

**ATTINGAL EDUCATIONAL DISTRICT**  
**STANDARD 10 - PHYSICS**  
**UNIT 1 – EFFECTS OF ELECTRIC CURRENT**

Time: 45 minutes

EWS 1

**I. Write answers to any two of the questions 1 to 4.**

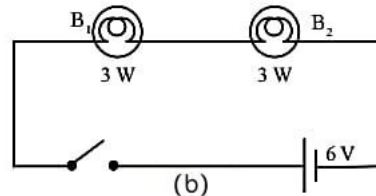
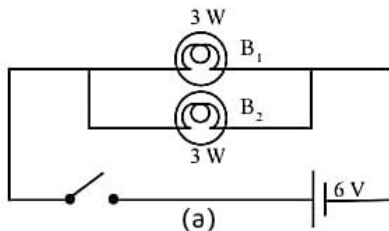
1. Observe the relation in the first pair and complete the second pair.

Electric oven : Heating effect

Electric Mixie : \_\_\_\_\_

2. Write the mathematical equation of Joules Law?

3. Observe the following circuits constructed using 3W-6V bulbs.



When the switch is on, in which circuit the bulbs glow with more intensity ?

4. Analyse the relation between words in first pair and complete the second

Electric bulb : lighting effect

Electric Iron box : \_\_\_\_\_

**II. Write answers to any two of the questions 5 to 8.**

5. Electrical energy can be converted to other forms of energy.

a. Write down the energy change in an LED bulb?

b. During lightning the fuse wire in house melts. Write the energy change happens in the fuse wire.

6. You have two wires of equal length and thickness, one of copper and the other of nichrome. Choose which one can be used for the following purposes and why?
1. electrical transmission lines
  2. electric heating appliances

7. Fill in the blanks.

The potential difference between two points will be one volt if one \_\_\_ of work is done in moving one coulomb of \_\_\_ from one point to the other.

8. Find out Heating appliances from the list below.

Heater, soldering iron, Loudspeaker, electric kettle,  
Cell, induction cooker, electric bulb

**III. Write answers to any two of the questions 9 to 12.**

9. Fill in the blanks.

A small motor is working with the help of a battery.

When the motor is working, \_\_\_(a)\_\_\_ energy is converted into electrical energy.

Motor converts this electrical energy into \_\_\_(b)\_\_\_ energy. The motor make use of \_\_\_(c)\_\_\_ effect of electric current.

10. 0.4 A current flows through a heating appliance which is connected to a 230 V supply.

- a) What is the resistance of the heating coil in this appliance?
- b) Find out the heat developed in this appliance in 10minute.

11. There are three resistors having  $6 \Omega$  resistance each,

- a) In which way you will get the maximum effective resistance and how much is it?
- b) In which way you will get the minimum effective resistance and how much is it?

12. Did you learn about heating appliances?
- Write the energy transformation happening in Electric heating appliances?
  - Name the part which converts electric energy into heat energy?
  - Which material is used to make this part?

**IV. Write answers to any two of the questions 13 to 16.**

13. a. Find the odd one out.  
Electric stove, electric bulb, induction cooker, electric heater
- What is the energy change in a storage battery while charging?
  - What is meant by the effect of electric current in a device?
  - Which effect of electric current is utilised in safety fuse?
14. 0.2 A current flows through a resistor of resistance  $100\ \Omega$  for 2 minute.
- Calculate the heat generated?
  - What will be the heat if the resistance is changed to  $200\ \Omega$  by keeping same current and time?
  - What will be the heat if current is doubled by keeping same resistance and time?
15. We can bring about change in current and voltage in a circuit by connecting the resistors in different ways.
- What are the different ways that we can connect resistors in a circuit?
  - What will be the least resistance that you can get by using  $2\ \Omega$ ,  $4\ \Omega$  and  $6\ \Omega$  resistors in a circuit. Draw the circuit.
  - when the above resistors are connected to 6V battery in parallel, what will be the current through  $2\ \Omega$  resistor?

16. Safety fuse is a device which protects us and the appliances from danger when an excess current flows through the circuit.
- a. Which are the circumstances that cause high electric current?
  - b. How is the fuse wire connected to a circuit? In series / parallel?
  - c. Which material is used to make fuse wire?
  - d. What is the peculiarity of above substance ?

ATTINGAL EDUCATIONAL DISTRICT