ATOMS AND MOLECULES

SUBJECT-CHEMISTRY

CHAPTER NO- 3

Introduction to Mole Concept and Its Numerical
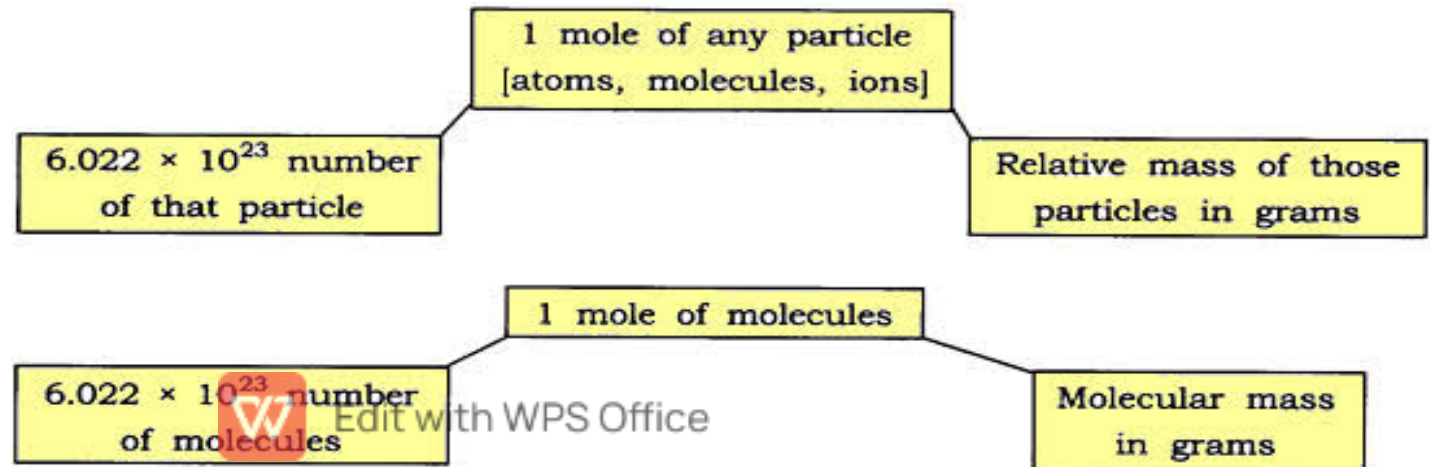
PERIOD-7

LEARNING OBJECTIVE

Students will be able to

- Know about the Mole Concept.

- Get aware of the Formula Involving Mole Concept.

- Know about the process to solve the numerical involving Mole Concept.

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MOLE CONCEPT

- A Mole of a substance is defined as the aggregate of *6.022 X 10 23* number of atoms /molecules/particles or ions.

- The value of 6.022 X 10 23 is known as Avogadro's Constant or Avogadro's Number.

- The different relationship in terms of other quantities with mole is given as follows:

	1 mole of any particle [atoms, molecules, ions]	
6.022×10^{23} number of that particle		Relative mass of those particles in grams

	1 mole of molecules	
6.022×10^{23} number of molecules		Molecular mass in grams

AVAGADRO'S CONSTANT

- In a substance, the number of entities present for e.g., atoms, molecules, ions, is defined as a mole. A mole of any substance is 6.022×10^{23} molecules.

- Mole concept is one of the most convenient ways of expressing the number of reactants and product in the reaction.

- The value of Avogadro's number is approximately 6.022×10^{23}. The definition of Avogadro's number is that it tells us the number of particles in 1 mole (or mol) of a substance. These particles could be electrons or molecules or atoms.

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FORMULA INVOLVING MOLE CONCEPT

- Number of Moles (n) = Mass in grams / Molar Mass

- $n = m/M$

- Where n= Number of Moles

       m= Mass in grams

       M=Molar Mass / Molecular Mass

Number of Moles (n) = Number of particles / Avogadro's Number.

n= N/NA

WHERE

n=Number of Moles

 N=Number of particles/ Atoms/Ions

 NA = Avogadro's Number 6.022×10^{23}

Finally the expression can be given as follows :

m/M = N/ NA

HOME ASSIGNMENT

- Exercise-1 (Q No. 12,13,14,15 &16) Exercise-II (Q 7,8,9&10)

THANKING YOU

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