H.W

B.1) What is matter? What is it composed of?

ans→ Matter is something which occupies space, has mass and can be precieved by our senses.

Matter is composed of very tiny particles called molecules which can further be broken into atoms.

2) Name three states of matter — Solid, Liquid and Gas

Distinguish them on basis of their -

i) volume
Solids and liquids have definite volume but gases donot have.

ii) shape
↳ solids have definite shape but liq. and gases have indefinite shape.

3) Distinguish between Liq. and vapour on basis of -

i) Arrangement of molecules -
↳ molecules are arranged closely in liq. as compared to gases.

ii) Inter-molecular separation -
↳ it is least in liq. compared to gases.

iii) Kinetic energy of molecules.
↳ least in liq. compared to gases.

iv) Inter-molecular force -
↳ more in liq. compared to gases.

4) What is evapouration ? Explain it on basis of molecular motion.

ans → The change of state of liquid into vapour at all temperatures from its surface is called evapouration.

Explanation on basis of molecular motion –

* Molecules of liquid can move throughout the liquid. The relative distance between liquid molecules and the direction of motion is totally irregular.
* When a molecule, while in motion, reaches the surface of the liquid, it is pulled inside by Cohesive force of surrounding molecules of liquid as there are no molecules on the other side of the surface and thus they are not allowed to leave the surface.
* Some molecules which gain energy by colliding with other molecules reach to the surface while other molecules lose energy remain inside the liquid.
* Molecules on the surface of liq. have higher Kinetic energy than those inside the liq. Those surface molecules do work against the force of attraction of surr. molecules as they have sufficient K.E. and escape out from the surface into air.
* These escaping molecules form vapour in air.

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5) Do all molecules of a liq. take part in evaporation? Explain your answer.

ans→ No, all the molecules of the liq. do not take part in evaporation. Only those molecules near the surface which aquire sufficient K.E (Threshold velocity) escape as they overcome att. forces of other molecules.

→ This process continues as other molecules come to surface and escape and this continues till over all liq. is evaporated.

6) No heat is supplied to a liq. during evaporation. How does then the liquid change into its vapours?

ans→ During ~~evap~~ evaporation, the surface molecules with their sufficient K.E ~~and~~ overcome the attractive forces of surr. molecules and escape into air.

→ now these escaped particles of water absorb heat from surroundings to change their state.

7) Comment on the statement 'evaporation is a surface phenomenon'.

ans→ Evaporation is a surface phenomena. As, when the the molecules of liq. gain more K.E., they come to surface. Surface of the liq. is in direct contact with air and also molecules in the surface have sufficient K.E to overcome the att. forces of surr. molecules. Therefore, it is a surface phenomenon.

8) Why is cooling produced when a liquid evaporates?

ans→ For changing of state of liq. into vapour in evaporation heat is needed which it absorbs from container or surrounding. After absorbing from container, the temp. falls and hence cooling is produced.