

# 4

## Heat

### MULTIPLE CHOICE QUESTIONS

1. A marble tile would feel cold as compared to a wooden tile on a winter morning, because the marble tile
  - (a) is a better conductor of heat than the wooden tile.
  - (b) is polished while wooden tile is not polished.
  - (c) reflects more heat than wooden tile.
  - (d) is a poor conductor of heat than the wooden tile.
2. A beggar wrapped himself with a few layers of newspaper on a cold winter night. This helped him to keep himself warm because
  - (a) friction between the layers of newspaper produces heat.
  - (b) air trapped between the layers of newspaper is a bad conductor of heat.
  - (c) newspaper is a conductor of heat.
  - (d) newspaper is at a higher temperature than the temperature of the surrounding.
3. Paheli and Boojho measured their body temperature. Paheli found her's to be  $98.6^{\circ}\text{F}$  and Boojho recorded  $37^{\circ}\text{C}$ . Which of the following statement is true?
  - (a) Paheli has a higher body temperature than Boojho.
  - (b) Paheli has a lower body temperature than Boojho.
  - (c) Both have normal body temperature.
  - (d) Both are suffering from fever.
4. Boojho has three thermometers as shown in Figure 4.1. He wants to measure the temperature of his body and that of boiling water. Which thermometer (s) should he choose?



(i)



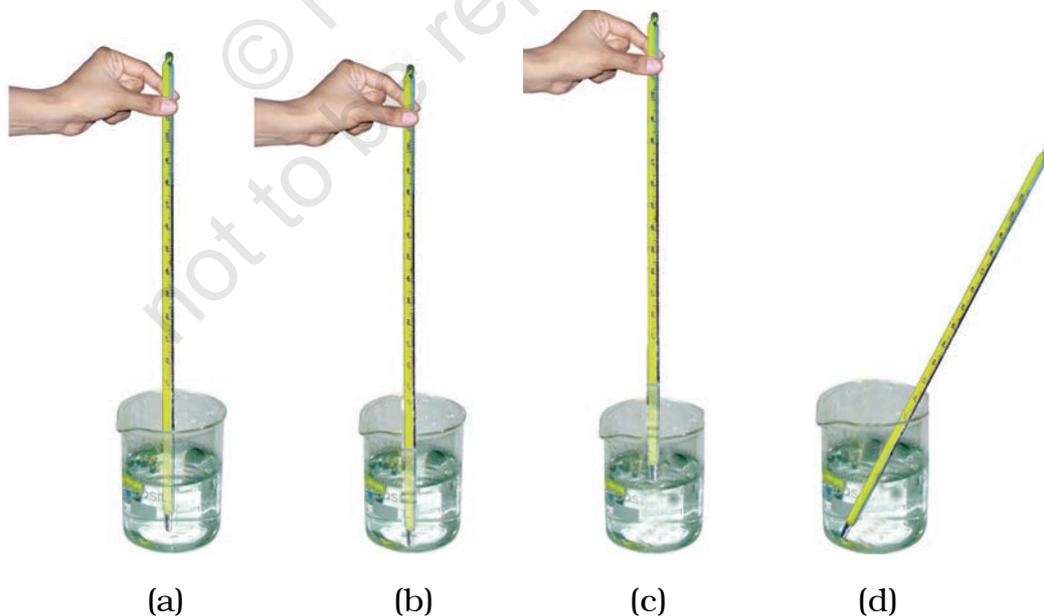
(ii)



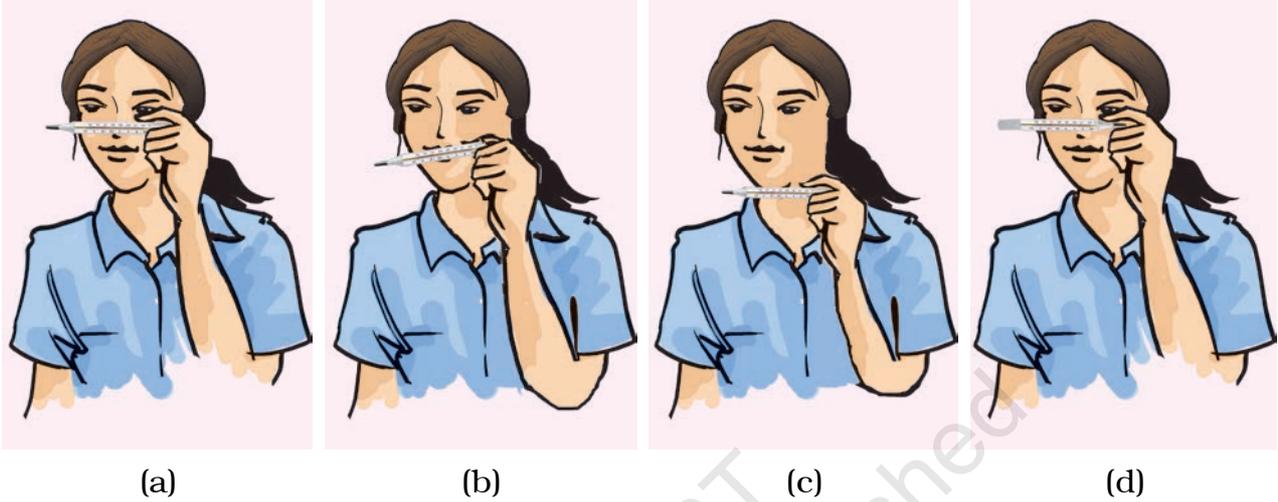
(iii)

**Fig. 4.1**

- (a) Thermometer (i) or (iii) for measuring body temperature and (ii) for measuring the temperature of boiling water.
- (b) Thermometer (i) for measuring temperature of both.
- (c) Thermometer (ii) for measuring temperature of both.
- (d) Thermometer (iii) for measuring temperature of both.
5. Four arrangements to measure temperature of ice in beaker with laboratory thermometer are shown in Figure 4.2 (a, b, c and d). Which one of them shows the correct arrangement for accurate measurement of temperature?

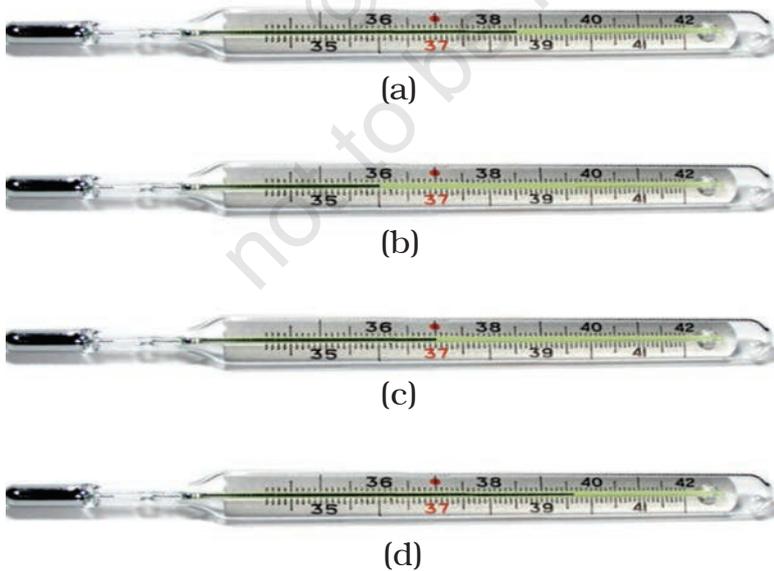
**Fig. 4.2**

6. Fig 4.3 (a-d) shows a student reading a doctor's thermometer. Which of the figure indicates the correct method of reading temperature?



**Fig. 4.3**

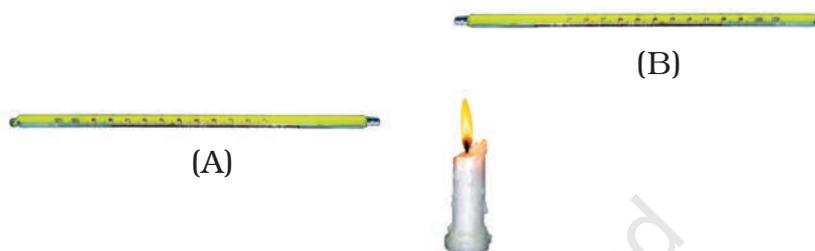
7. Figure 4.4. (a-d) shows the readings on four different thermometers. Indicate which of the reading shows the normal human body temperature?



**Fig. 4.4**

**VERY SHORT ANSWER QUESTIONS**

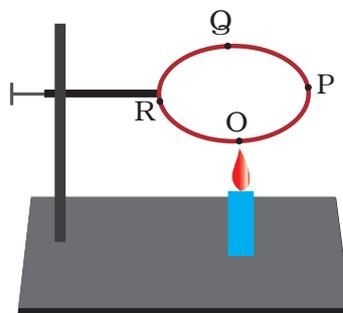
8. Shopkeepers selling ice blocks usually cover them with jute sacks. Explain why.
9. A laboratory thermometer A is kept 7 cm away on the side of the flame while a similar thermometer B is kept 7 cm above the flame of a candle as shown in Figure 4.5.

**Fig. 4.5**

- Which of the thermometers, A or B, will show a greater rise in temperature? Give reason for your answer.
10. 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.
11. 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?

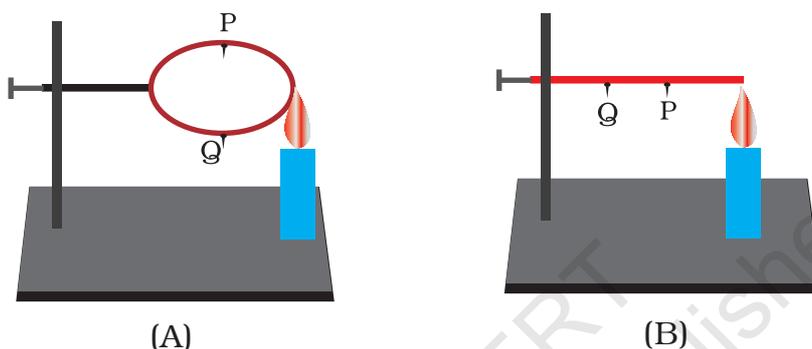
**SHORT ANSWER QUESTIONS**

12. A circular metal loop is heated at point O as shown in Figure 4.6.

**Fig. 4.6**

- (i) In which direction would heat flow in the loop?
- (ii) 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?

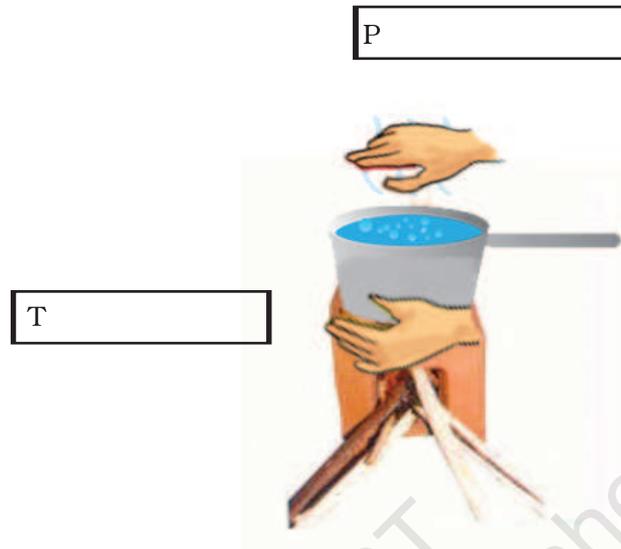
13. In the arrangements A and B shown in Figure 4.7, pins P and Q are fixed to a metal loop and an iron rod with the help of wax. In which case are both the pins likely to fall at different times? Explain.



**Fig. 4.7**

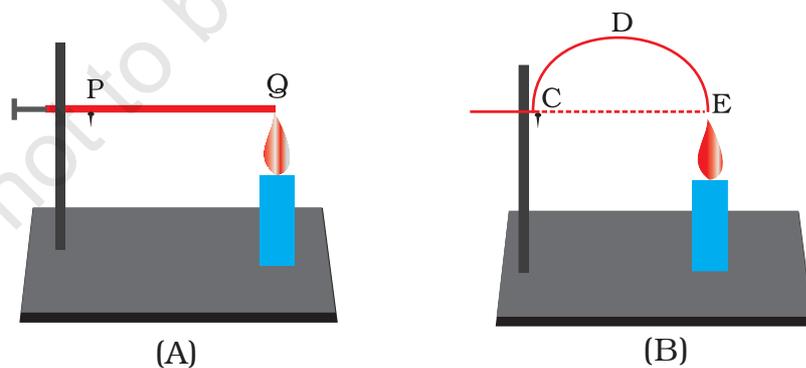
14. For setting curd, a small amount of curd is added to warm milk. The microbes present in the curd help in setting if the temperature of the mixture remains approximately between  $35^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . At places, where room temperature remains much below the range, setting of curd becomes difficult. Suggest a way to set curd in such a situation.
15. You may have noticed that a few sharp jerks are given to clinical thermometer before using it. Why is it done so?
16. Why is it advised not to hold the thermometer by its bulb while reading it?
17. 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?
18. While constructing a house in a coastal area, in which direction should the windows preferably face and why?

19. Observe the picture given as Figure 4.8. Water is being boiled in a pan of wide base.



**Fig. 4.8**

- (i) Which position P or T will feel warmer?  
 (ii) Fill up the boxes P and T to indicate the mode of flow of heat to the hand.
20. Look at Figure 4.9.



**Fig. 4.9**

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 4.9. Which pin will fall first? Explain.