Assignment
matter

1.) Define the following.

a) matter

b) Diffusion

c) intermolecular force of attraction

Ans→ matter - "matter is anything which has mass, occupies space and can be perceived by our senses."

Diffusion: The intermixing of two or more substance due to the motion of their particles in order to get a uniform mixture is called 'diffusion'.

intermolecular force of attraction – The molecules of matter are always in motion and attract each other with a force called intermolecular force of attraction due to which they are held together.

2.) What do you mean by kinetic theory matter?

Ans-) The theory starting that any substance whether solid, liquid or gas is made up of tiny particles called atoms, molecules or ions which are in constant motion is called kinetic theory of matter.

3.) write the postulates of the kinetic theory of matter.

Ans-) 1.) matter is composed of very small particles called atoms and molecules.

2.) The constituent particles of a kind of matter are identical in all respects.

3.) These particles have spaces or gaps between them which are known as interparticular or intermolecular spaces.

4.) There Exists a force of attraction between the particles of matter which hold them together. This force of attraction is known as interparticular or intermolecular force of attraction.

5.) particles of matter are always in a state of random motion and possess kinetic energy, which increases with an increase in temperature and vice-versa.

4) what happens when :-
a) water is kept in a deep freezer.
b) water is heated.

Ans-> a) when water is kept in a deep freezer, it gets cooled and change in to ice at 0°C ice.
water $\xrightarrow[\text{freezer}]{\text{deep}}$ ice (0°C)

b) water on heating changes into steam at 100°C
water $\xrightarrow{\text{heating}}$ steam (100°C)

5.) what do you mean by solid? Give some Examples.

Ans -> A solid has a definite volume but no define shape. Example: ~~water, alcohol, mustard oil, fruit juice, milk, etc~~. wood, stone, iron, ice etc.

6.) Explain the interconversion of the state of matter with examples.

Ans-> The phenomenon of change of one state of matter into another and then back to the original state, without any change in its chemical composition is called interconversion of the states of matter. Ex- change of liquid state (water) to solid state (ice).

7) what is sublimation? mention any two substances that sublimes.

-> There are some substances that directly change from the solid state to the gaseous state without passing through the liquid state. This process is called sublimation. The two substantr that are sublimes are: camphor and iodine.

Give Reason why:-
Liquids are called the fluids.
Solids have a definite shape.

(a) Both gases and liquids are fluids. If a container having a liquid or a gas is opened, they both can flow out of the container.

Solids have a fixed shape and a fixed size. The particles are very close together and held in place by strong force (bonds). because the particles cannot move around, a solid has a fixed shape.

what are the characteristics of the particles of matter?

-> The characteristics of particles of matter are:
All matter is composed of very small particles

which can exist independently.
particles of matter have space between them.
particles of matter are continuously moving
particles of matter attract each other.

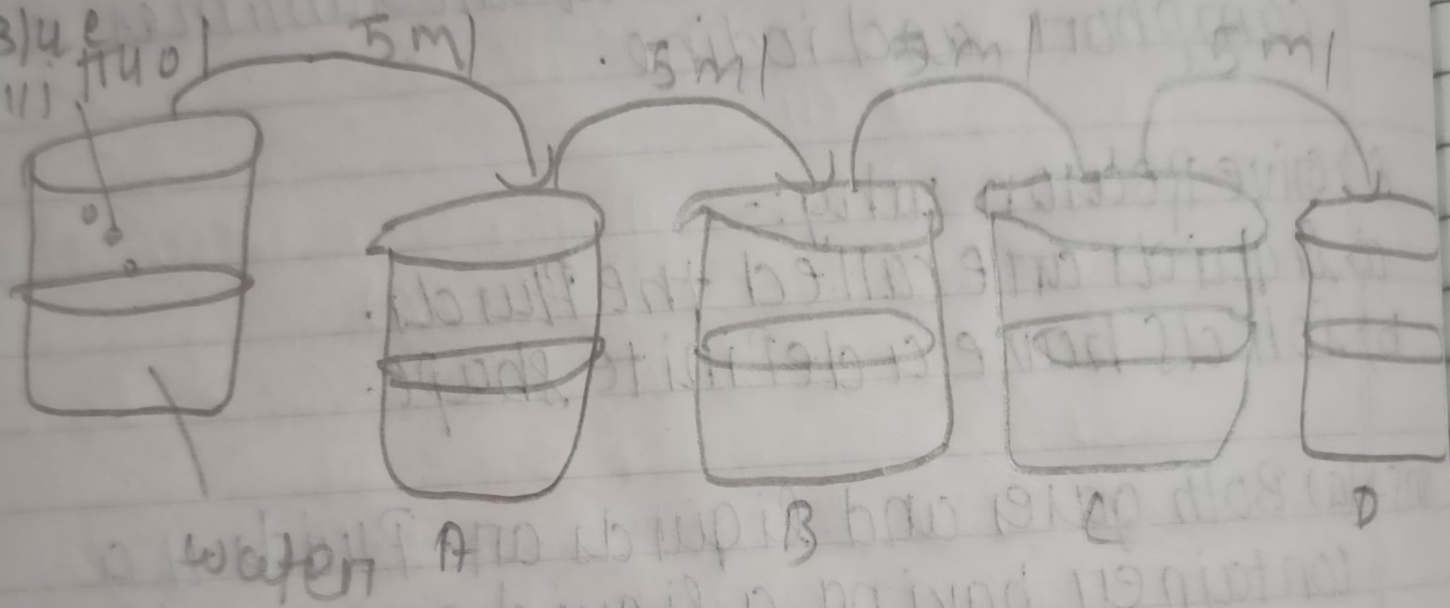
Explain by an experiment/activity that the particles of matter are small in size?

-> Activity-1

Dissolve two or three crystals of blue vitriol (copper sulphate pentahydrate) in about 10ml of water to get a clear transparent blue solution. Take four beakers and label them as A, B, C and D. Fill each beaker with 50ml of water. Now transfer 5ml of solution to beaker A and stir it properly to get a uniform blue colour. Take 5ml of solution from beaker A transfer it to beaker B and stir well. Again tranfer 5ml of solution from B to C and then from C to D.

What do you observe?

The solutions in all the beakers are coloured through they become fainter due to successive dilution. Thus it is concluded that a small crystal of blue vitriol contains a very large number of tiny particles


Blue
H2O
5ml
5ml
5ml
water
A
B
C
D

which show all the properties of the substance. The whole process can be repeated for potassium permanganate crystals dil link to prove the nature of a particle.

11) Explain Brownian motion with an example.

Ans → This haphazard, random motion of suspended particles on the surface of a liquid or in air is called Brownian motion. Ex → movement of dust motes in a room (although largely affected by air currents.

12) Explain what changes will take place when few pieces of marbles are added to beaker containing water.

Ans → $CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$

marble is calcium carbonate and on reacting with HCl releases CO_2

$Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

(lime water) (white ppt)

lime water turns milky due to the formation of white ppt of $CaCO_3$ on passing excess CO_2, milkiness disappears because $Ca(HCO_3)_2$ is formed which is soluble in water. $CaCO_3 + H_2O + CO_2 \rightarrow Ca(HCO_3)_2$