Holiday homework

Matter and its composition

1. What are the five basic elements of which matter is made up of according to the ancient phylosophor?

Ans→ The five basic elements of which matter is made up of are panchatatva - prithvi (earth), jal (water), agni (fire), Vayu (air), Akash (space).

2. What do you understand by the term matter? Give examples.

Ans→ Matter is anything that has mass, occupies space and can be persived by our sense organs. For ex- watter, sugar, milk, gold, oxygen, hydrogen etc.

3. Write one point to differentiate an atom and a molecule.

Ans→ An attom is the smallest possible unit of matter that exhibit all the prosperties of that matter. An attom may or maynot have ~~existence~~ independent existence. A molecule is a smallest ~~possible~~ unit of a matter which exhibit all the properties of that kind of matter and also has an independent

existence.

4. Mention the characteristics of particles of matter.

Ans → The characteristics of the particles of matter are:-

- The particles of matter are very, very small.
- The particles of matter have space between them.
- The particles of matter are constantly moving.
- The particles of matter attract each other.

5. Differentiate between solid, liquid and gas.

Ans → solid → 1. Molecules are closely packed and have negligible intermolecular space.

2. They have fixed shape and volume.

3. They don't flow.

4. Solids are generally shaqve except glass and diamond.

5. Among all the solids all the metals have lusture.

6. They can't be compressed.

Liquid → 1. Molecules are less closely packed than solids.

2. More intermolecular space than solids.

2. They have no fixed shape but definite volume.

3. Flow from higher to lower level.

4. Pure liquids are transparent in nature.

5. Amongst the liquids mercury is lustrous.

6. They can be compressed a little.

Gas → 1. Molecules are loosely packed. Highest intermolecular space.

2. They have no definite shape and volume.

3. They can flow in every direction.

4. All the gasses are transparent in nature.

5. Gasses are not lusturous.

6. They can be compressed very easily.

6. Define sublimation. ~~Define s~~ Name any two material that sublimise.

Ans → The process of conversion of solid into gas on heating is called sublimation. For ex - camphor, napthaline, iodine crystal, ammonium chloride sublimise on heating.

7. What do you mean by interconversion of the states of matter? Mention the factors that cause interconversion.

Ans → Interconversion of states of matter is the process by which matter changes from one state to another and back to its original state without any change in its chemical composition, when conditions are changed.

The change in the state of matter is mainly caused by change in temperature and by applying pressure.

8. What do you mean by fluids? give example.

Ans> All substances that can flow are called fluids. Liquids and gasses are fluids.

9. a. the change of vapour into a liquid → condensation

b. the change of solid directly into gas without undergoing into the liquid medium → sublimation

c. the substances that can flow → fluids

10. Give reasons

a. A teaspoon of sugar added to 100 ml of water doesn't increases ~~the~~ its volume.

Ans> When a teaspoon of sugar added to 100 ml of water, the sugar particles being smaller further split into smaller molecules. These sugar particles get adjusted between the water molecules though water has intermolecular space in between them.

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12. A sponge can be compressed though it is a ~~liquid~~ solid.

Ans→ Sponge have minute pores in it which are filled with air when it is compressed the air present inside the pores are expelled so, sponge is compressible though it is a solid.

13. What do you mean by mass? How does it differ from the weight of the object?

Ans→ Mass is the quantity of matter contained in a body. The mass of the body always remain constant and the mass can't be 0. Weight is the force with which the earth attracts the body. Weight of a body changes from place to place. Weight of the body can be 0 at the centre of the earth.

14. What do you mean by intermolecular force of attraction? How does it vary with reference to the solids and gasses.

Ans→ There exist a force of attraction between the particles or molecules of matter which

holds them together. This is known as intermolecular force of attraction. The intermolecular force of attraction between the molecules of the solids are very strong but the molecules of the gasses have very least intermolecular force of attraction.

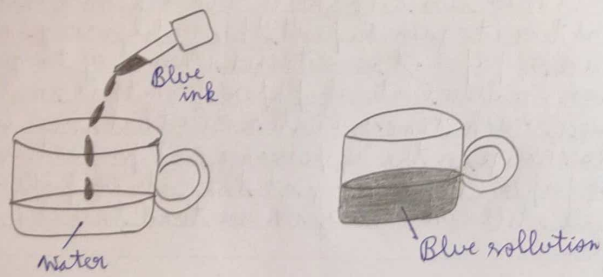
15. Explain LPG. Mention its use.

Ans→ LPG means Liquified petrollium gas. The uses of LPG are :-

- It is mainly used in our home stored in gas cylinder.
- It is used as fuels in vehicles as autogas.
- LPG gas hot water system are now very popular.

11.

Diagram



Aim: To know that that the particles of matter have inter particle space between them

Materials required: A dropper, Blue / Red or any colour ink, a cup of water

Procedure: Take a cup of water. Add few drops of blue ink into it. We will observe that that the ink slowly mixes uniformly in water making the whole solution blue. This is because the water as well as ink particles (molecules) are in continous random motion. Due to motion, the blue coloured particles of the ink spread all over and give blue colour to the water.

Conclusion: Hence, we concluded that the particles of the blue ink fits or occupies the intermolecular space between the water molecules.

Teacher's Signature _____

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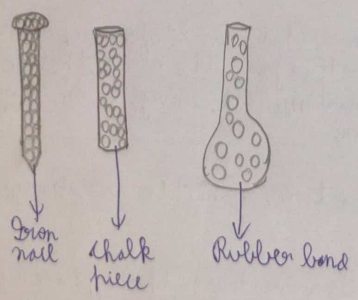
Diagram



Expt. No.

Aim: To know that the particles of matter attract each other.

Materials required: an iron nail, a piece of chalk, a rubber band

Procedure: Take an iron nail, a piece of chalk, and a rubber band. Try breaking them by hammering, cutting or stretching. It is more easier to break the chalk, less easier to break the rubber band and difficult to break the iron nail. This is because the particles in the iron nail are held together with greater force than in the rubber band or chalk.

Conclusion: So, we concluded that the particles of the matter attract each other. This proves the existence of intermolecular forces between them.