

7.10.24

TENDER HEART HIGH SCHOOL, SEC-33B, CHD

CLASS - VII

SUBJECT - CHEMISTRY

CHAPTER - 4

TEACHER - ANAMIKA

Good morning to all the students!

Students this lesson is for class-VII
for the subject of chemistry, Topic:- 'Molecules
of Compounds' which is covered in chapter
4. 'Atoms, Molecules And Radicals'
starting on page no-50 of your text-book
titled - 'Concise Chemistry, by 'Delina Publication'
and is being submitted to you on
7th October, 2024

All students may now please open page
no-50 of your notebook in front of you.

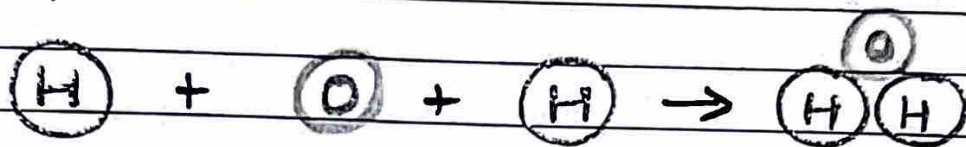
If all students are ready then let us
start with this chapter. All students may
now please listen carefully.

Molecules of Compounds :-

When two or more elements join
together in a fixed ratio by mass,
a molecule of compound is formed.

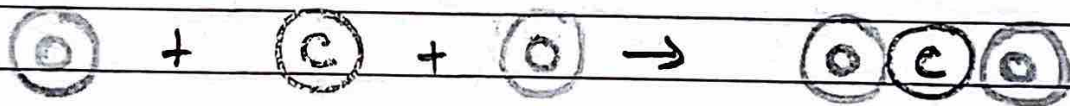
Examples:-

1. One atom of oxygen and two atoms of hydrogen combine to form a molecule of water.



1 Atom 1 Atom 1 Atom 1 Molecule of Water (H_2O)

2. Two atoms of oxygen combines with one atom of carbon to form a carbon dioxide.



1 Atom 1 Atom 1 Atom 1 Molecule of Carbon Dioxide (CO_2)

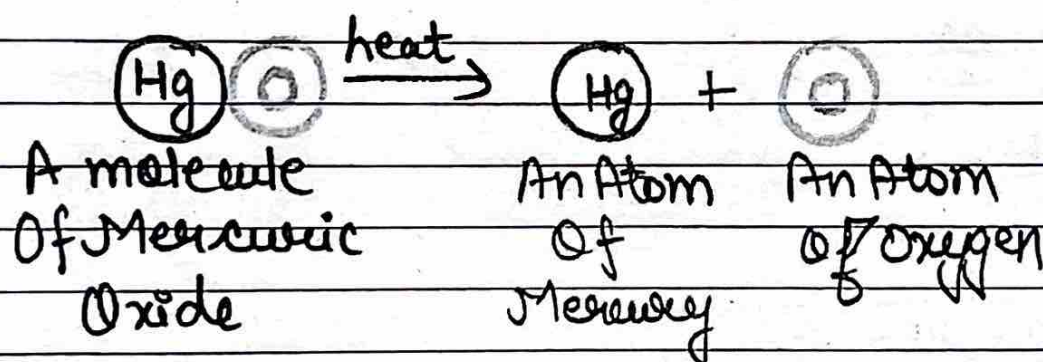
Accordingly, a water molecule is a liquid, but hydrogen and oxygen atoms are gaseous.

Similarly, carbon dioxide is a gaseous compound but carbon is a solid element.

A molecule of a compound can be broken into its constituent elements using chemical methods.

Example :-

1. Mercuric oxide is a solid compound. When it is heated, it decomposes to give mercury and oxygen, which are elements.



Students, let us discuss the next topic of this chapter which is 'Radicals'

Radicals :-

"A radical is an atom of an element or a group of atoms of different elements that behaves as a single unit with a positive or negative charge on it."

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Radicals are of two types:

(i) Basic radical :-

The radical which have (+)ve. charge are called basic radical or cations.
Eg :- Mg^{2+} , Al^{3+} , Na^{+} etc.

(ii) Acid radical :-

The radical which have (-)ve charge are called acidic radical or anions.
Eg :- Cl^{-} , Br^{-} , SO_4^{2-} , CO_3^{2-}

Ions :-

The electrically charged atoms or groups of atoms formed by losing or gaining of electrons are called ions.
eg :- Na^{+} , Cl^{-}

Students, you may observe the representation of some positive & negative radical & their valency by Table (4.2 or 4.3) given on page no 51 of your chemistry notebook.

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next we will discuss 'Valency' and 'Variable Valency'.

Valency:-

The combining capacity of an element or of a radical is known as valency.

Example:-

The valency of hydrogen is taken as 1.

- 1) In ammonia (NH_3) gas, one atom of nitrogen combines with three atoms of hydrogen; hence valency of nitrogen is 3.
- 2) In a methane (CH_4) molecule, one carbon atom combines with four atoms of hydrogen; hence valency of carbon is 4.

Variable Valency:-

Those elements which exhibit more than one valency, that means they show variable valency.

If an element exhibits two different valencies, then suffix ous is

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used for lower valency and suffix
is used for higher valency

You may observe the 'Variable positive
valency' by Table 4.5 given on pg no 52
of your chemistry notebook.

Now, I will give you three very short
Questions. You will get a three minutes break
to write the answers.

Q1:- Give an example of molecule of a compound.

Q2:- Identify the basic or acidic radical among
NaCl, NaOH

Q3:- What is the valency of carbon in CH_4 ?

I hope you all have written the answers
by now. Let us check the answers now.

Ans 1:- H_2O , CO_2 , NH_4 etc

Ans 2:- Na^+Cl^- , Na^+OH^-
Basic Radical Acidic Radical Basic Radical Acidic Radical

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Ans 3 The valency of carbon in CH_4 is 4.

With this I am ending the lesson for today by giving 'Instructions'

Instructions :-

You all are required to read the lesson again and learn the definitions of radical, ions, etc.

X (End) X