St. Lawrence High School

A Jesuit Christian Minority Institution

Solution of Work Sheet – 4

Class – X | Subject – Physical Science | Date – 15.04.20

Chapter – Thermal Phenomena | Topic – Conduction of heat

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

1. Heat energy always flows from –
   a. Higher temperature region to lower temperature region
   b. lower temperature region to higher temperature region
   c. Higher heat region to lower heat region
   d. lower heat region to higher heat region.
   Ans: a. Higher temperature region to lower temperature region

2. During conduction –
   a. Molecules of conducting material move from one end to the other end of conductor
   b. Molecules remain absolutely static
   c. Molecules vibrate about their mean position
   d. None of these
   Ans: c. Molecules vibrate about their mean position

3. Amount of flow of heat depends upon –
   a. Nature of the conductor
   b. Temperature difference between two ends of conductor
   c. The length and are of cross section of the conducting material
   d. All of the above
   Ans: d. All of the above

4. The rate of flow of heat depends upon –
   a. Length and area of cross section of the conducting material
   b. Temperature difference between two ends of conductor
   c. Conductivity of the material
   d. All of these
   Ans: d. All of these

5. The conductivity of any conductor depends on –
   a. length and area of cross section of the conducting material
   b. Temperature difference between two ends of conductor
   c. The time duration of flow of heat
   d. None of these
   Ans: d. None of these

6. The C.G.S unit of heat is –
   a. Joule
   b. Cal
   c. Watt

d. Erg

Ans: b. Cal

7. The SI unit of heat is –
   a. Joule
   b. Cal
   c. Watt
   d. Erg

   Ans: a. Joule

8. The C.G.S unit of thermal conductivity of conductor is –
   a. $J/cm - ℃ - sec$
   b. $J/m - ℃ - sec$
   c. $J/m - K - sec$
   d. $Cal/cm - ℃ - sec$

   Ans: d. $Cal/cm - ℃ - sec$

9. The SI unit of thermal conductivity of conductor is –
   a. $Watt/m - K$
   b. $J/m - ℃ - sec$
   c. $J/m - K - sec$
   d. Both a. and c.

   Ans: d. Both a. and c.

10. Thermal resistivity is the –
    a. Thermal resistance offered by a conductor
    b. Thermal resistance offered by an insulator
    c. Reciprocal of thermal conductivity
    d. Reciprocal of thermal resistance

    Ans: c. Reciprocal of thermal conductivity

11. Thermal resistance of a conducting slab –
    a. Increases if area of cross section increases
    b. Increases if length increases
    c. Decreases if length increases
    d. Does not depend on length and area of cross section

    Ans: b. Increases if length increases

12. Thermal resistivity of a conducting slab –
    a. Increases if area of cross section increases
    b. Increases if length increases
    c. Decreases if length increases
    d. Does not depend on length and area of cross section

    Ans: d. Does not depend on length and area of cross section

13. The SI unit of thermal resistance is –
    a. $K/Watt$
    b. $Watt/K$
    c. $℃/cal$

d. $Cal/℃$

Ans: a. $K/Watt$

14. The C.G.S unit of thermal resistance is –
    a. $K/Watt$
    b. $Watt/K$
    c. $℃ - sec/cal$
    d. $Cal/℃$

    Ans: c. $℃ - sec/cal$

15. If a cylindrical (solid) metal wire is stretched to make its length three times that of initial previous length, then the thermal resistance will –
    a. Remain unchanged
    b. Become three times
    c. Become $\frac{1}{3}$ rd
    d. Become nine times.

    Ans: d. Become nine times.

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