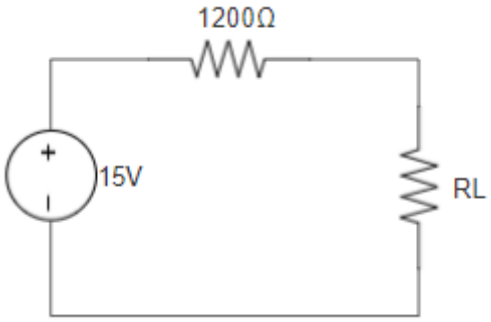
UNIVERSIDAD DE LAS FUERZAS ARMADAS ESPE
Departamento de eléctrica y electrónica
Laboratorio de introducción a circuitos

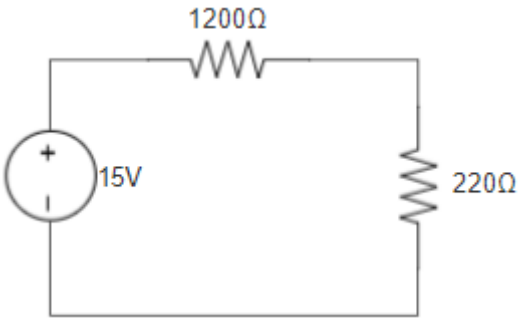


1.-Calcular Transferencia de potencia maxima en el circuito con las siguientes resistencias: 220 Ohms, 470 Ohms, 680 Ohms, 820 Ohms, 1000 Ohms, 1500 Ohms, 1800 Ohms, 2200 Ohms, 3900 Ohms y 4700 Ohms.

$$V_c = V_{Th}\frac{R_c}{R_{Th}+R_c} \tag{1}$$

$$P_c(R_c) = \frac{(V_c)^2}{R_c} \tag{2}$$

$$P_c(R_c) = (V_{Th})^2\frac{R_c}{(R_{Th}+R_c)^2} \tag{3}$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(2{,}32V)^2}{220\Omega}$$

$$P_c(R_c) = 0{,}02447W$$

$$TEORICO$$

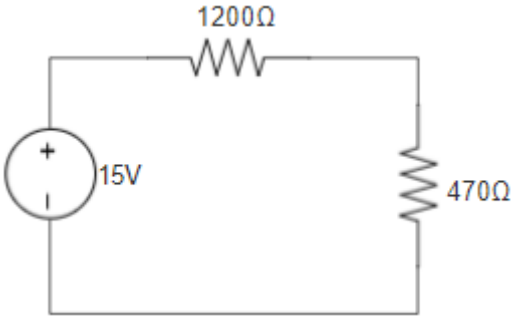
$$V_c = 15v\frac{220\Omega}{1200\Omega + 220\Omega}$$

$$V_c = 15v\frac{220\Omega}{1420\Omega}$$

$$V_c = 2{,}3239V$$

$$P_c(R_c) = \frac{(2{,}3239V)^2}{220\Omega}$$

$$P_c(R_c) = 0{,}02455W$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(4{,}22V)^2}{470\Omega}$$

$$P_c(R_c) = 0{,}03789W$$

$$TEORICO$$

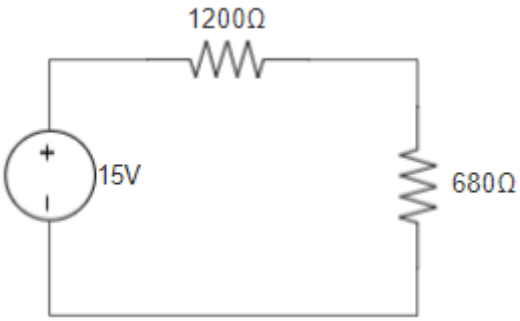
$$V_c = 15v\frac{470\Omega}{1200\Omega + 470\Omega}$$

$$V_c = 15v\frac{470\Omega}{1670\Omega}$$

$$V_c = 4{,}2216V$$

$$P_c(R_c) = \frac{(4{,}2216V)^2}{470\Omega}$$

$$P_c(R_c) = 0{,}03791W$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(5{,}43V)^2}{680\Omega}$$

$$P_c(R_c) = 0{,}04336W$$

$$TEORICO$$

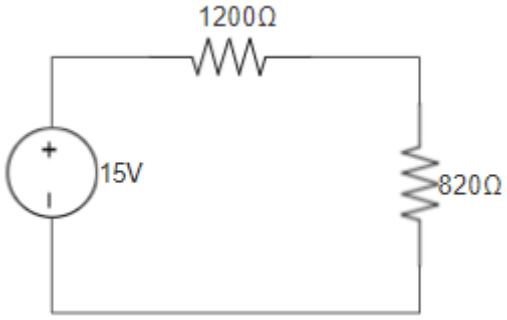
$$V_c = 15v\frac{680\Omega}{1200\Omega + 680\Omega}$$

$$V_c = 15v\frac{680\Omega}{1880\Omega}$$

$$V_c = 5{,}4255V$$

$$P_c(R_c) = \frac{(5{,}4255V)^2}{680\Omega}$$

$$P_c(R_c) = 0{,}04329W$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(6{,}09V)^2}{820\Omega}$$

$$P_c(R_c) = 0{,}04523W$$

$$TEORICO$$

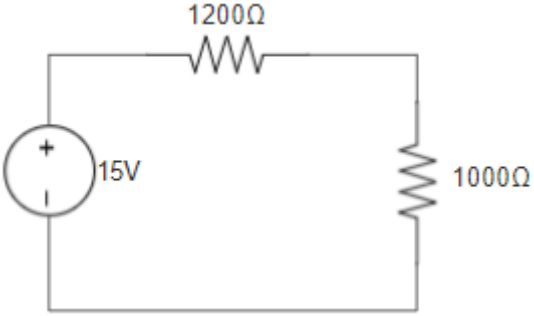
$$V_c = 15v\frac{820\Omega}{1200\Omega + 820\Omega}$$

$$V_c = 15v\frac{820\Omega}{2020\Omega}$$

$$V_c = 6{,}0891V$$

$$P_c(R_c) = \frac{(6{,}0891V)^2}{820\Omega}$$

$$P_c(R_c) = 0{,}04522W$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(6{,}82V)^2}{1000\Omega}$$

$$P_c(R_c) = 0{,}04651W$$

$$TEORICO$$

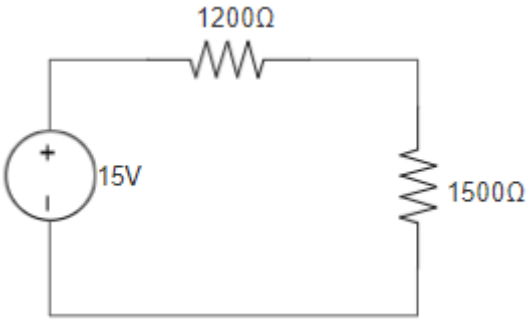
$$V_c = 15v\frac{1000\Omega}{1200\Omega + 1000\Omega}$$

$$V_c = 15v\frac{1000\Omega}{2200\Omega}$$

$$V_c = 6{,}8182V$$

$$P_c(R_c) = \frac{(6{,}8182V)^2}{1000\Omega}$$

$$P_c(R_c) = 0{,}04649W$$



$$EXPERIMENTAL$$

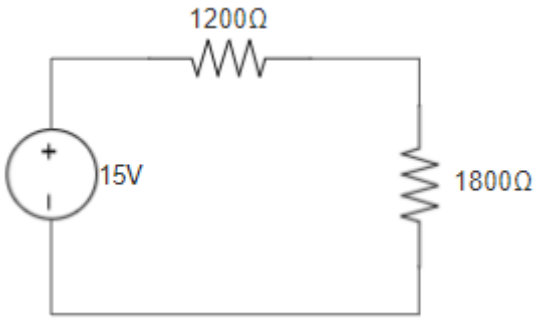
$$P_c(R_c) = \frac{(8{,}33V)^2}{1500\Omega}$$

$$P_c(R_c) = 0{,}04626W$$

$$TEORICO$$

$$P_c(R_c) = (15V)^2\frac{1500\Omega}{(1200\Omega + 1500\Omega)^2}$$

$$P_c(R_c) = (15V)^2\frac{1500\Omega}{(2700\Omega)^2}P_c(R_c) = 0{,}04630W$$



$$EXPERIMENTAL$$

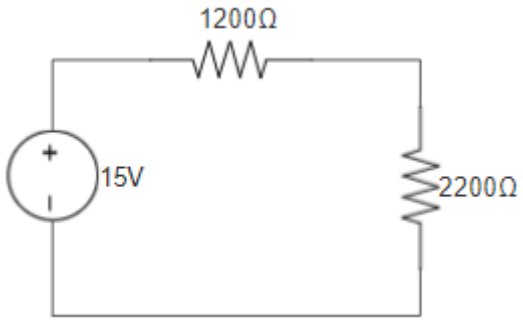
$$P_c(R_c) = \frac{(9{,}00V)^2}{1800\Omega}$$

$$P_c(R_c) = 0{,}04500W$$

$$TEORICO$$

$$P_c(R_c) = (15V)^2 \frac{1800\Omega}{(1200\Omega + 1800\Omega)^2}$$

$$P_c(R_c) = (15V)^2 \frac{1800\Omega}{(3000\Omega)^2} P_c(R_c) = 0{,}04500W$$



$$EXPERIMENTAL$$

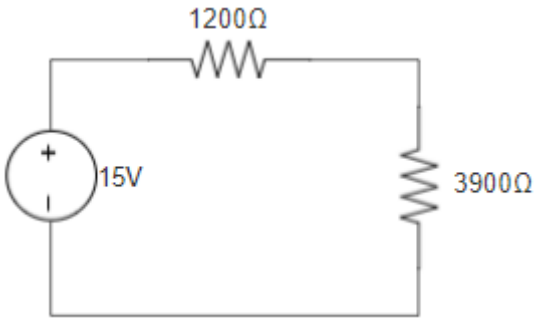
$$P_c(R_c) = \frac{(9{,}71V)^2}{2200\Omega}$$

$$P_c(R_c) = 0{,}04286W$$

$$TEORICO$$

$$P_c(R_c) = (15V)^2 \frac{2200\Omega}{(1200\Omega + 2200\Omega)^2}$$

$$P_c(R_c) = (15V)^2 \frac{2200\Omega}{(3400\Omega)^2} P_c(R_c) = 0{,}04282W$$



$$EXPERIMENTAL$$

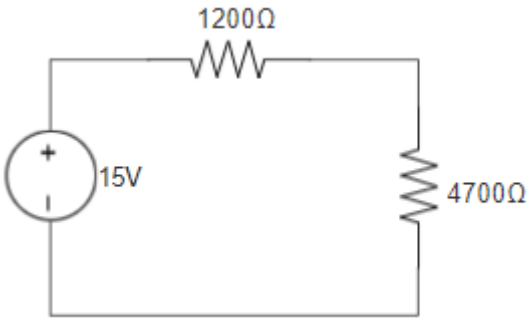
$$P_c(R_c) = \frac{(11{,}5V)^2}{3900\Omega}$$

$$P_c(R_c) = 0{,}03391W$$

$$TEORICO$$

$$P_c(R_c) = (15V)^2 \frac{3900\Omega}{(1200\Omega + 3900\Omega)^2}$$

$$P_c(R_c) = (15V)^2 \frac{3900\Omega}{(5100\Omega)^2} P_c(R_c) = 0{,}03374W$$



$$EXPERIMENTAL$$

$$P_c(R_c) = \frac{(11{,}9V)^2}{4700\Omega}$$

$$P_c(R_c) = 0{,}03013W$$

$$TEORICO$$

$$P_c(R_c) = (15V)^2 \frac{4700\Omega}{(1200\Omega + 4700\Omega)^2}$$

$$P_c(R_c) = (15V)^2 \frac{4700\Omega}{(5900\Omega)^2} P_c(R_c) = 0{,}03038W$$