Heat

1. Describe an experiment to demonstrate the thermal expansion of a solid.
2. In summer, telephone wires are put a little loose between the two poles. Explain the reason.
3. Write down the relationship between the coefficient of linear expansion α, superficial expansion β and cubical expansion γ of a solid.
4. What is understood by the term 'coefficient of linear expansion'? Write its unit.
5. Why are the glassware used in kitchen made up of pyrex glass?
6. Show by an experiment that the real expansion of a liquid is equal to the sum of its apparent expansion and the volume expansion of the vessel containing the liquid.
7. Draw a graph to show the variation in density of water with temperature in the range from 0^oC to 10^oC.
8. A glass bottle completely filled with water and tightly closed at room temperature, is likey to burst when kept in the freezer of a refrigerator.

Numerical

9. The coefficient of cubical expansion of copper is 5.1×10^{-5} per ^0C. Calculate its coefficient of linear expansion.
10. When a bar of iron 50.0 cm long at 15^oC is heated in a furnace, it becomes 50.4 cm. If the coefficient of linear expansion of iron is $1.1 \times 10^{-5}\ ^oC^{-1}$, find the temperature of furnace.