Class – 8 Ch – 7 – Heat Transfer (Physics)

B. Give reason for the following.

1. Soft drink bottles sometimes burst in summer.

Ans: If the level of liquid is too high in a bottle, there won't be space for the liquid to expand during summer. This often leads to bursting of the bottle.

2. A liquid or a gas shows cubical expansion only.

Ans: Liquids and gases do not have a fixed shape. When heated, their whole volume expands.

3. Gases expand more than liquids and solids.

Ans: The intermolecular forces are very weak in gases, such that the molecules can move around freely. That is why, they expand more than solids or liquids on heating.

4. Tiny gaps are left between two segments on railway tracks.

Ans: There are tiny gaps between segments on railway tracks to ensure that the tracks do not bend while expanding during the day.

E. Name the following

1. The liquid used in thermometer

Ans: Mercury

2. The tendency of a material to expand its length upon heating

Ans: Linear expansion

3. The tendency of a material to expand its area upon heating

Ans: Superficial expansion

4. The tendency of a material to expand its volume upon heating

Ans: Volume expansion

5. The state of matter that expands the least on heating

Ans: Solids

C. Answer the following questions in brief.

2. Write any two applications of thermal expansion of liquids.

Ans: Two applications of thermal expansion of liquids are as follows:

a) A thermometer works on the principle of thermal expansion of liquids.

b) Liquids in sealed bottles are packed in such a way that their level is below the neck of the bottle. The spared space allows the liquids to expand in summer.

4. Give two real-life applications of thermal expansion of solids.

Ans: Two real-life applications of thermal expansion of solids are as follows:

a) Tight lids of bottles can be opened if we slightly warm the lid by running hot water over it.

b) Most large bridges have expansion joints which gives space for bridges to expand during the day

D. What are the differences between boiling and evaporation.

Boiling	Evaporation
It takes place at a constant temperature called the boiling point of the liquid.	It usually takes place below the boiling point of the liquid.
It takes place through the entire volume of the liquid.	It takes place only at the surface of the liquid.
It does not change the temperature of the liquid.	It cools down the liquid.
It takes place quickly.	It takes place slowly.

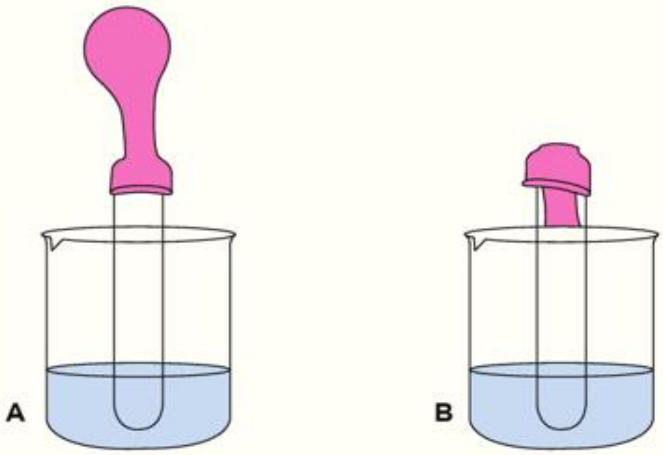
Application-based Question

When hot water is poured in a thick glass tumbler, it cracks. How does this happen?

Ans: Glass is a bad conductor of heat. When hot water is poured inside the glass tumbler, the inside surface of the glass expands while the outer surface does not. This results in the cracking of the tumbler.

Picture-based Question

Observe the given picture and answer the questions that follow.



1. The water in the beaker B is at 70 °C. What can be said about the temperature of the water in the beaker A?
2. Why is the balloon in the case of beaker A inflated?
3. Both the balloons have hydrogen gas inside them. In which balloon would the hydrogen atoms have more energy?
4. What would happen to the balloon in the beaker B if the water in the beaker B is heated further?

1. Ans: Since, the balloon in beaker A is much more inflated than the balloon in beaker B, it means the water in beaker A is hotter than the water in beaker B. Thus, the temperature of the water in beaker A would be more than the temperature of water in beaker B.
2. Ans: The water in beaker A is quite hot. It has heated the air inside the glass tube, leading to its expansion and thereby inflating the balloon.
3. Ans: Since the temperature of water in beaker A is more, therefore, the hydrogen atoms in the gas in the balloon in beaker A would have more energy.
4. Ans: The balloon will expand.