1. State the purpose of kWh meter.

   Answer:

   Purpose of kWh meter is to measure the electric energy consumed in kWh for which the electricity bill is to be paid. i.e. units of energy consumed.

2. One day the meter reading is found to be 7643 units while next day, it was 7657 units. What is the consumption of electricity in a day?

   Answer:

   Final reading 7657 units

   Initial reading 7643 units

   Consumption of electricity in a day

   =Final reading-initial reading

   = 7657 – 7643

   = 14 units.

3. A source of potential difference V volt sends current I ampere in a circuit for time t second. Write expressions for electrical energy supplied by the source.

   Answer:

   Potential difference V is the work done in moving a unit charge

   ∴ Work done in moving a charge Q through pot. diff. V = QV

   i.e. W = QV

   but = Q / t = I Or Q = It

   ∴ W = VIt

   Work done = Electrical energy

   Electrical energy = VIt is the expression

4. Name the unit in which you pay the cost of your electricity bill. How is it related to joule?

   Answer:

   UNIT in which the electricity bill is charged is board of TRADE

   UNIT = kWh

   1 Unit = kWh=3600000 J = 3.6×10^6 J

   1 kWh= 3.6×10^6 J

5. What is an electric fuse? State its purpose in the household electrical circuit.

   Answer:

   FUSE: "Is a safety device which is used to limit the current in an electric circuit.

   PURPOSE OF FUSE IN HOUSE HOLD CIRCUIT : It safe guards the circuit and the appliances are connected in the circuit from being damaged if the current in the circuit exceeds the specified value due to voltage fluctuation or short circuiting.

6. Can we use copper wire as a fuse wire? Give reason.

   Answer:

   Copper wire cannot be used as a fuse wire since meting point of Cu is higher and resistance is very low and current can flow through it without melting it and without breaking the circuit.

7. How is M.C.B. superior to the fuse wire?

   Answer:

   M.C.B. automatically fall down and switch off the circuit in very short time, when excessive flow of electric current in a circuit. It is raised up after the fault is rectified.

8. Why is the metal covering of an electrical appliance earthed?

   Answer:

   EARTHING OF THE APPLIANCE: To protect from the electric shock electric appliance is earthed. Sometimes due to break of insulation of wires, live wire comes in contact with the body of appliance and we get a fatal shock when the appliance is touched. If the appliance is earthed, the current will pass to the earth and we remain protected from the electric shock.

9. An electric iron of power 1.5 kW is used for 30 minute to press the clothes. Calculate the electrical energy consumed in kilowatt hour

   Answer:

   $P = \frac{w}{t}$ $\therefore$ Eelectrical energy $W = P \times t$

   $P = 1.5$ kW $t = 30$ minute $= \frac{30}{60} = \frac{1}{2}$ hr

   $1.5 \times \frac{1}{2} = 0.75$ kwh

10. Assuming the electric consumption per day to be 12 kWh and the rate of electricity to be ?6.25 per unit, find how much money is to be paid in a month of 30 days?

Answer:

Electric energy consumed per day = 12 kWh = 12 units

Electric energy consumed in 30 days = 12 × 30 = 360

units Cost to be paid in 1 month = 360 × 6.25 = ₹ 2250

11. In a premise 5 bulbs each of 100 W, 2 fans each of 60 W, 2 A.Cs each of 1.5 kW are used for 5 h per day. Find :

(a) total power consumed per day,

(b) total power consumed in 30 days,

(c) total electrical energy consumed in 30 days.

(d) the cost of electricity at the rate of ₹ 6.25 per unit.

Answer:

Power consumed by

5 bulbs = 5 × 100 = 500 W

2 fans = 2 × 60= 120 W

2 A.C = 2 × 1.5 x 1000 = 3000 W

(a) Total power consumed per day = 3620 W

(b) Total power consumed in 30 days = $\frac{3620}{1000}$ × 30 = 108.6 kw

(c) Electric energy is used for 5 h per day.

Total electrical energy consumed in 30 days.

(d) Cost of electricity = P × t = 108.6 × 5 = 543 kWh

= 543 × 6.25 = ₹ 3393.75