


# Clinical Thermometer-

- The thermometer used by us or doctors to measure the body temperature when we have fever is a clinical thermometer.



- 
- **The scale used to measure the temperature is known as Celsius scale denoted by °C or Fahrenheit denoted by °F.**
  - **It reads temperature from 35°C to 42°C or from 94°F to 108°F.**
  - **It consists of a long, slender and uniform glass tube with a bulb at one end containing mercury.**

- There is a small shining thread of mercury outside the bulb.
- There is a kink near the bulb which prevents mercury level from falling on its own (function of kink).





# **Reading a Clinical thermometer-**


**While using the clinical thermometer to measure the human body temperature some measures must be followed to ensure proper reading of temperature.**





**The measures are as follows:**

- **Wash the thermometer properly with an antiseptic solution.**
- **Hold it definitely and give a few jerks which will bring the level of mercury down below 35°C.**
- **Place the bulb of the thermometer under the tongue.**

- 
- **Wait for one minute, take the thermometer out and note the reading keeping the level of mercury along the line of sight.**
  - **This reading gives the exact body temperature.**
  - **It is necessary to state the temperature with its unit denoted by °C.**
  - **It should be handled with care as on hitting against some hard object it can break.**


# Human body temperature-

- The normal temperature of human body is  $37^{\circ}\text{C}$  which may differ from person to person. It may be either slightly higher or slightly lower.



**Normal Human Body Temperature**




- 
- This value is derived from the average body temperature of a large number of hale and hearty persons(means healthy).
  - The temperature of human body normally does not go below  $35^{\circ}\text{C}$  or above  $42^{\circ}\text{C}$ .If the body temperature goes beyond the defined value then it is necessary to consult a doctor.
  - That is the reason that clinical thermometer has scale ranging from  $35^{\circ}\text{C}$  to  $42^{\circ}\text{C}$ .




# **Laboratory thermometer-**

- **Clinical thermometer can never be used for measuring the temperature of any object other than human body.**
- **It is used to measure the temperatures in school or other laboratories for scientific purpose as they measure temperatures to a range higher than clinical thermometers.**


- 
- One such thermometer is known as the laboratory thermometer with a scale generally ranging from  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ . It has a long stem with a silver bulb at the end unlike clinical thermometer.
  - The silver colour at the bulb normally points toward the presence of mercury which expands with the rise in temperature thereby raising the reading and contracts on lowering of temperature thereby lowering the reading.






# **Precautions to be observed while reading a Laboratory thermometer-**

**Precautions involved while observing the readings of laboratory thermometer are similar to those followed while measuring temperature using a clinical thermometer. But in addition to few other steps must be followed.**

- 
- **Should be kept vertical without tilting.**
  - **The thermometer should be dipped in such a manner that the bulb should be entirely surrounded by the substance of which the temperature is to be measured.**
  - **At the same time bulb should not touch the surface of the container.**



*PLENARY*



**Q. What is the normal temperature of a healthy person?**


**(a)  $37^{\circ}\text{C}$**

**(b)  $37^{\circ}\text{F}$**

**(c) 37 K**

**(d) None of these**





**Q. Briefly mention one application of kink in the clinical thermometer.**


**A. The clinical thermometer consists of kink which prevents the mercury level from falling on its own.**

**Q. Explain how do we find out how hot an object really is.**

**A. By using thermometer, we can measure the degree of hotness of a body.**




# ASSESSMENT



**Q. The mercury does not fall or rise in a clinical thermometer when taken out of the mouth. Explain why.**

**A. Because of the kink present in the thermometer, the mercury does not fall or rise.**



**Q. You may have noticed that a few sharp jerks are given to clinical thermometer before using it. Why is it done so?**

**A. Jerks are given to clinical thermometer before using it to settle down the mercury level below normal temperature so that the measurement taken of a body be accurate.**



**Q. Is the body temperature of every person  $37^{\circ}\text{C}$ ?**

**A. No, the body temperature of every person is not  $37^{\circ}\text{C}$ . It is an average temperature. It could be slightly higher or slightly lower.**

**Q. How can we measure the temperature of other object rather than human body?**

**A. Temperature of other object is measured with laboratory thermometer because clinical thermometer is not suitable for higher temperature.**