WORKSHEET 1

CHAPTER 9 – ELECTRICAL POWER AND HOUSEHOLD CIRCUITS

A. Tick (✓) the correct option.

1. In loudspeaker, electrical energy is converted into
   a. light energy. b. sound energy. c. chemical energy. d. none of these.
2. SI unit of electrical energy is
   a. watt. b. volt. c. joule. d. dioptre.
3. The commercial unit of power is
   a. dioptre. b. ohm. c. kilowatt-hour. d. horsepower.
4. The colour of neutral wire according to new convention is
   a. indigo. b. red. c. light blue. d. orange.
5. A fuse rated as 15 A can stand current upto
   a. 30 A. b. infinity. c. 45 A. d. 15 A.

B. Fill in the blanks.

1. A _____ is based on heating effect of current.
2. The maximum current which can flow through a fuse without melting it, is called its _____
3. _____ of an electric wire is done to protect the user from any accidental electrical shock.
4. In our country, we get domestic electric supply at _____
5. The rate at which electrical energy is consumed in an electric circuit is termed as _____

C. State whether the following statements are true or false.

1. The valve of the voltage and power of an electrical appliance taken together is called its rating.
2. The earth (E) and the live (L) of the wiring are kept common for all circuits in the house.
3. If any one of the appliances is switched off, all the appliances will stop working in series combination.
4. Cut-out type fuse is commonly used in domestic circuits.
5. A fuse protects the electrical circuit from overloading.

D. Match the following.

1. Power	joule
2. Electrical energy	horsepower
3. Fuse	3.6×10^6 J
4. Commercial unit of power	watt
5. 1 kWh	overloading

Name: ..... Teacher's signature: .....

Class: X Date: .....

E. Answer the following questions.

Very short answer questions

1. What is the commercial unit of power?
2. Name the wires used in supply of electric power.

Short answer questions

1. What is an electric fuse?
2. Convert 1 kWh into joule.

Long answer questions

1. What safety precautions should be taken while using electricity or any electrical appliance?
2. A current of 2 A flows through a 6 V car headlight bulb for 5 minutes. How much energy transfer in kJ occurs during this time?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. b
2. c
3. d
4. c
5. d

B. Fill in the blanks.

1. fuse
2. rating
3. Earthing
4. 220 V
5. electric power

C. State whether the following statements are true or false.

1. T
2. F
3. T
4. T
5. T

D. Match the following.

1. Power	watt
2. Electrical energy	joule
3. Fuse	overloading
4. Commercial unit of power	horsepower
5. 1 kWh	3.6×10^6 J

E. Answer the following questions.

Very short answer questions

1. Horsepower (h.p.)
2. Live wire (L), neutral wire (N), and earth wire (E).

Short answer questions

1. An electrical fuse is a safety device consisting of a short piece of metal or metal alloy, inserted in a circuit, which melts and breaks the circuit if current exceeds a safe value, hence, preventing, the electrical appliances in circuit from getting damaged.
2. 1 kilowatt hour (kWh) = 1 kilowatt × 1 hour
   = 1000 watts × 1 hour
   = 1000 J/s × 3600 s
   = 3.6×10^6 J

Long answer questions

1. To avoid accidental loss, the following precautions should be taken.

   Wiring: Only good quality electrical wires should be used in electrical circuits.

   Fuse: Each circuit should have a fuse of proper rating. Fuse should be connected to the live wire.

   Earthing: All electrical appliances must be properly earthed.

   Electrical connections: All electrical connections as switches, plugs, sockets, etc. must be tight.

   Joints in wire: All electrical joints should be properly covered with insulation tapes.

2.

$$I = 2 \text{ A}$$

$$V = 6 \text{ V}$$

$$t = 5 \text{ min} = \frac{5}{60} \text{ h} = \frac{1}{12} \text{ h}$$

$$W = V \times I \times t$$

$$= 16 \times 2 \times \frac{1}{12} = 1 \text{ Wh}$$

$$= 1 \times 10^{-3} \text{ kWh}$$

$$1 \text{ kWh} = 3.6 \times 10^6 \text{ J}$$

$\therefore$ Total energy transferred $= 10^{-3} \times 3.6 \times 10^6$

$$= 3.6 \times 10^3 \text{ J}$$

$$= 3.6 \text{ kJ}$$