



# Nalanda College - Colombo 10

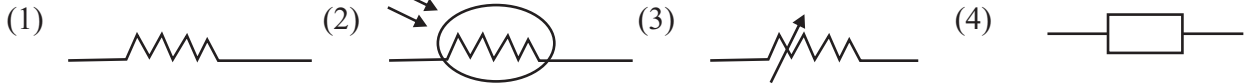
## Unit Evaluation

Grade 10

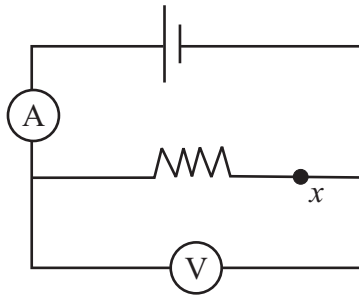
Science

Unit 6 - Current electricity (Physics)

01 Which of the following symbol is used for a light. Dependent Resistor in a circuit?



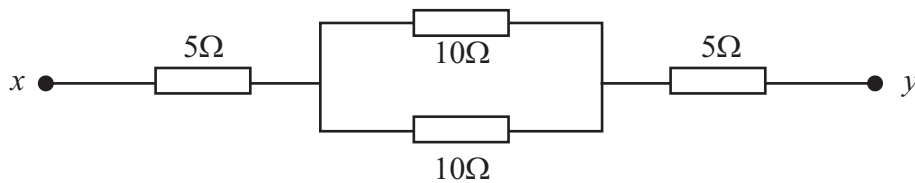
02 A student used the circuit shown to measure resistance R by taking the ammeter and voltmeter reading.



If the wire breaks at x, which of the following happens to the meter reading?

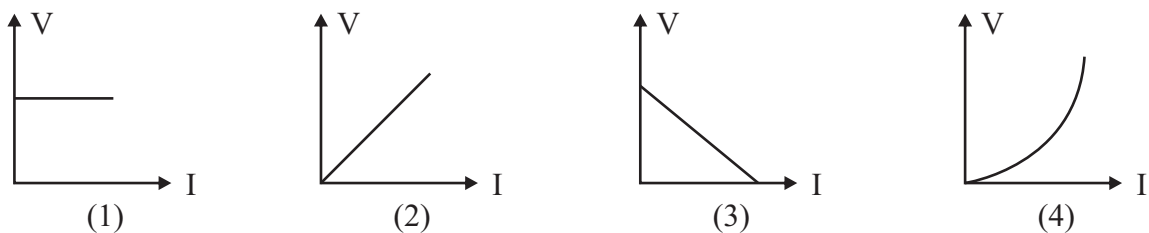
- | Ammeter       | Voltmeter  |
|---------------|------------|
| (1) increases | increases  |
| (2) increases | decreases  |
| (3) increases | stays same |
| (4) decreases | stays same |

03 Two resistors of  $10\Omega$  and two resistors of  $5\Omega$  as connected together as shown in the figure. Which of the following is the effective resistance between x and y?



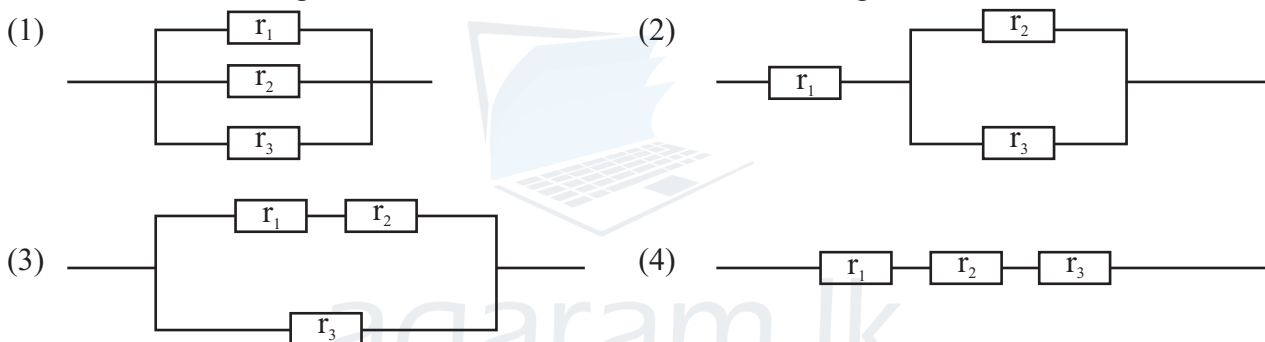
- (1)  $30\Omega$                       (2)  $10\Omega$                       (3)  $15\Omega$                       (4)  $7.5\Omega$

04 What is the correct graph of the variation of the potential difference when a current is flowing through a conductor?



- 05 The current pass through the resistor if 9V is connected to resistor of  $15\Omega$   
 (1)  $9 \times 15 \text{ A}$                       (2)  $\frac{9}{15} \text{ A}$                       (3)  $\frac{15}{9} \text{ A}$                       (4)  $\frac{9^2}{15} \text{ A}$
- 06 A current of 6A is passed through a metal coil when 24V potential difference is applied. The resistance of the coil would be,  
 (1)  $\frac{24}{6} \Omega$                       (2)  $\frac{6}{24} \Omega$                       (3)  $24 \times 6\Omega$                       (4)  $6\Omega$
- 07 Which is the false statement regarding electric conductors from the following.  
 (1) An electric current is a flow of electric charges.  
 (2) The direction of the conventional current is from the negative terminal to the positive terminal.  
 (3) The resistance of a conductor depends on the material which is made of  
 (4) The temperature of the conductor affects for the conductivity of the conductor.
- 08 The SI unit of measuring resistance is,  
 (1)  $\Omega$                       (2) A                      (3) V                      (4) W

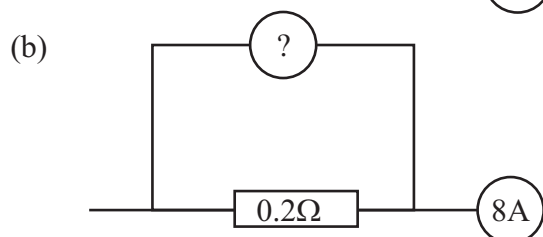
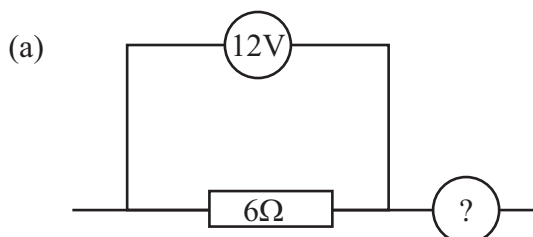
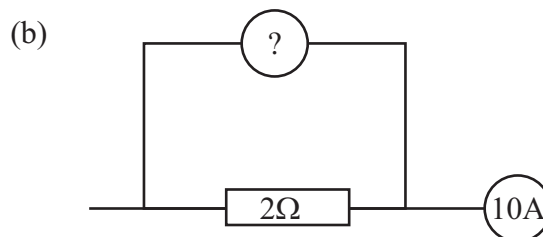
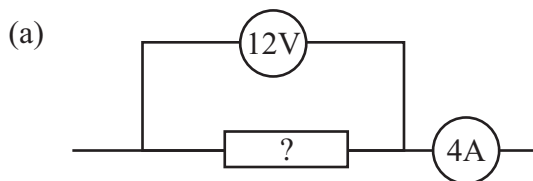
09 What is the series arrangement with three resistors from the following circuits



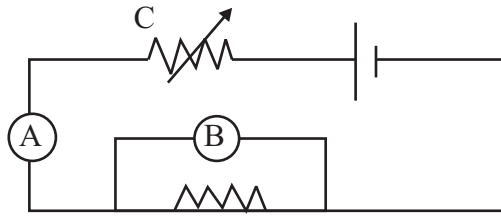
- 10 What principal out of those given below is used in the flash camera?  
 (1) Electrolysis                      (2) Electro magnetism  
 (3) Electro static                      (4) Electro dynamics

**Structured Essay Questions.**

01 A (i) In each of the following the resistance. Current or voltage to be calculated. Find the missing quantity.



(ii) Following is a circuit set up to measure the resistance R.



- (a) What are the two components marked A and B.  
.....
- (b) Give a reason to include component B in the circuit?  
.....
- (c) When a potential difference across r is 5V, the resistance was found to be  $23\Omega$ . When the resistance was measured using a current of 2.0A it was found to be  $28.4\Omega$ . Give a reason for the change in the answer.  
.....

02 A Complete the following passage.

An electric current is a flow of ..... For this to happen there must be a ..... circuit. Current is measured in ..... using ..... placed in ..... in a circuit. Potential difference is measured using ..... placed ..... the component.

B (i) Find the resistance of following resistor.

Colour	Code value
Black	0
Brown	1
Red	2
Orange	3

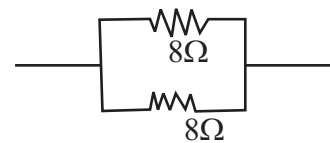
(ii) Consider the following resistor arrangements.



(A)



(B)

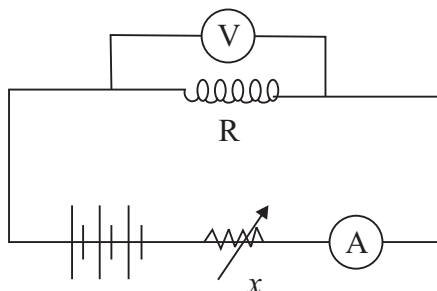


(C)

- (a) highest resistance  
.....
- (b) lowest resistance.  
.....

**Essay Questions**

01 The following circuit diagram shown the procedure of measuring resistance of Resistor (R).

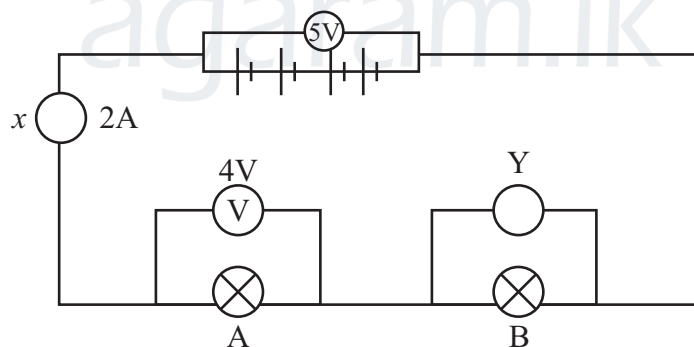


- Name the component  $x$ .
- Write a function of  $a$  in the circuit.
- The following table shows the variation of potential difference over the current in a resistor.

I(A)	V(V)
0.2	1
0.4	2
0.6	3
0.8	4
1.0	5

- Draw a graph  $V$  in  $Y$  axis vs  $I$  in  $X$  axis?
  - Using the graph find the resistance of  $R$ .
- (iv) Find the current across the resistor when  $12V$  potential difference is passed through  $6\Omega$  resistor?

02 In the circuit shown, the two bulbs are of different size and brightness.



- What type of meter is  $X$ ?
  - What type of meter is  $Y$ ?
  - What is the reading of meter  $Y$ ?
  - What is the method of connection of  $A$  and  $B$  bulbs.
- Amal needs a resistor of  $30\Omega$  and  $\frac{10}{3}\Omega$ . But he could only find 3 resistors with resistance  $10\Omega$ .
  - Briefly explain how you could make a combination of resistors to obtain  $30\Omega$  resistance.
  - Give a figure using symbols showing how you could make a combination of resistors having a resistance of  $\frac{10}{3}\Omega$ .
- Give factors affect for the resistance of a conductor rather than temperature.
- State the Ohm's law.