

Notes

Heat $\rightarrow$ Heat is a form of energy that causes the generation of 'hotness' or 'coldness'.

Temperature $\rightarrow$ The degree of hotness or coldness of an object on some chosen scale is called its temperature.

Unit of Temperature $\rightarrow$ The SI unit of temperature is Kelvin (K). Commonly used units of temperature are degree Celsius ($^{\circ}\text{C}$) and degree Fahrenheit ($^{\circ}\text{F}$).

Thermometer $\rightarrow$ The temperature of an object/body is measured by using a device called thermometer.

Transfer of heat $\rightarrow$ The flow of heat from an object at a higher temperature to another object or to another part of the same object at a lower temperature is called transfer of heat.

Conduction $\rightarrow$ Conduction is the process of transfer of heat in an object from



the hotter end to the colder end without any actual movement of the molecules of the material.

Convection $\rightarrow$ liquid and gases are heated by another process of heat transfer called convection.

Radiation $\rightarrow$ The heat energy transferred without the need of any medium is called radiant heat. Radiation is the process of transfer of heat from a hot object to a cold object without any medium. Radiation needs no medium.

Short answer Type - I Questions:-

Q. Why is mercury thermometer preferred over alcohol thermometer?

Ans. Mercury is the only one in liquid state at room temperature. It is used in thermometers because it has high coefficient of expansion. Hence, the slightest change in temperature is notable. When it is used in a thermometer it also has a high boiling point which makes it very suitable to measure higher temperature.

Q. Define conduction. Give one example to show the heat transfer by conduction?

Ques 32 Answer in Notes.

Q33 Define radiation. Give one example to show the heat transfer by radiation?

Ans 32 Answer in Notes.

Q34 What are the two conditions necessary for the conduction of heat?

Ans 34 The factor or condition that is necessary for heat transfer to occur is the temperature difference. Heat always flows from the hotter object to the cooler one. Heat transfer can occur in three ways: Conduction, Convection and Radiation.

Q35 Give two uses of insulators.

Ans 35 They may protect heat, sound and the passage of electricity. Thermal insulators, sound insulator and electrical insulators are used for various reasons, from keeping houses warm to protecting electrical wires and soundproofing rooms.

Q36 Convert 77°F into degree Celsius.

$$\begin{aligned}\text{Ans 36 } \frac{C}{5} &= \frac{F-32}{9} \\ &= \frac{C}{5} = \frac{77-32}{9}\end{aligned}$$



Q7) Why are warm heaters kept at the ground level?

Ans) Hence, heater is placed near the floor because the air currents move upwards so the hot air fills up the whole room. Similarly if the air conditioner is placed near the ceiling because it gives out cool air... So it is placed near the ceiling because the cool (high density) air tends to settle downwards.

Q8) Why does wearing more layers of clothing during winter keep us warmer than wearing just one thick piece of clothing?

Ans) During winters, we prefer wearing more layers of clothing than just one thick piece of clothing because air gets trapped in between the various clothing layers. Being a poor conductor of heat, air prevents heat loss from our body. Hence, layers of clothing keep us warmer than a single layer.

Q9) What is sea breeze?

Ans) The cool air from the sea blowing towards the land is called sea breeze.

Short answer type-II :-





Don't hold the thermometer by the bulb.

(b) What do you learn from pyrometry?
Ans We should learn that be aware of any type of situation and handle of it.

Along answer/question:-

Q17 Describe the construction of a clinical thermometer. How should we use a clinical thermometer?

Ans A thermometer used to measure the temperature of human body. A clinical thermometer has a constriction near the bulb in it. Due to this, mercury thread does not fall on removing the bulb from the mouth of the patient.

Q18 Give reasons for the followings:-

(a) Cooking utensils are made of metals.

Ans It is because metals conduct heat very quickly. This is the only reason. To do cooking in less time metals are used.

(b) Pressure cooker is provided with bakelite handle.

Ans The handle needs to be made of something

that does NOT conduct heat very well. A metal handle would become red-hot. Pressure cooker handles are made up Bakelite; a thermosetting plastic.

(c) Chimneys are jitted in factories.

~~Ans~~ Long chimneys take the harmful smoke and gases produced in the factories high up in the air so as to reduce its harmful effects on the ground.

(d) Rooms are provided with ventilators and exhaust fans.

~~Ans~~ Rooms are provided with ventilators and exhaust fans near the top side walls because the air we breathe out is hot and stale which means that is of low pressure, the winds blowing from the exhaust fans or the ventilators have fresh air, which is higher in pressure so it blows downwards.

(e) The containers of solar cooker are painted black.

~~Ans~~ Solar cooker boils food by absorbing heat from solar energy... hence when the solar cooker is painted by black color it can absorb more heat energy and also keep it does not allow the heat to escape outside.