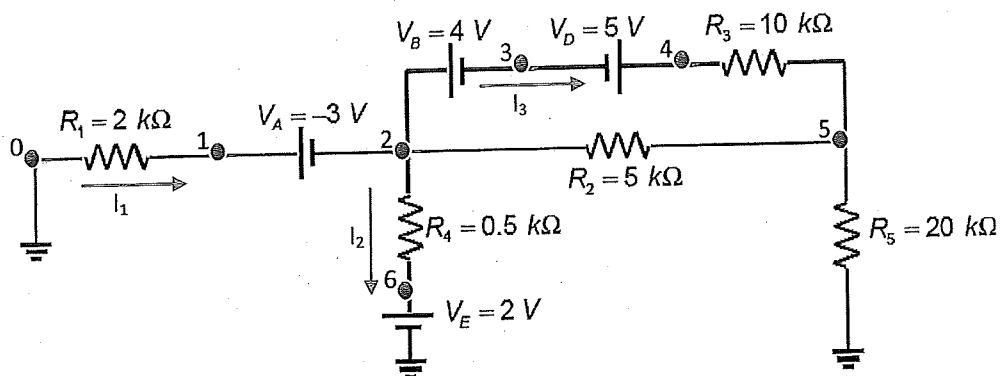


1.) Cálculo de las tensiones y de las intensidades

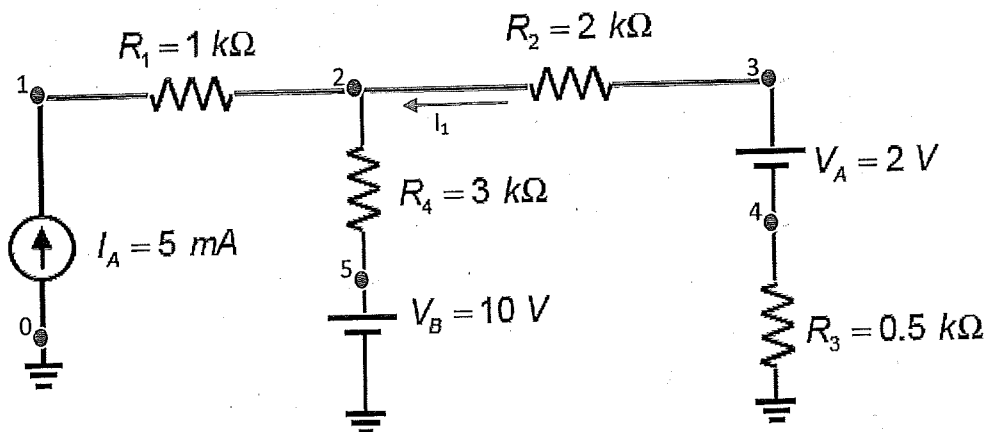


$$I_1 = 421.3 \mu A; I_2 = 314.6 \mu A; I_3 = 102.2 \mu A$$

$$e_1 = -0.84 V; e_2 = 2.16 V; e_3 = -1.84 V$$

$$e_4 = 3.16 V; e_5 = 2.13 V; e_6 = 2 V$$

2.) Cálculo de las tensiones y de las intensidades

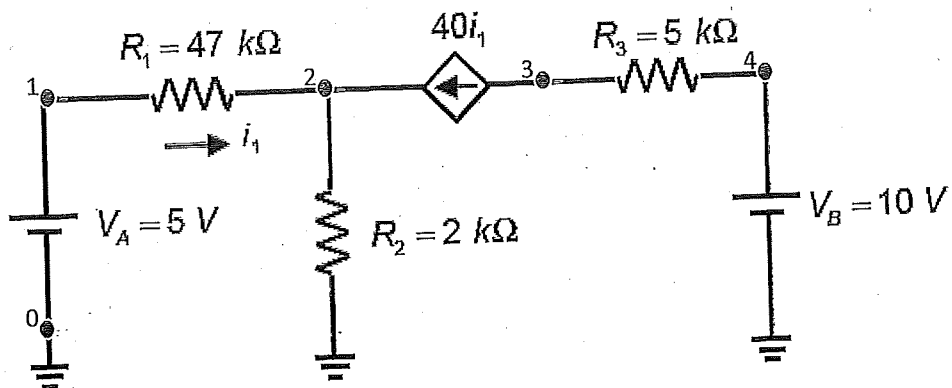


$$I_1 = -4.18 mA$$

$$e_1 = 17.45 V; e_2 = 12.45 V; e_3 = 4.1 V$$

$$e_4 = 2.1 V; e_5 = 10 V$$

3.) Cálculo de las tensiones y de las intensidades

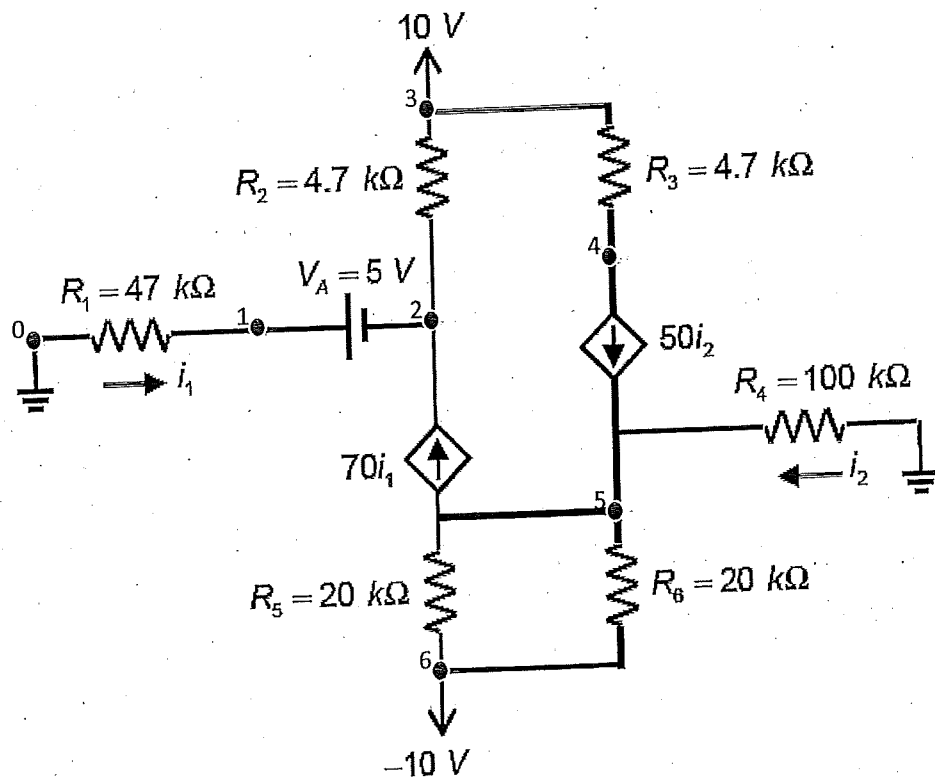


$$I_1 = 38.76 \mu A$$

$$e_1 = 5V; e_2 = 3.18V$$

$$e_3 = 2.25V; e_4 = 10V$$

4.) Cálculo de las tensiones y de las intensidades

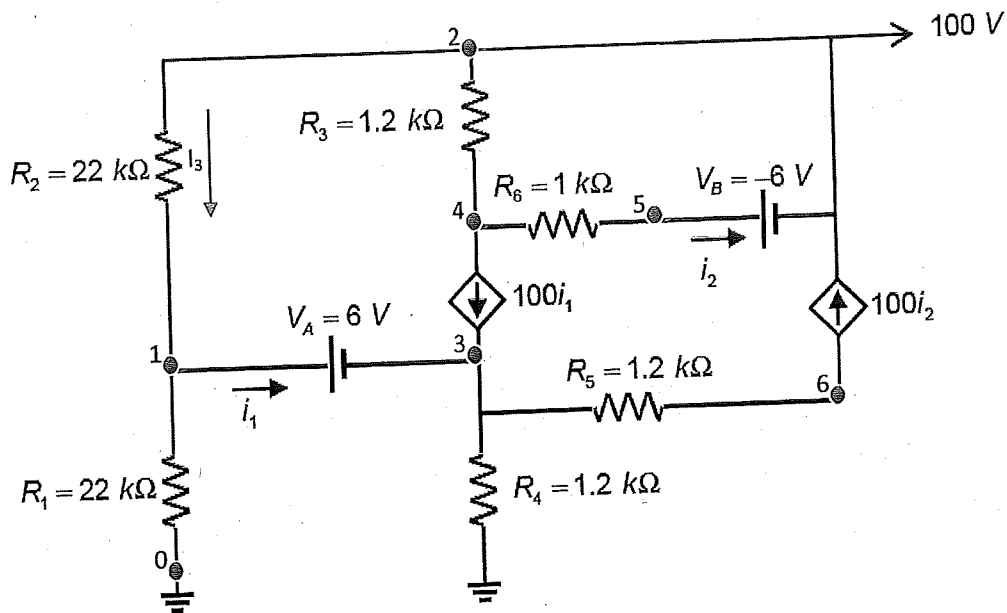


$$I_1 = -39.40 \mu A; I_2 = -28.85 \mu A$$

$$e_1 = 1.85V; e_2 = -3.15V; e_3 = 10V$$

$$e_4 = 16.77V; e_5 = 2.88V; e_6 = -10V$$

5.) Cálculo de todas las tensiones y las intensidades

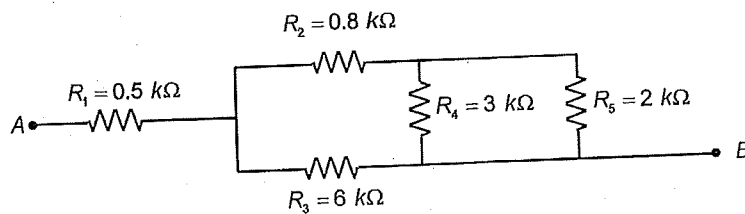


$$I_1 = 55.6 \mu A; I_2 = -305.4 \mu A; I_3 = 2.3 mA$$

$$e_1 = 49.4 V; e_2 = 100 V; e_3 = 43.4 V$$

$$e_4 = 93.7 V; e_5 = 94 V; e_6 = 80 V$$

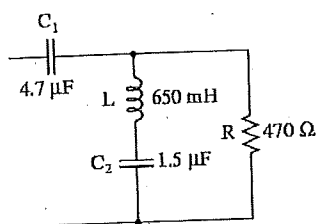
6.) Cálculo de la resistencia equivalente entre A y B



$$R_{Bal} = 2 k\Omega$$

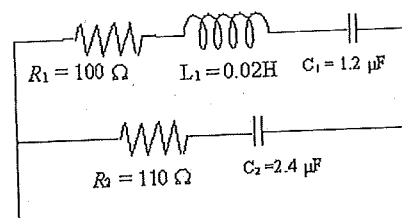
7.) Cálculo de la impedancia para la frecuencia indicada

a) 60 Hz:



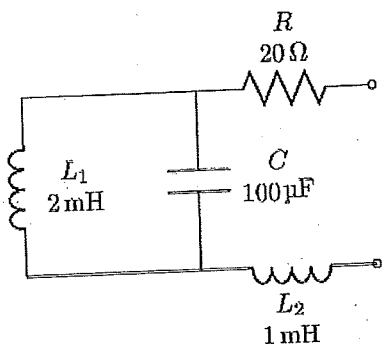
$$Z_{Bal} = (429.15 - j696.79) \Omega$$

b) 60 Hz:



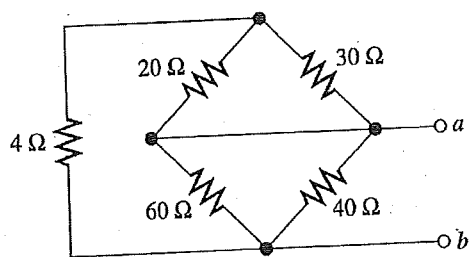
$$Z_{Bal} = (59.9 - j736.5) \Omega$$

d) 2 kHz:



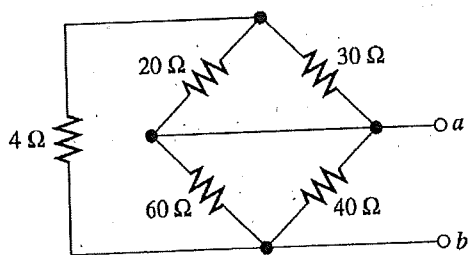
$$Z_{Bal} = (20 - j11.743) \Omega$$

f) 750 Hz:



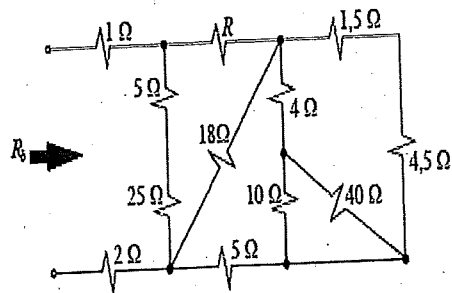
$$Z_{Bal} = 9.6 \Omega$$

e) 300 Hz:



$$Z_{Bal} = 9.6 \Omega$$

g) $R = 14 \Omega$ eta $f = 750 \text{ Hz}$:



$$Z_{Bal} = 15 \Omega$$