



CHEMISTRY

NCERT - NCERT Chemistry(Tamil)

ATOMS AND MOLECULES

Example

1. Oxygen is the most abundant element in both the Earth's crust and the human body. It exists as a mixture of three stable isotopes in

nature as shown in Table :

Isotope	Mass (amu)	% abundance
${}^8\text{O}^{16}$	15.9949	99.757
${}^8\text{O}^{17}$	16.9991	0.038
${}^8\text{O}^{18}$	17.9992	0.205



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2. Boron naturally occurs as a mixture of boron-10 (5 protons + 5 neutrons) and boron-11 (5 protons + 6 neutrons) isotopes. The percentage abundance of B-10 is 20 and that of B-11 is 80. Then, the atomic mass of boron is calculated as follows:



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3. Relative molecular mass of sulphuric acid (H_2SO_4) is calculated as follows: Sulphuric acid contains 2 atoms of hydrogen, 1 atom of sulphur and 4 atoms of oxygen.



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4. Relative molecular mass of water (H_2O) is calculated as follows: A water molecule is

made of 2 atoms of hydrogen and one atom of oxygen.



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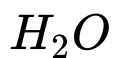
5. Find the mass percentage composition of methane (CH_4).



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Solved Problems Calculation Of Molar Mass

1. Calculate the gram molar mass of the following



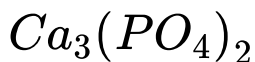
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2. Calculate the gram molar mass of the following



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3. Calculate the gram molar mass of the following



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Solved Problems Calculation Based On Number Of Moles From Mass And Volume

1. Calculate the number of moles in 46 g of sodium?



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2. 5.6 litre of oxygen at S.T.P



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3. Calculate the number of moles of a sample that contains 12.046×10^{23} atoms of iron ?



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Solved Problems Calculation Of Mass From Mole

1. Calculate the mass of the following

0.3 mole of aluminium (Atomic mass of Al = 27)



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2. Calculate the mass of the following

2.24 litre of SO_2 gas at S.T.P.



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3. Calculate the mass of the following

1.51×10^{23} molecules of water



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4. Calculate the mass of the following

5×10^{23} molecules of glucose ?



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Solved Problems Calculation Based On Number
Of Atoms Molecules

1. Calculate the number of molecules in 11.2 litre of CO_2 at S.T.P



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2. Calculate the number of atoms present in 1 gram of gold (Atomic mass of Au = 198)



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3. Calculate the number of molecules in 54 gm of H_2O ?



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4. Calculate the number of atoms of oxygen and carbon in 5 moles of CO_2 .



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Solved Problems Calculation Based On Molar Volume

1. Calculate the volume occupied by:

2.5 mole of CO_2 at S. T. P



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2. Calculate the volume occupied by:

3.011×10^{23} of ammonia gas molecules



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3. Calculate the volume occupied by:

14 g nitrogen gas



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Solved Problems Calculation Based On
Composition

1. Calculate % of S in H_2SO_4



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Textbook Evaluation Fill In The Blanks

1. Atoms of one element can be transmuted into atoms of other element by _____.



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2. The sum of the numbers of protons and neutrons of an atom is called its _____.



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Textbook Evaluation True Or False

1. Noble gases are Diatomic



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2. 1 mole of Gold and Silver contain same number of atoms



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Textbook Evaluation Short Answer Questions

1. What is Molar volume of a gas?



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Textbook Evaluation Long Answer Questions

1. Calculate the number of moles in

i) 27g of Al

ii) 1.51×10^{23} molecules of NH_4Cl



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