

## Chapter 03

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

**Ans. Similarities:**

- (i) Both thermometers consist of long narrow uniform glass tubes.
- (ii) Both have a bulb at one end.
- (iii) Both contain mercury in bulb.
- (iv) Both use Celsius scale on the glass tube.

**Differences:**

- (i) A clinical thermometer reads temperature  $35^{\circ}\text{C}$  to  $45^{\circ}\text{C}$  while the range of laboratory thermometer is  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ .
- (ii) Clinical thermometer has a kink near the bulb while there is no kink in the laboratory thermometer.
- (iii) Due to kink, mercury does not fall down on its own in clinical thermometer.

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

**Ans.** Conductors—aluminum, iron Insulators—plastic, wood.

**Q.3. Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing?**

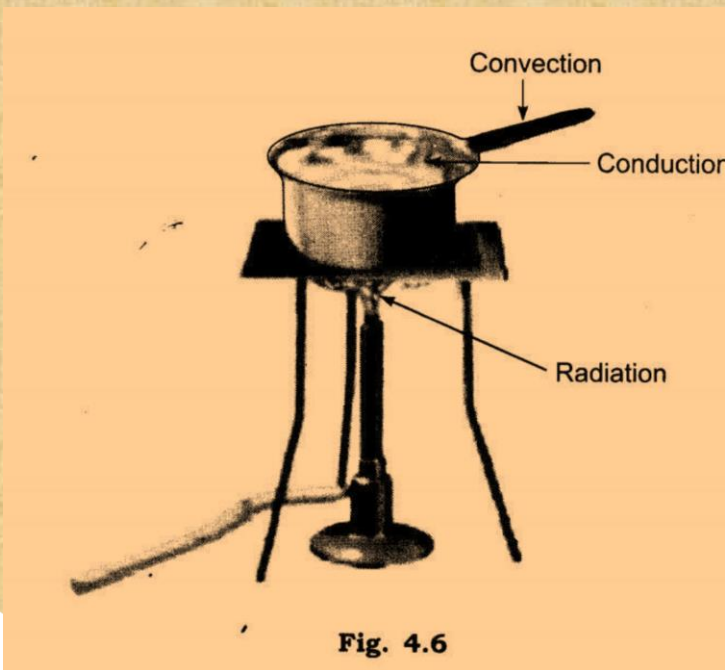
**Ans.** More layers of clothing keep us warm in winters as they have a lot of space between them. This space gets filled up with air. Air is a bad conductor; it does not allow the body heat to escape out.

**Q.4. In places of hot climate it is advised that the outer walls of houses be painted white. Explain.**

**Ans.** In places of hot climate it is advised that the outer wall of houses be painted white because white color reflects heat and the houses do not heat up too much.

**Q.5.Look at figure 4.6.**

**Mark where the heat is being transferred by conduction, by convection and by radiation**



**Q.6.Fill in the blanks**

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

(b) Temperature of boiling water cannot 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 \_\_\_\_\_ colors absorb heat better than clothes of light colors.

**Ans.** (a) temperature (b) clinical (c) Celsius (d) radiation (e) conduction (f) dark

**Q.7.** 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) Between  $30^{\circ}\text{C}$  and  $50^{\circ}\text{C}$ .

**Q.8.** 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) not flow from iron ball to water or from water to iron ball

**Q.11.** 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 of convection
- (c) Becomes cold by the process of radiation
- (d) does not become cold

**Ans.** (d) does not become cold.

**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 colorful
- (c) Copper is a better conductor of heat than the stainless steel
- (d) Copper is easier to clean than the stainless steel

**Ans.** (c) copper is better conductor of heat than the stainless steel

**Q.12.** Match the following

|                                            |        |
|--------------------------------------------|--------|
| Land breeze blows during                   | Summer |
| Sea breeze blows during                    | Winter |
| Dark colored clothes are preferred during  | Day    |
| Light colored clothes are preferred during | Night  |



**Ans:**

|                                                   |               |
|---------------------------------------------------|---------------|
| <b>Land breeze blows during</b>                   | <b>Night</b>  |
| <b>Sea breeze blows during</b>                    | <b>Day</b>    |
| <b>Dark colored clothes are preferred during</b>  | <b>Winter</b> |
| <b>Light colored clothes are preferred during</b> | <b>Summer</b> |

