Chapter 7
Temperature and its Measurement

Q1. Write the summary of the lesson, clearly explaining the three important points of the lesson, on the basis of the given points.

1. **Temperature and its Measurement:** Temperature is the degree of hotness or coldness of an object.
   Recying solely on owr sense of touch to measure temperature is misleading so me need denices to measure temperature.
2. **Use of Thermometer:**
   It is used to measure temperature
   a) of a human body
   b) in Cientific labs while conducting experiments.
3. **Concept of Temperature:** Temperature refers to the average kinetic energy of the particees in an objets. when emperature increases, the motion of the particlus also increases.

Q2. Multiple Choice Questions

1. a) Kelvin
2. d) All the above
3. d) Clinical thermometers are used in laboratories.
4. d) both a and b
5. b) Infrared thermometer

Q3.. Fill in the blanks:

1. Normal human body temperature is **37**°C and **98.6**ºF.
2. **Kink** is present in clinical thermometer.
3. **Infra Red** is a touch free thermometer to measure body temperature.
4. 37 °C = **98.6** °F
5. **Mercury** is the liquid metal which is used in clinical and laboratory thermometers.

Q4. State whether the statements are 'True' or 'False'.

1. Range of Laboratory thermometer is –10 °C to 100 °C. **False**
2. The boiling point of water is 100 °C. **True**
3. Coloured alcohol and mercury are generally used in laboratory thermometer. **True**
4. K = °C + 273.15. **True**
5. Kink prevents back flow of mercury into the bulb of thermometer. **True**

Q5. Give one word for the following:

1. Thermometer that use electronics circuit to measure temperature. **Digital thermometer**
2. This is present in clinical thermometer but not in laboratory thermometer. **Kink**
3. The degree measure of hotness or coldness of an object. **Temperature**
4. A device used to measure temperature. **Thermometer**
5. SI unit of temperature. **Kelvin**

Q6. Match the columns

1.

	Column I		Column II
A	Temperature measured from a distance	R	Infra-red thermometer
B	Scientific experiment	P	Laboratory thermometer
C	Human body temperature	Q	Clinical thermometer
D	Battery operated thermometer	S	Digital thermometer

2.

	Column I		Column II
A	Absolute temperature	Q	273.15 °C
B	Normal human body temperature	P	37 °C
C	Kink	S	Constriction
D	Toxic liquid	R	Mercury

Q7. Assertion and Reason Questions

Choose the correct options

1. **Assertion (A):** Mercury thermometer are being replaced by digital thermometer.
   Reason (R): Mercury is toxic and difficult to dispose.

Ans (A) Both the assertion and reason are true, and the reason is the correct explanation.

2. **Assertion (A): Kink is present in clinical thermometer**
   Reason (R): Laboratory thermometer has no kink.

Ans (B) Both the assertion and reason are true, but the reason is not the correct explanation.

Q8. Very Short Answer Questions

1. **Define temperature.**
   Temperature is the degree of hotness or coldness of an object .
2. **Why we cannot use water as a thermometric substance?**
   Water is not shiny and it sticks to the walls of the container
3. **Which substance was traditionally used in thermometers?**
   Mercury

4. **What is the temperature range of a clinical thermometer?**

   35 °C to 42 °C

5. **How is Kelvin scale related to the Celsius scale? Convert 300 K to °C.**

   K = °C + 273. 15

   °C = 300k –273.15 =26.85 °C

Q9. Short Answer Questions

1. **Why a digital thermometer is considered safer and more accurate than a mercury thermometer?**

   Mercury Thermometer can break and mercury is toxic

2. **A clinical thermometer cannot measure the temperature of boiling water. Why?**

   The outer range of a clinical thermometer is only till 42 °C While water boils at 100 °C

3. **Differentiate between clinical thermometer and laboratory thermometer.**

Clincal Thermometer	**Labouratory Thermometer**
a) Range is from 35 °C to 42 °C	Range is from –10 °C to 100 °C
b) It has a rink	Does not have a rink

4. **There are 10 division between 30 °C to 40 °C. If mercury thread rises to 6 division after 40 °C. What will be its least count and thermometer reading?**

   Least Count = 40–30/10 =1 °C

   Reading = 40 °C + 6× least count = 46 °C

5. **Why is mercury suitable as a thermometric substance?**

   a) It is shiny

   b) Does not stick to the walls.

   c) Has moderate rate of expansion

Q10.Long Answer

1. **What precaution should be taken while using a digital clinical thermometer?**

   a) Tip of the thermometer should be washed with soapy water

   b) Digital portion should not be washed.

   c) Do not hold the thermometer by the tip.

2. **How do you measure temperature using a laboratory thermometer?**

   a) Hold the thermometer upright with the help of an iron stand.

   b) The bulb should be completely in the liqiuid whose temperature is being measured.

   c) The bulb should not touch the walls or the bottom of the container

Q11 Case Study Based Question

a) **What is the red colour liquid ?**

   alcohol

b) **In which thermometer is it used ?**

   It is used in a thermometer which measures the maximum/ minimum temperature of a day.

c) Why mercury is suitable as a thermometric liquid ?
As it is shine and does not stick.

d) What is the range of clincal thermonmeter ?
35 °C to 42 °C

Q12.Solve the following Riddles:

Riddle 1
Answer: Temperature

Riddle 2
Answer: Thermometer

Riddle 3
Answer: Thermometer (Clinical)

Riddle 4

Answer: Laboratory Thermometer

Riddle 5

Answer: 37 °C

Q13.Crossword puzzle

Across	Down
3. Celsius	1. Heat
6. Clinical	2. Temperature
7. Thermometer	4. Land Breeze
9. Convection	5. Laboratory
10. Mercury	6. Conduction
11. Radiation	8. Insulator