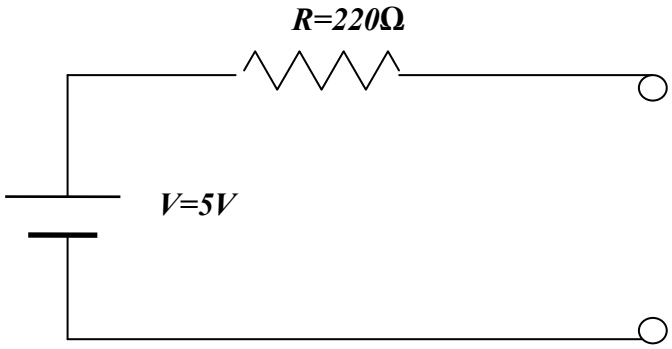
1BA5 Laboratory Experiment 1:

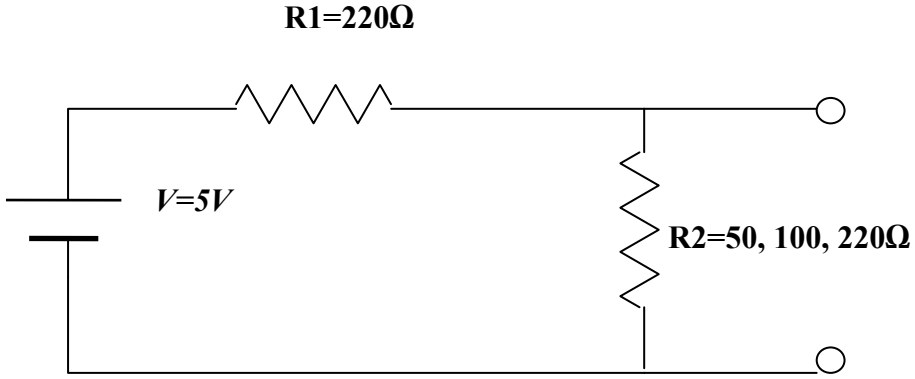
1) Connect the circuit shown in the following diagram:



2) Using a 5V d.c. supply, connect an LED (Light Emitting Diode) between the open terminals and measure:

   a) The voltage drop across the LED.
   b) The voltage drop across the resistor(s).
   c) The current through the resistor(s).

3) Connect the circuit shown below with the LED connected between the open terminals and repeat the measurements. Explain your observations.



Exercises:

Complete the following exercises and include the solutions with your report:

1. Using the circuit in the Figure 1, calculate

- The current flowing in the circuit
- The voltage drop across each resistor

2. Using the circuit in Figure 2, calculate the current flowing through each resistor in the circuit. What is the total current, I_T, flowing in the circuit?

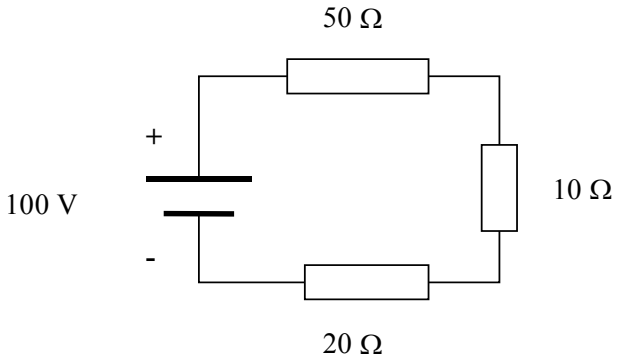


Figure 1

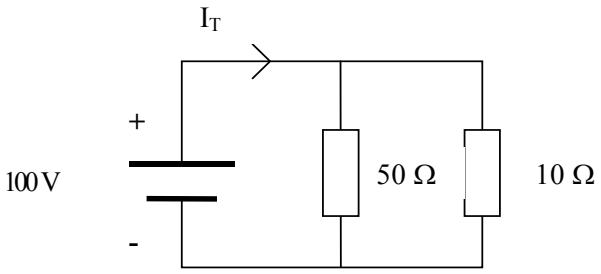
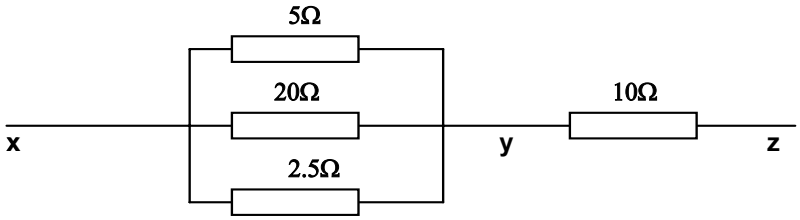


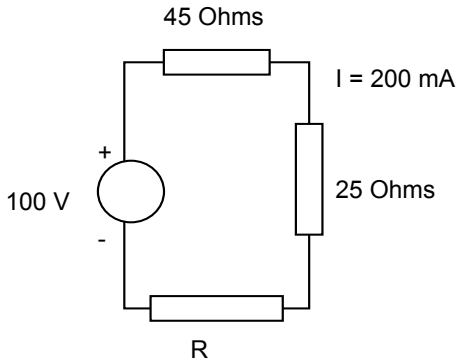
Figure 2

3. If the power dissipated in the 10Ω resistor of the circuit below is 20 watts. Determine

- The current in the 10Ω resistor
- The potential difference across XZ
- The total power dissipated in the circuit.



4. Calculate the voltage across the unknown load in the following circuit.



Laboratory Report:

Reports should be handed up at the subsequent laboratory session for your group. Your name, group number and the date should be clearly indicated on the cover page. The report for this experiment should include the circuit diagrams and the respective measurements in tabular form. From the measurements taken you should derive the resistance of the lamp in all cases. Do the results differ? Why?
The report should be written with a pen and be neat and concise (use a ruler for the circuit diagrams and tables). Students should note that ~25% of marks are awarded for presentation, ~25% for explanation and interpretation of results and 50% for the exercises. The work should be completed on A4 paper – duly bound.