St. Lawrence High School

A Jesuit Christian Minority Institution

Term : Pre – Test

Solution of Work Sheet – 19

Class – X | Subject – Physical Science | Date – 18.06.20

Chapter – Current Electricity | Topic – Electric Energy

Choose the correct option for the following questions. $1 \times 15 = 15$

1. The power of an electrical appliance is P watt. It can be connected to a maximum voltage of V volt. Then the resistance of the appliance in ohm unit is –
   a. $\frac{V}{P}$
   b. $\frac{P}{V}$
   c. $\frac{P^2}{V}$
   d. $\frac{V^2}{P}$

   Ans: d. $\frac{V^2}{P}$
2. Chose the correct relation –
   a. Joule = coulomb x volt
   b. Joule = Ampere x volt
   c. Watt = joule x sec
   d. Watt = volt x coulomb

   Ans: a. Joule = coulomb x volt
3. Which one of the following is in the dimension of energy?
   a. Watt
   b. Watt x Ampere
   c. Volt x Ampere
   d. Volt x Ampere x Second

   Ans: d. Volt x Ampere x Second
4. The commercial unit of electric energy is B.O.T. 1 B.O.T =
   a. 1 Watt-hr
   b. 1000watt-sec
   c. 100 watt-hr
   d. 1kwatt-hr

   Ans: d. 1kwatt-hr
5. A 100 watt electric bulb can be connected to a maximum ac voltage of 220 volt. What will be the maximum allowable current through the bulb?
   a. $\frac{10}{22}$ A
   b. 2.2 A
   c. 1.2 A
   d. 2.1 A

   Ans: a. $\frac{10}{22}$ A

6. The power ratings of two fans are 200v, 50w and 200v, 40w respectively. If they are now connected in series with the 200v supply, then what will be the current through them?
   a. 9 A
   b. 1 A
   c. $\frac{1}{9}$ A
   d. 0.9 A
   Ans: c. $\frac{1}{9}$ A
7. In the above problem, what will be the ratio of the currents through 1st to the 2nd when connected individually to the 200v supply?
   a. $1:1$
   b. $4:5$
   c. $5:4$
   d. None of these
   Ans: c. $5:4$
8. A four star refrigerator uses 30 unit electric energy in one month. If it is switched on everyday for 10 hrs (by the auto- cut system), then what is the power rating of the refrigerator ?
   a. 300 w, 220 v
   b. 200w, 220 v
   c. 150 w, 220 v
   d. 100 w, 220v
   Ans: d. 100 w, 220v
9. Let the power rating of your laptop is 90w, 220v, 50Hz. If you keep it switched on unnecessarily for 2hrs every day, then what will be the amount of money you are wasting on it in one month? (per unit cost = Rs. 5.00)
   a. Rs. 27.00
   b. Rs. 35.00
   c. Rs. 42.00
   d. Rs. 270.00
   Ans: a. Rs. 27.00
10. Power ratings of two appliances are given as 10w, 220v and 50w, 220v respectively. If they are used for same time duration, then what will be the ratio of the electric bill on them?
    a. $1:50$
    b. $1:10$
    c. $1:5$
    d. $1:1$
    Ans: c. $1:5$
11. If in the above case, the use of first is n-times that of other, then the ratio of electric bill on them will be –
    a. $n:5$
    b. $5:n$
    c. $5n:1$
    d. $1:5n$
    Ans: a. $n:5$
12. An appliance with higher power value –
    a. Will draw less current and use less electric energy
    b. Will draw high current and use less electric energy
    c. Will draw less current but uses higher electric energy
    d. Will draw high current and use higher electric energy
    Ans: d. Will draw high current and use higher electric energy

13. When connected to 220v supply, the current through the filament of an electric bulb is recorded 0.5 A. If it is switched on for ‘t’ hr, then what will be the amount of electrical energy consumed by it in commercial unit?
    a. $\frac{22t}{100}$
    b. $\frac{22t}{50}$
    c. $\frac{11t}{100}$
    d. $\frac{11t}{50}$

    Ans: c. $\frac{11t}{100}$

14. In the above problem, what will be the monthly expense on the bulb, if it is used 12hrs daily? (per unit cost = Rs. 5.00)
    a. Rs. 198.00
    b. Rs. 189.00
    c. Rs. 298.00
    d. Rs. 98.00

    Ans: a. Rs. 198.00

15. In the above problem, what will be the current through the bulb if it is connected to a 330v supply?
    a. $\frac{3}{2}$ A
    b. $\frac{3}{4}$ A
    c. $\frac{2}{3}$ A
    d. $\frac{4}{3}$ A

    Ans: $\frac{3}{4}$ A

Name of the teacher – Soumitra Maity