

Effects of Heat

Solution 1.a:

The temperature at which a solid substance changes into a liquid is called the melting point of a substance.

Solution 1.b:

The quantity of heat required to raise the temperature of 1 gram of water by 1°C is called one calorie of heat.

Solution 1.c:

A calorimeter is used to find the specific heat of a substance.

Solution 1.d:

Mercury does not stick to the glass and expands regularly and uniformly in all conditions.

Solution 2.a:

Water is an excellent coolant because it has high specific heat compared to other substances.

Solution 2.b:

Mercury is used in a thermometer because of the following reasons:

1. There is a big difference between the freezing point and boiling point of mercury.
2. It is shiny and can be easily seen.
3. It does not stick to glass.
4. It expands regularly and uniformly in all conditions.

Solution 2.c:

A bimetallic strip is made of metals such as copper and iron which expand and contract according to the heat absorbed or radiated. The expansion and contraction of these metals are unequal. Hence, a bimetallic strip bends upon heating and is used in electrical gadgets to maintain a constant temperature.

Solution 2.d:

An iron tyre is heated before fitting it on a wheel because it expands when heated and contracts when cooled.

Solution 3:

- **Calorie** is a unit of heat.
- When heat capacity is mentioned, the exact quantity of the **mass** of the substance is not known.
- The expansion of the strips in a bimetallic strip is **unequal**.
- The expansion of gases is **maximum**.

Solution 4:

Group 'A'	Group 'B'
(a) Melting point	Change from solid to liquid
(b) Boiling Point	Change from liquid to gas
(c) Mercury	Thermometer
(d) Calorimeter	Specific heat

Solution 5:

1. False. When heat is taken away from a substance, it contracts.
2. False. The heat absorbed by a substance depends on its mass.
3. False. The unit of specific heat is kcal/kg °C.
4. True

Solution 6:

1. Melting point: The temperature at which a solid substance changes into a liquid is called the melting point of the substance.
2. Boiling point: The temperature at which a liquid substance starts to boil is called the boiling point of the substance.
3. Specific heat: The quantity of heat required to raise the temperature of 1 kg of a substance by 1 °C is called the specific heat of that substance.
4. Calorie: The quantity of heat required to raise the temperature of 1 gram of water by 1 °C is called a calorie.