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Solution 01

International Union of Pure and Applied Chemistry

Solution 02

(a) Law of conservation of mass - Antoine Lavoisier

(b) Law of constant proportions - Joseph Proust

Solution 03

(a) Law of conservation of mass.

(b) Law of constant proportions.

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Solution 04

John Dalton

Solution 05

Atoms can neither be created nor destroyed.

Solution 06

The elements consist of atoms having fixed mass, and that the number and kind of atoms of each element in a given compound is fixed.

Solution 07

Kanad ; 'parmanu'.

Solution 08

Law of Conservation of mass and law of constant proportions.

Solution 09

Law of constant proportions.

Solution 10

Law of Conservation of mass.

Solution 11

Atoms are the building blocks of matter.

Solution 12

The size of an atom indicated by its radius which is called 'atomic radius'.

Solution 13

The radius of an atom is usually expressed in 'nanometers'.

Solution 14

1 nanometer =  $10^{-9}$  m

Solution 15

'nm' represents nanometer.

Solution 16

Because they are very very small.

Solution 17

False ; it is Co

Solution 18

The molecular mass of a substance is the relative mass of its molecule as compared with the mass of a Carbon-12 atom taken as 12 units.

Solution 19

This means that a molecule of oxygen is 32 times heavier than  $1/12$  of a Carbon-12 atom.

Solution 20

(a) 1:8

(b) Conservation of mass

Solution 21

- (a) Carbon is used as a standard for atomic mass scale.  
(b) Atom with 6 neutrons and 6 protons in its nucleus so that its mass number is 12.

(c) Mass = 12 u

Solution 22

The major drawback of Dalton's atomic theory is that atoms were thought to be indivisible. But, it is not true since atoms are divisible.

Solution 23

No, the statement is not valid because atoms can be divided into subatomic particles called electrons, protons and neutrons.

Solution 24

Yes, 'THE SCANNING TUNNELLING MICROSCOPE' enables people to see atoms. This microscope can produce computer generated images of the surface of elements which show the individual atoms. The atoms show up as blurred images.

Solution 25

The symbol of element is the "first letter" or "first letter and another letter" of the English name or Latin name of the element.

For example, symbol of Hydrogen is "H" and symbol of Calcium is "Ca".

Solution 26

(a) Ca, Mg

(b) Cu, Hg

Solution 27

Hydrogen - H, Helium-He, Lithium-Li, Beryllium-Be, Boron-B

Solution 28

Sodium - Na

Potassium - K

Iron - Fe

Copper - Cu

Mercury - Hg

Silver - Ag

Solution 29

Hg - Mercury

Pb - Lead

Au - Gold

Ag - Silver

Sn - Tin

Solution 30

The number of atoms present in one molecule of an element is called atomicity of that element.

For example, atomicity of sodium is 1 and that of nitrogen is 2.

Solution 31

(a) Oxygen = 2

(b) Ozone = 3

(c) Neon = 1

(d) Sulphur = 8

(e) Phosphorus = 4

(f) Sodium = 1

Solution 32

A chemical formula represents the composition of a molecule of the substance in terms of the symbols of the elements present in the molecule. It is also known as molecular formula.

Chemical formula of element -  $H_2$  for hydrogen

Chemical formula of compound -  $H_2O$  for water

Solution 33

(a) Water-  $H_2O$ ; Elements present are Hydrogen and Oxygen.

(b) Ammonia-  $NH_3$ ; Elements present are Nitrogen and Hydrogen.

(c) Methane- $CH_4$ ; Elements present are Carbon and Hydrogen.

(d) Sulphur dioxide- $SO_2$ ; Elements present are Sulphur and Oxygen.

(e) Ethanol- $C_2H_5OH$ ; Elements present are carbon, hydrogen and oxygen.

Solution 34

2N represents two separate atoms of nitrogen and  $N_2$  represents

one molecule of nitrogen.

\*\*\*\*\* END \*\*\*\*\*