20/01/22
Thurs

HOME ASSIGNMENT

BP-12 What is the change in average kinetic energy of molecules of a liquid during boiling at its boiling point?

Ans→ When the boiling starts, the temp^{r} of the liquid does not increase further, but the avg. Kinetic Energy of molecules of a liquid increases.

(15) What do you understand by thermal expansion of a substance.

Ans→ Thermal expansion of a substance is the phenomenon of change in size of the body due to the absorption of heat. It states that when a substance is heated, it expands and when it is cooled, it contracts.

(16) State three factors on which depend the linear expansion of a metal rod on heating.

Ans→ 3 factors on which the linear expansion of a metal rod ~~dep~~ on heating depends -

* Original length of the rod :- Longer

the rod, greater is the increase in its length.

So, $\Delta L \propto L_0$.

* Increase in temperature :- More the increase in ~~temp~~ temp^r of rod, greater is the increase in its length.

So, $\Delta L \propto \Delta T$

* Material of the rod :- The increase in length of a rod depends on the material of the rod.

So, Δl depends on the nature of the material of the rod.

(19) Two iron rods — one 10m long & the other 5 m long, are heated to the same rise in temperature. Which will expand more?

Ans The iron rod which is 10m long.

will expand more. As longer the rod will be, more More the linear expansion will take place (length of the rod is one of the factors which linear expansion in solids depends on).

(24) Explain the following:

(a) The telephone wires break in winter.

Ans) The telephone wires break in winter due to contraction during winter. ~~As per the thermal expansion in solids states that the on heating~~ (contracting on cooling & expanding on heating). So between two poles, care is taken in winter that they are kept slightly tight so that they would not break in winter.

(6) Iron rims are heated before they are fixed on the wooden wheels.

Ans) On heating the iron rim, it expands & its diameter becomes slightly more than that of the wheel (wooden) then the iron rim is slipped over the wooden wheel (before allowing it to cool). On cooling, the steel rim contracts & makes a tight fit over the wooden wheel.

(7) Gaps are left between the successive rails on a railway track.

Ans) The reason is that in summer due to considerable rise in atmospheric temp^r, each rail tends to increase in its length (linear expansion), so a gap is left between the two rails, otherwise the rail will bend sideways.

(d) A glass stopper stuck in the neck of a bottle can be removed by hot water on the neck of the bottle.

Ans: On applying hot water on the neck of the bottle, the glass stopper stuck in the neck of a ~~bo~~ bottle is loosened. On warming the neck of the bottle, the neck expands & the glass stopper in it gets space to loosen.

(e) A cement floor is laid in small pieces with gaps in between.

Ans: ~~As~~ A cement floor is not laid out in one piece because it ~~a~~ may crack due to the expansion in summer & contraction in winter. So, if a cement floor is ~~so~~ laid in small pieces with gaps in

between ~~so that~~ then it would allow expansion during summer.

(27) A cubical metal solid block is heated. How will its volume change?

Ans → If a cubical metal solid block is heated then its volume will increase i.e., ~~Cubical~~ cubical expansion.

(32) Which of the following will expand more, when heated to the same temperature? (a) solid (b) liquid or (c) gas?

Ans → Gases will expand the most than liquids and solids ~~when~~ when heated to the same temp^{r}.