BIJENDRA PUBLIC SCHOOL, PURNEA

Class - 7

Subject - SCIENCE

Chapter - 4 HEAT

A. Very Short Answer Questions:

1. Which of the two - Celsius or Farenheit, scale is more convenient to use?

Ans. Celsius scale is more convenient to use because the Celsius scale has 100 divisions in total.

2. Which property of matter is used in the measurement of temperature?

Ans. Thermal property of matter is used in the measurement of temperature.

3. Name one natural phenomenon which occurs due to the convection currents in air.

Ans. The natural phenomenon which occurs due to the convection current are sea breeze and land breeze.

4. Which is the fastest mode of heat transfer: Conduction, Convection or Radiation?

Ans. The fastest mode of heat transfer are Radiation.

5. Name a device which prevents loss / gain of heat by any mode of heat transfer.

Ans. Thermos bottle is the device which prevents loss / gain of heat by any mode of heat transfer.

B. Short Answer Questions:

1. Write two similarities between a laboratory thermometer and a clinical thermometer.

Ans. Two similarities between a laboratory thermometer and a clinical thermometer are:

i. The thermometric liquid used in both thermometer is mercury.

ii. Scale of thermometer in both thermometer is Celsius scale.

2. What kind of material is used for

a. making cooking utensils?

b. making the handles of the cooking utensils?

Ans. a. Making cooking utensils: Good conductors of heat for ex:- metals and their alloys are used for making cooking utensils.

b. Making the handles of the cooking utensils: Nonconductors of heat are used for making handles of the cooking utensils.

3. Why is heat transfer by convection possible only in liquids and gases?

Ans. Heat transfer by convection is possible only in liquids and gases because in this method heat is carried from hotter part of a substance to its colder part by the actual movement of hot particles.

4. Differentiate between a conductor and non-conductor of heat.

Ans. Conductor of heat : The materials which allow heat to flow through them easily are called good conductors of heat.

For example:- Silver, Copper, Aluminium, Iron etc.

Non-conductors of heat: The materials which do not allow heat to flow through them are called nonconductors of heat.

For example : Wood, Paper, Glass etc.

5. Why are ventilators provided near the ceiling of rooms?

Ans. Ventilators provided near the ceiling because warm air being lighter rises up and leaves the room through ventilators and fresh air from outside enters the room through the doors and windows.

C. Long Answer Type Questions:

1. What is meant by a temperature scale? Describe Celsius scale.

Ans. A system of measuring temperature on a scale is called temperature scale.
Celsius scale : The Celsius scale temperature was designed by Anders Celsius. On this scale temperature is described in degree Celsius (ºC). It is a metric scale of temperature. The lower fixed point of the Celsius scale is taken as 0º C and the upper fixed point is taken as 100º C.

2. Describe a clinical thermometer. Why doesn't a clinical thermometer contain markings above 42º C?

Ans. A clinical thermometer is used for measuring the body temperature of humans and animals. It has a kink in the capillary tube just above the bulb and when the mercury expands, it pushes through the kink.
A clinical thermometer doesn't contain marking above 42º C because it's used to measure human temperature and human's temperature never exceeds 42º C.

3. What are the good conductors and non-conductors of heat? Give two examples of each.

Ans. Those material which allow heat to pass through them easily are called good conductors heat.
For example: All metals and their alloys
Those material which do not allow heat to pass through them easily are called poor conductors of heat.
For example : Wood, Paper

4. Why do woollen clothes keep us warm when it is cold outside?

Ans. Woollen clothes keep us warm when it is cold outside because wool fibre is porous. It has air trapped inside the pores. Air is a non conductor of heat. So that it doesn't allow the body heat to escape to the surrounding and keep us warm during winters.

5. Define radiation and radiant heat.

Ans. Direct transfer of heat from a hot body to a cold body having no contact between them and without the help of any medium is called radiation.
The heat transferred by radiation is called radiant heat or thermal radiation.

D. Tick (✓) the Odd-One out giving reason:

1. Heat, Temperature, Convection, Celsius Scale

Ans. Convection : It is a mode of transfer of heat.

2. Joule, Kilojoule, Kilocalorie, Calorie, Degree

Ans. Degree: Because remaining are the units of energy where as temperatures.

3. Mercury, Glass capillary, Thermometer, Degree, Joule

Ans. Joule :- Others are referred to thermometer.

4. Metals, Plastics, Water, Air, Wood

Ans. Metals: Others are nonconductors of heat.

5. Sea breeze, Ventillation, Thermal radiations, Ocean currents

Ans. Thermal radiations: Others are related with convection currents.

E. Define the following terms:

1. Heat : Heat is a form of energy which causes the sensation of hotness and coldness. In other words, when there is a difference in temperature between two bodies, heat energy flow between them. If it flows outs of a body, it colds the body and if it flow into a body it warms the body. Heat is measured in calories. The SIunit of heat is Joule.

2. Conduction of heat: The process in which heat is transferred from one particle to another in the direction of lower temperature without the actual movement of particles of the medium is called conduction of heat.
   For example: If we hold the one end of copper wire over the flame, its other end becomes hot after sometime due to conduction of heat.

3. Infrared radiation:

Ans. The light whose wavelength is longer than that of visible red light is known as infrared light. Almost one third of the light that we receive from the sun is infrared. It has the property to produce heating effect.

4. Land breeze:
   After sunset, land losses heat faster than the sea water. As a result, the air over the sea is warmer at night. The air over the sea being warmer rises up and to take its place, cooler air from the land starts moving towards the sea. The convection current from land to the sea is called land breeze.

5. Convection current:

Ans. When water is heated in a round bottom flask, water near the bottom of the flask gets heated first. Warm water is lighter than the surrounding cold water. So, it rises up. The colder water from the surroundings moves down, gets heated and rises up. This process continues, until the entire water attains a uniform temperature.

This cyclic movement of water is called convection current.