HW
18 Oct 2021

Autumn holiday homework:-

1) What are the three states of matter? Define each of them with two examples.

Matter is divided into 3 categories →

* Solid State
* liquid state
* Gaseous state

SOLID STATE:-

- In solid the molecules are closely packed
- There is definite shape and volume

  Ex→ Books, Phone.

LIQUID STATE:-

- In liquid the molecules are loosely packed
- There is definite shape but not volume.

  Ex→ Water, Blood.

GASEOUS STATE:-

- In Gaseous state the molecules are totaly loosely packed.
- The have neither definite shape nor definite volume

  Ex→ Oxygen, Nitrogen.

Define interconversion of states of matter.
What are the two factors affecting responsible for change of state of matter.
The phenomenon of change of one state matter into another and then back to the original state, without any change in its chemical composition is called interconversion of state of matter.

→ the change in the state of matter is caused by →

- Change in temperature
- change in pressure

3) What happens to water if
   a) It is kept in a deep freezer
   b) It is heated

a) If the water will kept in deep freezer the water start freezing and in freezing it will change into ice.

b) If the water will ~~kept on~~ be heated then it will start boiling

a) ~~Hot~~ Explain the phenomenon of change of state of matter of ~~matter~~ water.

Change of state of matter is affected by the change in temperature. Here the will change into 3 states including ~~two~~ liquid.

$$\text{Ice} \underset{\text{cool}}{\overset{\text{Heat}}{\rightleftharpoons}} \text{Water} \underset{\text{cool}}{\overset{\text{Heat}}{\rightleftharpoons}} \text{Steam}$$

(solid) (liquid) (gas)

b) Define ~~de~~

a) diffusion

b) Brownain motion

a) The intermixing of two or more substances due to the motion of their particles in order to get a uniform mixture is called diffusion.

b) The ~~random~~ random motion of suspended particles on the surface of suspended particles on the surface of liquid or in air is called Brownain motion

5) a) State the law of conservation of mass

State law of conservation of mass is state by Lavoisier which state that matter is neither created nor destroyed and state that "In a chemical reaction, the total mass of the products".

b) What do you observe when barium chloride solution is mixed with a sodium solution

We will observe that a white insoluble solid (Precipitate) of barium sulphate is formed along with a solution of sodium chloride. Wait for ~~turn~~ ten minutes to complete the reaction and the solid formed to settle down.

→ total mass of the apparatus + reactant

6) Give four difference between chemical and physical change.

→ Chemical change

- A change in which new substances are formed
- It is a permanent change
- Change cannot be recovered by simple physical methods.
- Heat or light required or absorbed.

Physical change

- A change where no new substance forms
- It can be reversible or irreversible
- It can be reversed by simple methods
- Heat or light neither be realised nor absorbed.

1. Give reason :-

a. Freezing of watter to ice and evaporation of of water are physical change.

It is a physical change as ~~it is~~ no new substance formed.

b. Burning of candle is both physical and chemical change.

When a candle burns, the oxygen in the air reacts and forms carbon-dioxide. A new substance, the CO_2 is formed which chemical change. and some of the molten wax drops on the floor, it again solidifies which shows as physical change

• Pure substances are made up of two or more pure substances mixed together in any proportion. They don't have set of properties

• Homogeneous and Heterogeneous -

• Homogeneous mixture in which the components mix with each other and its composition is uniform.

• Heterogeneous mixture in which the ~~component~~ composition is not uniform and different components are observed.

11. ~~Why is~~ How is sodium chloride different from its constituent elements?
Sodium is soft highly reactive metal. Chlorine is a poisonous non-metallic gas while sodium chloride is a very useful non poisonous compound.

12) Give one example for each of the following

a. Solid-solid homogeneous mixture
Cement

b. Solid-liquid hetrogeneous mixture
Chalk + water

c. Miscible liquid
~~Liquid~~ water + Ethanol

d. Liquid-gas homogeneous mixture.
Water + ~~Gas~~ carbondioxide.

13) Why is iron sulphide a compound?
Iron and sulfur are both elements ~~from~~. These are bothe chemical and physical properties.

14) Mention briefly about Dalton's atomic theory
~~Dalton~~ John Dalton who is known as Dalton is an ~~american~~ English scientist who described many things about Atom.

a) Atoms are something which are the smallest particle present in the matter and indivisible partice.

- Atoms neither be created nor destroyed
- The element of an atom are identical but not in size, mass, density and chemical properties.
- To form as the molecules of the element they are combine as very small number.

15) What are the two main features of Rutherford's atomic model?

According too to him there are two main features of atomic model →

1. the centrally located nucleus
2. the outer circular orbits

16) What are the observations of the experiment done by Rutherford in order to determine the structure of an atom?

Ans → Most of the alpha particle passed straight through the foil without any deflection from their path. A small fraction of them were deflected from their original path by small angles. Only few particles bounded back.

17.a) Define :-

a) Atomic structure

Atomic structure refers to the structure of an atom including nucleus which include proton and neutron

b) Mass number

The sum of the number of protons and neutrons present in the nucleus of the atom of an element.

c) Nucleons

It is the center of the atom

18) Name three fundamental particles of the atom. Give the symbol with charge on each particle.

Proton → P+

Neutron → NO

Electron → e-