WORKSHEET 1

CHAPTER 7 – HEAT

A. Tick (✓) the correct option.

1. When a bimetallic strip (brass and invar) is heated
   a. it remains straight.
   b. it bends with brass on convex side.
   c. it bends with invar on convex side.
   d. it does not have a definite shape.
2. The unit of the coefficient of linear expansion is
   a. m. b. $m°C^{-1}$. c. $°C^{-1}$. d. °C.
3. A bimetallic strip is not used in
   a. thermostat. b. fire-alarm. c. pendulum clock. d. electric iron.
4. The temperature of a body is its degree of
   a. hotness. b. coldness.
   c. both hotness and coldness. d. none of these.
5. When a lake starts freezing, the formation of ice is first at the
   a. bottom. b. middle. c. top. d. nothing can be said.

B. Fill in the blanks.

1. Density of water is _____ at 4 °C.
2. The volume of water _____ on freezing.
3. Space is left between two rails of the track to allow for _____ in _____
4. A device used to maintain constant temperature in the ovens, refrigerators, etc. is called _____
5. The degree of _____ is called temperature.

C. State whether the following statements are true or false.

1. Two rods A and B of the same material, but of lengths 1 m and 2 m respectively are heated from 0 °C to 100 °C. The rod A is more longer than B.
2. A solid rod A and a hollow rod B of same material and same lengths are heated to the same high temperature. The solid rod A expands more than the hollow rod B.
3. A clock with compensated pendulum keeps correct time in winter but not in summer.
4. The coefficient of expansion of a liquid depends upon the change in temperature of the body.
5. A clock, which does not have a compensated pendulum goes fast in winter.

Name: ..... Teacher's signature: .....

Class: IX Date: .....

D. Match the following.

1.	20 °C =	212 °F
2.	80 °C =	257 °F
3.	125 °C =	176 °F
4.	100 °C =	104 °F
5.	40 °C =	68 °F

E. Answer the following questions.

Very short answer questions

1. Name two substances which expand on heating.
2. What is anomalous expansion of water?

Short answer questions

1. What is the direction of flow of heat?
2. What is thermal equilibrium?

Long answer questions

1. Plot a graph showing the variation in the volume of water with temperature in the 0 °C – 10 °C range.
2. What are differences between heat and temperature?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. b
2. c
3. c
4. c
5. c

B. Fill in the blanks.

1. maximum
2. increases
3. expansion, summer
4. thermostate
5. hotness

C. State whether the following statements are true or false.

1. F
2. F
3. T
4. F
5. T

D. Match the following.

1. 20 °C = 68 °F
2. 80 °C = 176 °F
3. 125 °C = 257 °F
4. 100 °C = 212 °F
5. 40 °C = 104 °F

E. Answer the following questions.

Very short answer questions

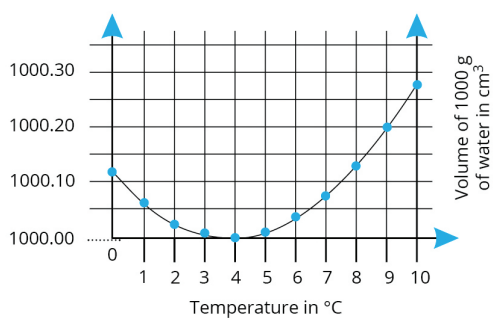
1. Steel and aluminium.
2. The expansion of water when it is cooled below 4 °C is known as anomalous expansion of water.

Short answer questions

1. When two bodies are brought in contact with each other, heat flows from the body at higher temperature to the body at lower temperature.
2. When objects at the same temperature are brought in contact with each other, they do not exchange heat. This condition is called thermal equilibrium.

Long answer questions

1. Liquids generally expand on heating and contract on cooling. However, water is an outstanding exception to this when it is between 0 °C and 4 °C.
If water initially at a temperature above 4 °C is cooled, it contracts (just like other liquids) till the temperature of water reaches 4 °C. On further cooling below 4 °C, it expands (unlike other liquids) instead of contracting.



Graph for anomalous expansion of water

2.

Parameter (Point of difference)	Heat	Temperature
1. Nature	Heat is a form of energy.	Temperature is the degree of hotness (or coldness) of a body.
2. Cause and effect	Heat is the cause of temperature. Heat causes a change in the temperature of a body.	Temperature is the effect of heat.
3. Effect	Heat energy makes a body hotter. That is, **heat raises the temperature** of a body.	**Temperature** determines the **direction of flow of heat**. Heat flows from a body at higher temperature to that at lower temperature.
4. Units	Heat is measured in joules and kilojoules.	Temperature is measured in the units of degree Celsius (°C) or kelvin (K).