

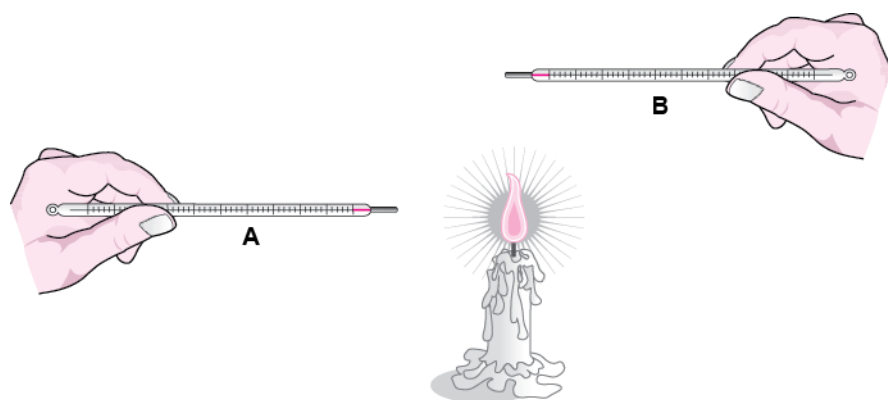
## Very Short Answer Questions

**Q.1. Shopkeepers selling ice blocks usually cover them with jute sacks. Explain why.**

[NCERT Exemplar]

**Ans.** They must use some insulating material like, sack, saw dust, newspaper, etc. to cover the ice.

**Q.2. A laboratory thermometer A is kept 7 cm away on the side of the flame while a similar thermometer B is kept 7 cm above the flame of a candle as shown in the figure below.**



**Which of the thermometers, A or B, will show a greater rise in temperature? Give reason for your answer**

**Ans.** Thermometer B will show a greater rise in temperature because hot air rises up or air on the top of the candle flame is getting heated by convection.

**Q.3. To keep her soup warm Paheli wrapped the container in which it was kept with a woollen cloth. Can she apply the same method to keep a glass of cold drink cool? Give reason for your answer.**

[NCERT Exemplar]

**Ans.** Yes. Wool is a poor conductor of heat.

**Q.4. In a mercury thermometer, the level of mercury rises when its bulb comes in contact with a hot object. What is the reason for this rise in the level of mercury?**

[NCERT Exemplar]

**Ans.** Mercury expands when heated. Hence, it rises in the capillary tube.

**Q.5. Define temperature.**

**Ans.** Temperature is defined as the degree of hotness or coldness of a body.

**Q.6. At what temperature will the reading on the Fahrenheit scale be double of the reading on the Celsius scale?**

**Ans.** At 160°C, the reading on Fahrenheit scale would be double, i.e., 320°F.

**Q.7. Why is it advised not to hold the thermometer by its bulb while reading it?**

**Ans.** If we hold a thermometer by its bulb, the mercury in the bulb will expand due to our body temperature.

**Q.8. Convert 8°C to °F**

**Ans.**

$$F = \left(\frac{9}{5} \times C\right) + 32$$

$$^{\circ}\text{F} = \left(\frac{9}{5} \times 8\right) + 32 = 46.4^{\circ}\text{F}$$

**Q.9. Convert 90°F to °C.**

**Ans.**

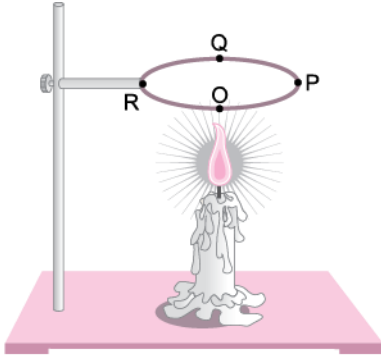
$$C = \left(\frac{5}{9}\right)(F - 32)$$

$$^{\circ}\text{C} = \left(\frac{5}{9}\right)(90 - 32) = 32.2^{\circ}\text{C}$$

## Short Answer Questions

**Q.1. A circular metal loop is heated at point O as shown in the figure below.**

[NCERT Exemplar]



**Q. In which direction would heat flow in the loop?**

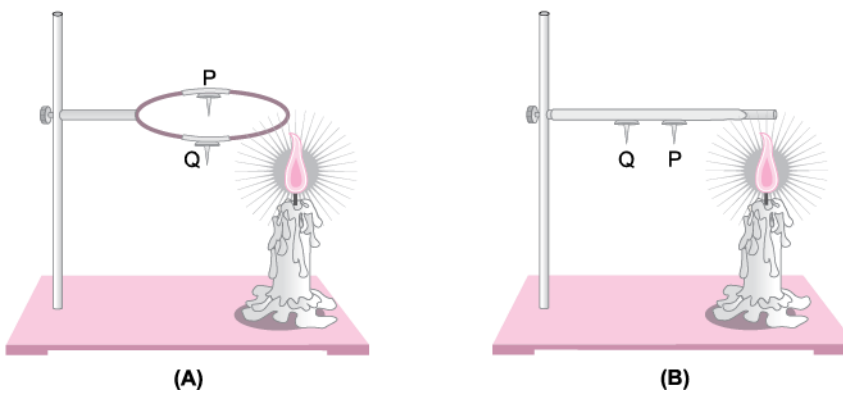
**Ans.** The heat will flow in both the directions, i.e., from O to P and O to R

**Q. In which order the pins at points P, Q and R fixed with the help of wax fall if points O, P, Q and R are equidistant from each other?**

**Ans.** At first the pins at R and P will fall simultaneously followed by the pin at Q.

**Q.2. In the arrangements A and B shown in the figure below, pins P and Q are fixed to a metal loop and an iron rod with the help of wax. In which case are both the pins likely to fall at different times? Explain.**

[NCERT Exemplar]



**Ans.** In case 'B', the pin P will fall before the pin Q because the heat will reach pin P first. In case 'A', the heat travels in both the directions, therefore, pins P and Q will fall simultaneously.

**Q.3. For setting curd, a small amount of curd is added to warm milk. The microbes present in the curd help in setting if the temperature of the mixture remains approximately between 35°C to 40°C. At places, where room temperature remains much below the range, setting of curd becomes difficult. Suggest a way to set curd in such a situation.**

**[NCERT Exemplar]**

**Ans. (a)** In order to maintain the desired temperature of the mixture, the container can be wrapped either by woollen material or any other poor conductor of heat. Alternately, the mixture can be kept in a heat resistant container.

**(b)** The container can be kept in the sun or near the gas stove while cooking.

**Q.4. A few sharp jerks are given to clinical thermometer before using it. Why is it done so?**

**[NCERT Exemplar]**

**Ans.** The jerk to the thermometer will allow the mercury in or above the kink to flow into the bulb so that the mercury level is below normal temperature.

**Q.5. Why is mercury used as an indicator in a thermometer?**

**Ans. (i)** Mercury expands evenly as the temperature rises.

**(ii)** It is a good conductor of heat.

**(iii)** It is silvery white and can be seen from outside the glass.

**(iv)** It does not stick to glass.

**Q.6. At a camp site there are tents of two shades one made with black fabric and the other with white fabric. Which one will you prefer for resting on a hot summer afternoon? Give reason for your choice. Would you like to prefer the same tent during winter?**

**[NCERT Exemplar]**

**Ans.** On a hot summer afternoon the tent made up of white fabric will be preferred as white colour is a bad absorber and good reflector of heat. No, the black fabric tent will be preferred during winter.

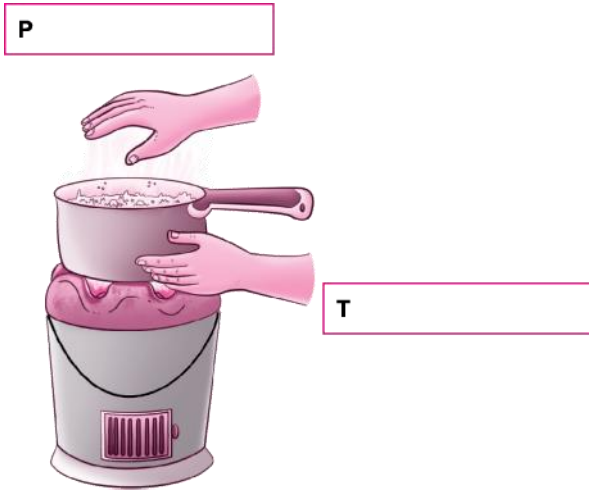
**Q.7. While constructing a house in a coastal area, in which direction should the windows preferably face and why?**

**[NCERT Exemplar]**

**Ans.** The windows of houses in coastal areas should preferably face towards the sea as sea breeze will keep it cool during day time.

**Q.8. Observe the picture given below. Water is being boiled in a pan of wide base.**

**[NCERT Exemplar]**



**Q. Which position P or T will feel warmer?**

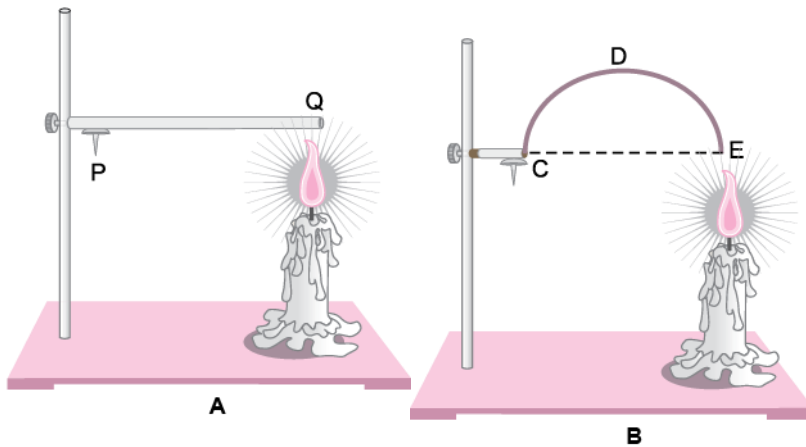
**Ans.** Position 'P' will feel warmer due to the hot air rising up.

**Q. Fill up the boxes P and T to indicate the mode of flow of heat to the hand.**

**Ans.** P → Convection T → Radiation

**Q.9. Look at figures given below.**

**[NCERT Exemplar]**



**The length of wire PQ in case of A is equal to the diameter of the semicircle formed by the wire CDE, in case B. One pin is attached to each wire with the help of wax as shown in figure above. Which pin will fall first? Explain.**

**Ans.** The pin on the wire in case A will fall first as heat will reach to it before it reaches the pin in case B.

**Q.10. Why does mercury not fall or rise in a clinical thermometer when taken out of the mouth?**

**Ans.** The kink in the capillary tube of the thermometer allows mercury to rise but does not allow it to fall.

**Q.11. Why can you not use a clinical thermometer to measure the temperature of a candle flame?**

**Ans.** The clinical thermometer has a maximum temperature range of  $100^{\circ}\text{C}$  and the temperature of flame is more than that.

**Q.12. Why do gases expand more than liquids?**

**Ans.** The molecules in gases are more loosely packed than liquids so, they move more freely and expand more.

**Q.13. Why can you not keep your palm above a burning candle but you can keep it on the sides of a candle flame?**

**Ans.** This is because the hot air from the candle rises up and is hotter whereas on the sides, there is no hot air.

## Long Answer Questions

**Q.1. Distinguish between the following.**

**Q. Land breeze and Sea breeze**

**Ans.**

S. No.	Land breeze	Sea breeze
i.	This is produced from the land to the sea.	It is produced from the sea to the land.
ii.	It occurs at night.	It occurs during the day.

**Q. Convection and Conduction**

**Ans.**

S. No.	Convection	Conduction
i.	A method of heat transfers through fluids, i.e., liquids and gases.	A method of heat transfers through solids.
ii.	In convection, the transfer of heat is by the movement of the fluid itself.	In conduction, the transfer of heat is without movement of matter as a whole.

**Q.2. What precautions should you take while reading a clinical thermometer?**

**Ans. (a)** The reading should be taken by keeping the level of mercury along the line of sight.

**(b)** Before use, the mercury level should be below 35°C.

**(c)** Wash the thermometer with water or an antiseptic solution before and after use.

**(d)** Never hold the thermometer by the bulb while reading it.

**(e)** Handle the thermometer with care, it can break if hit against hard object.

**Q.3. What precautions should you take while using a laboratory thermometer?**

**Ans. (a)** Never hold the thermometer by the bulb while reading it.

**(b)** Wash the thermometer with water or antiseptic solution before and after use.

**(c)** While performing the experiment, don't touch the bulb of the thermometer with the wall of the beaker.

**(d)** Read the thermometer keeping the level of mercury along the line of sight.



## **Hots (Higher Order Thinking Skills)**

**Q.1. Which will cool faster—water kept in a black pot or kept in a silver pot?**

**Ans.** Water kept in a black pot will cool faster because blackened surface is a good radiator than a silvered surface.

**Q.2. Why do the kites and eagles fly without flapping their wings?**

**Ans.** Because hot air rises up during day time, and a convection current is developed. So kites and eagles start moving along this convectional current without flapping their wings.