الصف الثالث الإعدادي

حل تقييمات Science

حل الأسبوع السادس

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3- A catalyst is used in some chemical reactions.

4- It is preferable to use divided nickel in the hydrogenation of oils.

5- Adding pieces of potato to a hydrogen peroxide solution increases the speed of the chemical reaction.

6- Food is stored in the refrigerator for a long time.

Question 4: What is meant by each of the following?

1- The speed of a chemical reaction.

2- A catalytic converter.

3 - Enzymes.

Lesson (1) : Physical Properties of Electrical Current

Week : (6) **Date: / /**

Class Performance

Am I Conductor?

You have a group of materials in front of you, select which one is better for the electrical wiring industry?

Copper (which is the most commonly used), Aluminum, Silver, Gold, Iron.

Match each of the following components to its appropriate symbol.

 Electric Cell (Battery) (1)	 Electric Lamp (Bulb) (2)	 Electric Switch (3)	 Connecting Wire (4) .....
 2	 1	4	 3

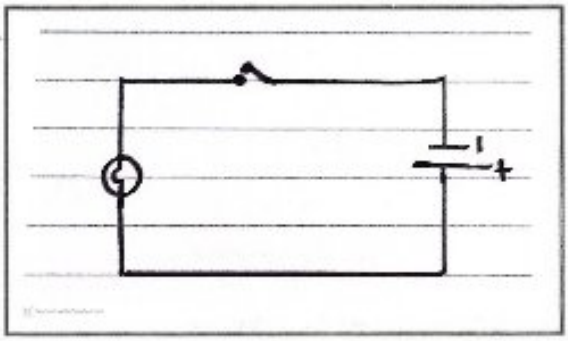
Use the previous components to form a simple electric circuit

- Electric current has a set of physical properties:

1- ..... Current Intensity ... which is symbolized by the symbol ..... I .....

2- ..... Potential Difference which is symbolized by the symbol ..... V .....

3- ..... Electric Resistance . which is symbolized by the symbol ..... R .....

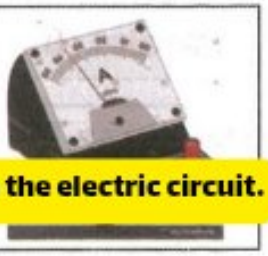


1- Identify the following device and then complete the table:

Device's Name: Ammeter .....

Symbol: It is symbolized in the electric circuit by the letter A .....

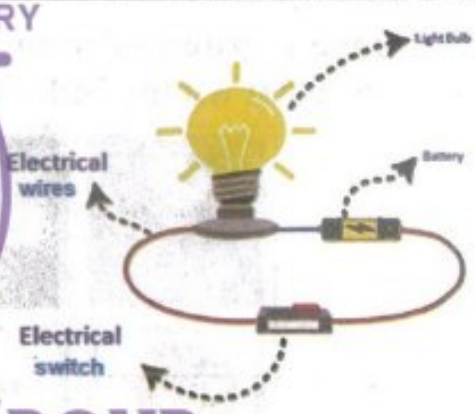
Usage: .... It is used to measure the intensity of the electric current flowing in the electric circuit.



2- Study the opposite electrical circuit:

- Then deduce the necessary conditions for lighting the lamp:

1. The presence of an electric energy source (Battery).
2. The electric circuit must be closed.
3. The lamp must be correctly connected to the circuit.
4. The presence of good conductors (Wires).
5. The lamp itself must be intact (not broken/burnt).



3- Complete the following table:

Points of Comparison	Definition	Measuring device	Unit of Measurement
Electric current intensity		Ammeter	Ampere
Potential difference		Voltmeter	Volt
The current intensity is calculated from the relation:		Quality of Electricity ÷ Time	
The potential difference is calculated from the relation:...		Work ÷ Quantity of Electricity	

1. The quantity of electricity flowing through a cross-section of a conductor in a time of 1 second.
2. The amount of work done to transfer a quantity of electricity of 1 Coulomb between the two terminals of this conductor.

Notice and then answer:

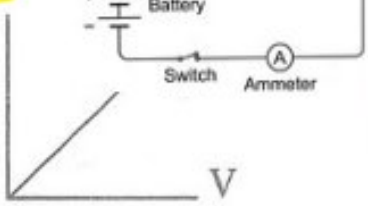
4- Study the following figures well, then mention their use and the way to connect them to the electrical circuit:

Use: The Ammeter device is used to measure the intensity of the electric current flowing in the electric circuit.
Connection Method: It is connected in series to the electric circuit.

Use: It is used to measure the potential difference between any two points or between the two terminals of a conductor in a closed electric circuit.
Connection Method: It is connected parallel to the electric circuit between any two points.

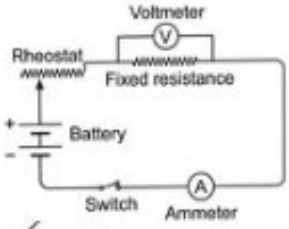
5- Study the following graph and then answer:

- Mention the law illustrated by the opposite graph ..... Ohm's Law .....



6- Illustrate with the drawing and write the labels:

- An electrical circuit that shows how to measure current intensity by using ammeter and measuring the potential difference with a voltmeter.



Part (1)

Question 1: Choose the correct answer:

1- The flow of electrical charges through a metal wire in a closed circuit represents .....
a) Electrical Resistance b) Current intensity
c) Electric Current d) Potential Difference

2- ..... is used to measure the electric current intensity.
a) Ohmmeter b) Voltmeter c) Ammeter d) Rheostat

3- If the amount of electricity passing through a conductor is reduced by half, the intensity of the electric current ..... at the same time.
a) Decreases by half b) Increases to double
c) Increases to four times d) Does not change.

4- Quantity of electric charge is measured in ..... unit.
a) Coulomb b) Joule × Volt c) Ohm d) Volt

Question Two: Complete the f

Current intensity, potential difference, and electric resistance.

1- Physical properties of electric current ..... , ... , ...

The Ammeter device is used to measure the intensity of the electric current and it is connected to the electrical circuit in series .

3- Coulomb ÷ seconds = .. Ampere which is the measuring unit of electric current intensity

4- The intensity of the electric current produced by the passing of a quantity of 100 coulomb of electricity through a cross section of a conductor in a time of 4 seconds is equal to .. 25 ..... Ampere.

(1)
Time (t) in seconds = 5 × 60 = 300 seconds

(2)
Quantity of Electricity (Q) = Current Intensity (I) × Time (t)
= 3 × 0.4 = 1.2 Coulombs

Current Intensity (I) = Quantity of Electricity ÷ Time (t)
= 6000 ÷ 300 = 20 Amperes

Question Three: variant questions:

1- Calculate the intensity of the electric current generated by the passage of a quantity of electricity of 6000 coulombs in a cross section of a conductor in 5 minutes.

2- Calculate the amount of electrical charges passing through the filament of a light bulb in a time of 0.4 seconds if you know that the current passing through it is 3 amperes.

3- Calculate the passage time of a quantity of 25 coulombs if you know that the

Time (t) = Quantity of Electricity (Q) ÷ Current Intensity (I) = 25 ÷ 10 = 2.5 seconds

Weekly assessment for week (6)

Part (1)

Question 1: Choose the correct answer:

1- Ampere is equivalent to .....
a) Joules × s
b) Coulombs/Sec.
c) Joules/Sec.
d) Joules/Coulombs

2- An electric charge of 10 coulombs passed in a time of (5 seconds) in a conductor, so the current intensity is ..... Ampere
a) 2
b) 5
c) 10
d) 20

3- The reading of the voltmeter between the poles of the electric cell in the open circuit indicates .....
a) Current intensity
b) Potential difference
c) Electrical resistance
d) Electromotive force

4- To transfer an electric charge of 10 coulomb between two points with potential difference of 20 volts, a work of ..... joule is required
a) 0.5
b) 2
c) 20
d) 200

The second question: What is meant by .....?

1- The current intensity passing through a conductor in a circuit in 10 seconds is 2 ampere.

2- The potential difference between two ends of a conductor is 5 Volt .

3- Electromotive force of a battery is 12 Volt

4- The work done to transfer a quantity of 20 coulombs between the two ends of a conductor is equal to 4400 joules.

Question Three: Compare between:

1- Ammeter and voltmeter.

2- The intensity of the electric current and the electromotive force.

Fourth Question: Problems:

1- Calculate the current intensity passing through an electrical circuit and the potential difference between the two ends is 5 volts to transfer a quantity of electricity 20 coulomb in 2 seconds.

2- If the potential difference between the two ends of an electrical source is 240 volts and the current intensity is 8 ampere, what is the electric current intensity if it is connected to an electrical source with a potential difference of 220 volts?

3- If the amount of work done to transfer an electric charge of 30 coulombs between two points is equal to 33000 joules, calculate the potential difference between the two points.

4- Calculate the work done to transfer an electrical charge of 5 coulomb through a conductor if the potential difference between the two ends of the conductor is 3 volts.

5- If the potential difference between the two ends of an electrical source is 100 volts, calculate the amount of electricity transmitted when that power source exerts a work of 200 joules.

Monthly Exercise (1)

Write the scientific term that indicates the following statements:

1- A substance that changes the speed of the chemical reaction and does not change.

2- Acid-alkaline reaction to form salt and water.

3- A substance that loses one or more electrons during a chemical reaction.

4- Breaking the existing bonds between the molecules of the reactants and forming new bonds between the molecules of the resulting substances.

5- Descending order of metals according to the degree of their chemical activity.

6- A safety mean in the car that can be inflated in emergency situations.

7- A metal can found in modern cars to treat harmful gases resulting from fuel combustion.

8- The change in the concentration of reactants and products in the unit of time.

9- Flow of negative electric charges through a conductor.

10- The amount of electrical charge flowing through a section of a conductor in a time of 1 amperes.

11- The charge transmitted by a constant current of 1 amperes per second.

12- The current intensity produced by the passage of a quantity of electricity of 1 coulomb through a cross section of a conductor per second.

13- A device used to measure the intensity of electric current.

14- The condition of the electrical conductor, which indicates the direction of transmission of electric current to or from it if it is connected to another conductor.

15- The work done to transfer a quantity of electricity of 1 coulomb between the two ends of the conductor.

Weekly assessment for week (6)

Part (1)

The second question: What is meant by…….?

1- The current intensity passing through a conductor in a circuit in 10 seconds is 2 ampere:

The electric quantity = Current intensity × Time = 2 × 10 = 20 Coulombs.

This means that the quantity of electric charge passing through a cross-section of this conductor is 20 Coulombs.

2- The potential difference between two ends of a conductor is 5 Volt:

This means that the amount of work done to transfer a quantity of electricity equal to 1 Coulomb between the ends of this conductor is 5 Joules.

3- Electromotive force of a battery is 12 Volt:

This means that the potential difference between the poles of the car battery in an open electric circuit is 12 Volts.

4- The work done to transfer a quantity of 29 coulombs between the two ends of a conductor is equal to 4400 joules.

Potential difference = Work done ÷ Quantity of electricity

= 4400 ÷ 20 = 220 Volts.

This means that the potential difference between the ends of this conductor is 220 Volts.

Question Three: Compare between:

1- Ammeter and Voltmeter

Point of Comparison	Ammeter	Voltmeter
Use	Measuring the intensity of the electric current passing through the	•Measuring the electric potential difference between the ends of a

	electric circuit.	conductor in a closed electric circuit. •Measuring the electromotive force of an electric source in an open electric circuit.
Unit of Measurement	Ampere	Volt
Symbol in electric circuit	(A)	(V)
Connection method in electric circuit	Connects in series.	Connects in parallel.

2- The intensity of the electric current and the electromotive force.

Point of Comparison	Current Intensity	Electromotive Force (EMF)
Definition	The quantity of electricity flowing through a cross-section of a conductor in a time duration of 1 second.	The potential difference between the two poles of an electric source in an open electric circuit (through which no electric current passes).
Measuring Device	Ammeter	Voltmeter
Unit of Measurement	Ampere	Volt

Fourth Question: Problems:

1- Calculate the current intensity passing through an electrical circuit and the potential difference between the two ends is 5 Volts to transfer a quantity of electricity 20 coulomb in 2 seconds.

Current Intensity = Quantity of Electricity ÷ Time

= 20 ÷ 2 = 10 Amperes.

2- If the potential difference between the two ends of an electrical source is 249 volts and the current intensity is 8 ampere, what is the electric current intensity if it is connected to an electrical source with a potential difference of 220 volts?

Electric Resistance = Potential Difference ÷ Current Intensity

= 240 ÷ 8 = 30 Ohms.

Current Intensity = Potential Difference ÷ Electric Resistance

= 220 ÷ 30 = 7.33 Amperes.

3- If the amount of work done to transfer an electric charge of 30 coulombs between two points is equal to 33000 joules, calculate the potential difference between the two points.

Potential Difference = Work Done ÷ Quantity of Electricity

= 33000 ÷ 30 = 1100 Volts.

4- Calculate the work done to transfer an electrical charge of 5 coulomb through a conductor if the potential difference between the two ends of the conductor is 3 volts.

Work Done = Potential Difference × Quantity of Electricity

= 3 × 5 = 15 Joules.

5- If the potential difference between the two ends of an electrical source is 100 volts, calculate the amount of electricity transmitted when that power source exerts a work of 200 joules.

Quantity of Electricity = Work Done ÷ Potential Difference

= 200 ÷ 100 = 2 Coulombs.