

7<sup>TH</sup> SCIENCE  
Chapter 4, HEAT

**NCERT Science Textbook Exercise (Solved)**

Q.1: State similarities and differences between the laboratory and clinical thermometer.

Ans: Similarities:

1. Both consist of a long, narrow, uniform glass tube.
2. Both have a bulb containing mercury at the end of the tube.
3. Both are marked with Celsius scale on the glass tube.

Differences:

1. A clinical thermometer reads temperature from  $35^{\circ}\text{C}$  to  $42^{\circ}\text{C}$ , while a laboratory thermometer ranges between  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ .
2. Clinical thermometer has a kink near the bulb while there is no kink in laboratory thermometer.

Q.2: Give two examples each of conductors and insulators of heat.

Ans:

Conductors of heat: copper, iron.

Insulators: wood, paper, plastic.

Q.3: Fill in the blanks:

(a) The hotness of an object is determined by its \_\_\_\_\_.

(b) Temperature of boiling water can not be measured by a \_\_\_\_\_ thermometer.

(c) Temperature is measured in degree \_\_\_\_\_.

(d) No medium is required for transfer of heat by the process of \_\_\_\_\_.

(e) A cold steel spoon is dipped in a cup of hot milk. It transfers heat to its other end by the process of \_\_\_\_\_.

(f) Clothes of \_\_\_\_\_ colours absorb heat better than clothes of light colours.

Ans: (a) temperature, (b) Celsius, (c) conduction, (d) clinical, (e) radiation, (f) dark

Q.4: Match the following:

(i) Land breeze blows during	(a) Summer
(ii) Sea breeze blows during	(b) Winter
(iii) Dark coloured clothes are preferred during	(c) Day
(iv) Light coloured clothes are preferred during	(d) Night

Ans: (i) - d, (ii) - c, (iii) - b, (iv) - a.

Q.5: Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing.

Ans: Wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing because of the air trapped between two layers of clothes. This layer prevents the flow of the heat from our body to the cold surroundings and keeps our body relatively warmer.

Q.7: In places of hot climate it is advised that outer walls of houses be painted white. Explain.

Ans: It is because the white colour reflects most of the heat that falls on it. Hence, the outer walls of the houses in the places of hot climate are advised to paint with white colour so that

most of the heat falling on these walls would be reflected which will help in keeping the houses cool.

Q.8: One liter of water at  $30^{\circ}\text{C}$  is mixed with one liter of water at  $50^{\circ}\text{C}$ . The temperature of the mixture will be:

(a)  $80^{\circ}\text{C}$  (b) more than  $50^{\circ}\text{C}$  but less than  $80^{\circ}\text{C}$

(c)  $20^{\circ}\text{C}$  (d) between  $30^{\circ}\text{C}$  and  $50^{\circ}\text{C}$

Ans: (d)

Q.9: An iron ball at  $40^{\circ}\text{C}$  is dropped in a mug containing water at  $40^{\circ}\text{C}$ . The heat will

(a) flow from iron ball to water

(b) not flow from iron ball to water or from water to iron ball.

(c) flow from water to iron ball.

(d) increase the temperature of both.

Ans: (b)

Q.10: A wooden spoon is dipped in a cup of ice cream. Its other end

(a) becomes cold by the process of conduction.

(b) becomes cold by the process convection.

(c) becomes cold by the process of radiation.

(d) does not become cold.

Ans: (d)

Q.11: Stainless steel pans are usually provided with copper bottoms. The reason for this could be that

- (a) copper bottom makes the pan more durable.
- (b) such pans appear colourful.
- (c) copper is better conductor of heat than the stainless steel.
- (d) copper is easier to clean than the stainless steel.

Ans: (c)

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