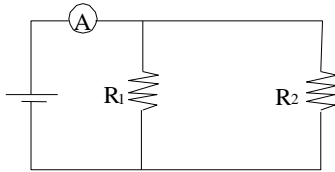


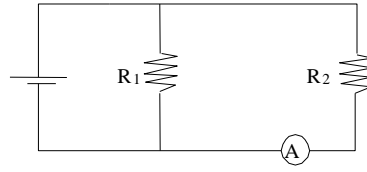
Circuit Worksheet

1. You are to connect an ammeter in such a way that you will be able to directly read the current intensity running through all the resistors. Which of the diagrams below illustrates the way the ammeter should be connected?

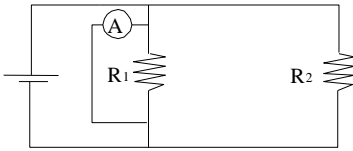
A)



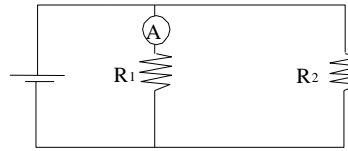
C)



B)

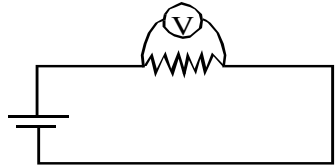


D)

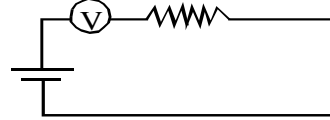


2. You have to connect a voltmeter to determine the potential difference across the terminals of a resistor in a simple circuit. In which diagram below is the voltmeter properly connected?

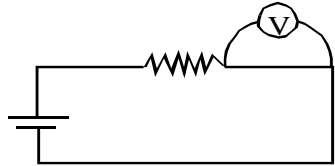
A)



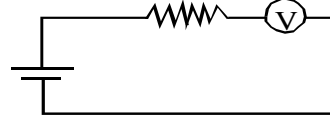
C)



B)

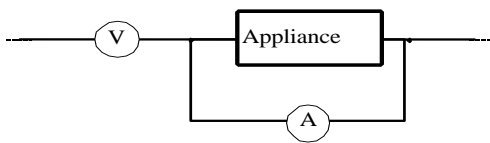


D)

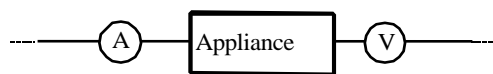


3. How must the ammeter and the voltmeter be connected?

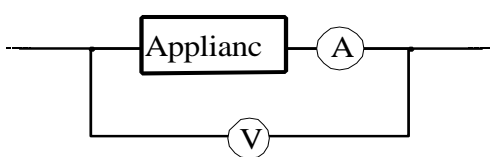
A)



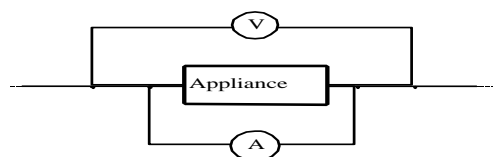
C)



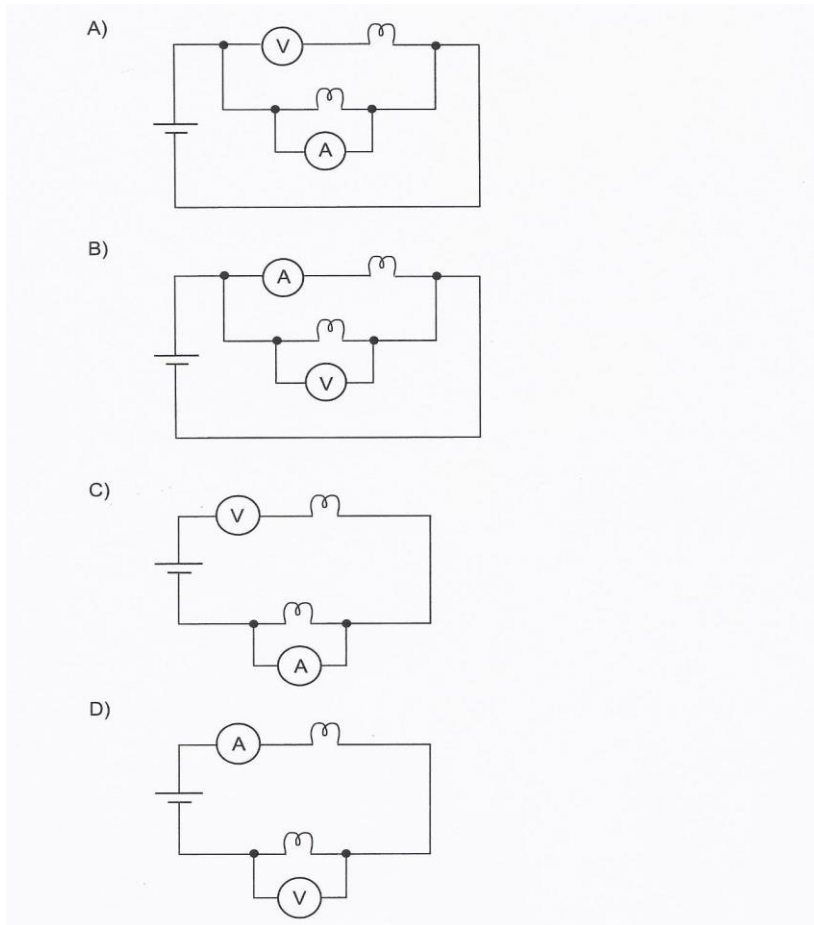
B)



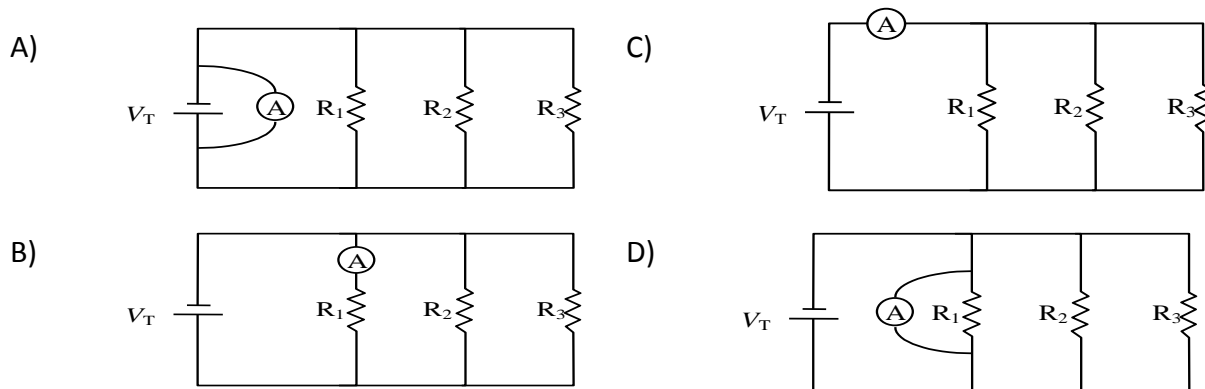
D)



4. An electrical circuit consists of two light bulbs positioned so that if one of them stops working, the other one goes out. In this circuit, we want to measure the voltage across the terminals of one light bulb and the current intensity of the circuit. Which one of the following diagrams shows the measuring instruments correctly connected to provide these measurements?

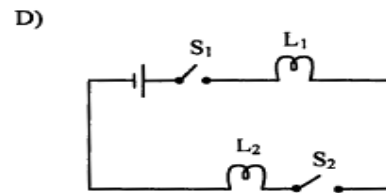
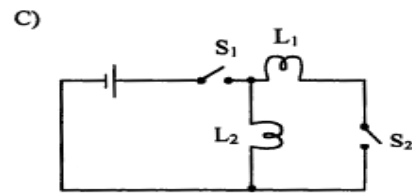
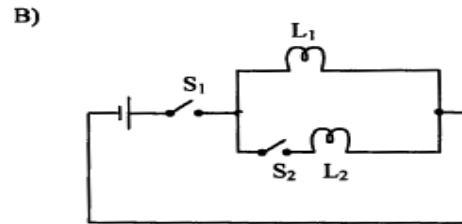
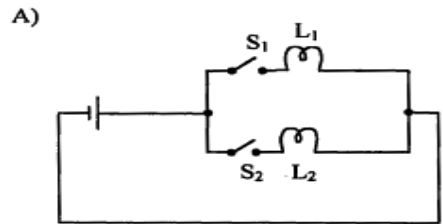


5. Which of the following circuit diagrams shows the correct connection for an ammeter that measures the current flowing through resistor R_1 ?



6. Which one of the diagrams below represents a circuit in which the following two situations are possible?

- When switch S_1 is closed and switch S_2 is open, only light L_1 will be on.
- When switch S_1 is open and switch S_2 is closed, neither light will be on.



7. Draw a parallel circuit using the following parameters:

- Three possible pathways
- A switch that controls resistor 1 only
- A voltmeter at resistor 2 (use V_2)
- An ammeter for total current (use A_t)
- A fuse controlling the whole circuit
- A fuse controlling resistor 1
- An ammeter for resistor 3 (use A_3)

8. Draw a series circuit using the following parameters:

- Two resistors and a light bulb.
- A switch between the 2 resistors.
- A voltmeter that reads total voltage (use V_t)
- A voltmeter that reads resistor 2 (use V_2)
- An ammeter that reads current for the light bulb (use A_3)
- An ammeter that reads total current (use A_t)
- A fuse which controls the circuit.

9. An electric circuit consists of the following elements :

- a power supply $\text{---}\oplus$;

- three resistors, $\begin{array}{ccc} \text{---}\text{W}\text{---} & \text{---}\text{W}\text{---} & \text{---}\text{W}\text{---} \\ R_1 & , & R_2 \end{array}$ and R_3 connected in parallel;

- an ammeter $\textcircled{A_1}$ that measures the total current intensity in this circuit;

- an ammeter $\textcircled{A_2}$ that measures the current intensity in resistor R_2 ;

- a voltmeter \textcircled{V} that measures the potential difference (voltage) across the terminals of resistors R_3 .

Draw a diagram of this circuit.

10. Draw a circuit with one pathway, include a fuse, 3 light bulbs, a control. Put an ammeter, a voltmeter for total voltage and a voltmeter for the second light bulb.

11. Draw a circuit with three pathways, include 2 resistors and a light bulb, an ammeter for total current, an ammeter for resistor 2 and 3, an ammeter for resistor 3 only, a fuse for total current, a fuse for resistor 2, a control for the whole circuit, a control for resistor 1 and a control for resistor 2 and 3.