

## Class 9 science Lesson 3

### Atoms and molecules

#### Fill In The Blanks

1. During a chemical reaction, the sum of the \_\_\_\_\_ of the reactants and products remain unchanged.
2. In a pure chemical compound, elements are always present in a \_\_\_\_\_ proportion by mass.
3. Clusters of atoms that act as an ion are called \_\_\_\_\_ ions.
4. In ionic compounds, the charge on each ion is used to determine the \_\_\_\_\_ of the compound.
5. The Avogadro constant \_\_\_\_\_ is defined as the number of atoms in exactly \_\_\_\_\_ of carbon-12.
6. Mass of 1 mole of a substance is called its \_\_\_\_\_.
7. The abbreviation used for length names of elements are termed as their \_\_\_\_\_.
8. A chemical formula is also known as a \_\_\_\_\_.
9. Those ions which are formed from single atoms are called \_\_\_\_\_.
10. Ionic compounds are formed by the combination between \_\_\_\_\_ and \_\_\_\_\_.
11. The valency of an ion is \_\_\_\_\_ to the charge on the ion.
12. Mole is a link between the \_\_\_\_\_ and \_\_\_\_\_.
13. The SI unit of amount of a substance is \_\_\_\_\_.

#### Answers

##### 1. Masses

##### 2. Definite

3. Polyatomic
4. Chemical formula
5.  $6.022 \times 10^{23}$ , 12g
6. Molar mass
7. Symbol
8. Molecular formula
9. Simple ions
10. Metal and non-metals
11. Equal

12. Mass of atoms & number of atoms

13. Mole

### True / False

1. Formula mass of  $\text{Na}_2\text{O}$  is 62 amu.
2. Those particles which have more or less electrons than the normal atoms are called ions.
3. Formula for sulphur dioxide is  $\text{SO}_3$ .
4. Molar mass of ethyne ( $\text{C}_2\text{H}_2$ ) is 26 g/mol.
5. 22 gm of  $\text{CO}_2$  consists of 1 mole.
6. Number of molecules in 32 gram of oxygen is  $6.02 \times 10^{23}$ .
7. Water is an atom.
8. Formula for sulphur dioxide is  $\text{SO}_2$ .
9. Clusters of atoms that act as an ion is called polyatomic ion.
10. Mass of 1 mole of a substance is called its formula mass.
11. In a pure chemical compound, elements are always present in a definite proportion by mass.

### Answers

1. True
2. True
3. False
4. True
5. False
6. True
7. False
8. True
9. True
10. False
11. True

1. Define term mole.

Ans .The mole is the amount of substance that contains the same number of particles (atoms/ ions/ molecules/ formula units etc.) as there are atoms in exactly 12 g of carbon-12.

2. What is Avogadro's Number?

The Avogadro constant  $6.022 \times 10^{23}$  is defined as the number of atoms in exactly 12 g of carbon-12.

3. What is gram atomic weight?

Ans. Gram atomic weight is the mass in gram of 1 mole of atoms in a mono-atomic chemical element

4. What is the difference between  $\text{CO}_2$  and  $2\text{CO}_2$ ?

Ans.

$\text{CO}_2$  means 1 molecule of carbon dioxide  $2\text{CO}_2$  means 2 molecules of carbon dioxide