

**Physics****Worksheet 5 : 19/10/2020****Class - IX****CHAPTER 6 : EFFECT OF HEAT ON MATTER****Instructions:**

- ✓ Read the chapter in your book - quickly and thoroughly, preferably more than once.
- ✓ Watch the uploaded video classes of this chapter from school's website/You Tube channel. For becoming more clear about the basics, watch more than once, if needed.
- ✓ Contact me in case of any difficulty in understanding.

(Questions given in this worksheet are important questions for all exams)

Creative Questions**(Solve Yourself)**

1. The length of a rod is 100m at 36.89°C (normal temperature). Its length becomes 100.033m at 66.89°C.
 - a) What would be the reading in Fahrenheit scale when the temperature of the rod is in normal temperature?
 - b) What is the co-efficient of linear expansion of the rod?

2. For establishing railway line a construction firm designed a 100km railway line on a bridge. They left 1.5cm gap between two consecutive plates of 25m long for the possible 16°C increase of temperature.
 - a) Find the coefficient of linear expansion of the set rail.
 - b) If the coefficient of linear expansion of the rail is $12 \times 10^{-6} \text{K}^{-1}$, will he train move safely for the 25°C increase of temperature?

3. The length of an iron rod is 2m. Its temperature raised through 10°C so that a small amount of length increase. The coefficient of the linear expansion of iron and copper are $11.6 \times 10^{-6} \text{K}^{-1}$ and $16.7 \times 10^{-6} \text{K}^{-1}$ respectively.
- What would be the reading in Fahrenheit scale of the increased temperature?
 - Will the linear expansion be same if the rod is made up of copper instead of iron? Explain with mathematical logic.
4. A gap is kept 1cm at the joining point of two rail tracks. The coefficient of volume expansion of iron is $34.8 \times 10^{-6} \text{K}^{-1}$. The length of the rail track is 20m at 10°C and area of cross section is 60cm^2 .
- For what temperature difference the volume increase by 0.05% of initial volume?
 - If the temperature of rail track becomes 55°C , will it be safe? Justify mathematically.