SOME BASIC CONCEPTS OF CHEMISTRY

CHEMISTRY

✓ NEET 2023

01 — NATURE OF MATTER

MATTER
- PURE SUBSTANCE
  - ELEMENTS
  - COMPOUNDS
- MIXTURE
  - HOMOGENEOUS
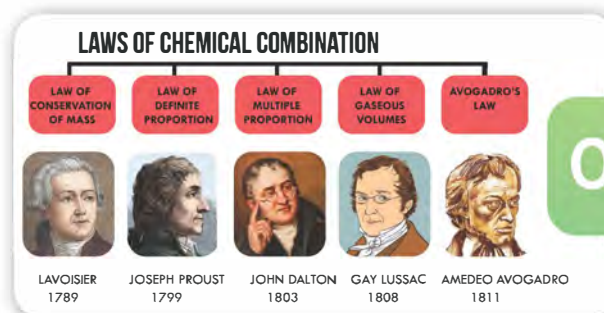 - HETEROGENEOUS
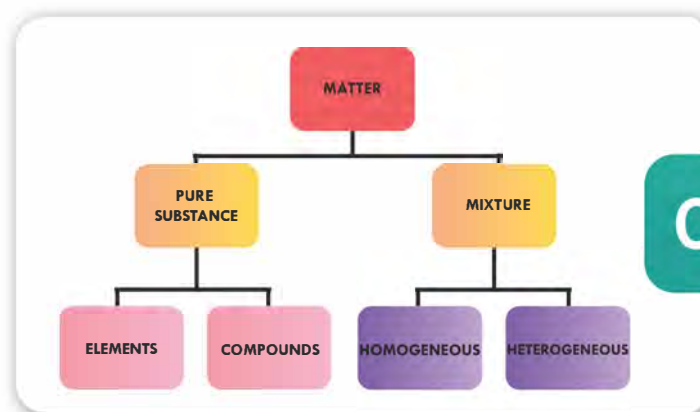
Which one of the following is not a mixture
(A) Tap water   (B) Distilled water
(C) Salt in water   (D) Oil in water

02 — LAWS OF CHEMICAL COMBINATIONS

LAWS OF CHEMICAL COMBINATION
- LAW OF CONSERVATION OF MASS
- LAW OF DEFINITE PROPORTION
- LAW OF MULTIPLE PROPORTION
- LAW OF GASEOUS VOLUMES
- AVOGADRO'S LAW

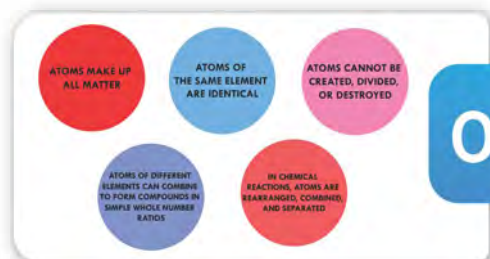LAVOISIER 1789 — JOSEPH PROUST 1799 — JOHN DALTON 1803 — GAY LUSSAC 1808 — AMEDEO AVOGADRO 1811
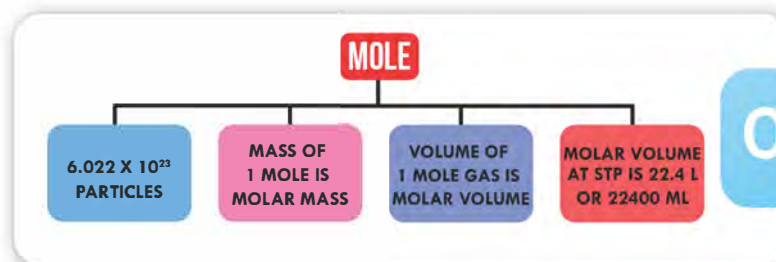
Which one of the following pairs of compound illustrate the law of multiple proportions ?
(A) H_2O, Na_2O (B) MgO, Na2O
(C) Na_2O, BaO   (D) $SnCl_2$, $SnCl_4$

03 — DALTON'S ATOMIC THEORY

- ATOMS MAKE UP ALL MATTER
- ATOMS OF THE SAME ELEMENT ARE IDENTICAL
- ATOMS CANNOT BE CREATED, DIVIDED, OR DESTROYED
- ATOMS OF DIFFERENT ELEMENTS CAN COMBINE TO FORM COMPOUNDS IN SIMPLE WHOLE NUMBER RATIOS
- IN CHEMICAL REACTIONS, ATOMS ARE REARRANGED, COMBINED, AND SEPARATED

04 — MOLE CONCEPT

MOLE
- 6.022×10^{23} PARTICLES
- MASS OF 1 MOLE IS MOLAR MASS
- VOLUME OF 1 MOLE GAS IS MOLAR VOLUME
- MOLAR VOLUME AT STP IS 22.4 L OR 22400 ML

Which one of the followings has maximum number of atoms?
(A) 1 g of Mg(s) [Atomic mass of Mg = 24]
(B) 1 g of O_2 [Atomic mass of O=16]
(C) 1 g of Li(s) [Atomic mass of Li = 7]
(D) 1 g of Ag(s) [Atomic mass of Ag = 108]
NEET 2020

05 — PERCENTAGE COMPOSITION

Percentage composition of H_2O
MASS % OF H $\frac{2}{18} \times 100$ MASS % OF O $\frac{16}{18} \times 100$

Percentage composition of CO_2
MASS % OF C $\frac{12}{44} \times 100$ MASS % OF O $\frac{32}{44} \times 100$

Mass % of carbon in ethanol is
(A) 52 (B) 13 (C) 34 (D) 90

06 — EF & MF

ACTUAL FORMULA	SIMPLEST FORMULA
Molecular Formula	Empirical Formula
$C_3H_6O_3$	CH_2O
$C_{10}H_{14}N_2$	C_5H_7N
$C_{12}H_{22}O_{11}$	$C_{12}H_{22}O_{11}$

An organic compound contains 80% (by wt.) C & the remaining percentage of H . The empirical formula of this compound is:
(A) CH_3 (B) CH_4 (C) CH   (D) CH_2
NEET 2021

07 — LIMITING REACTANT

A B C D
How many burgers can be made ?
Which part is the Limiting reactant ?

The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is
(A) 40 (B) 10   (C) 20   (D) 30
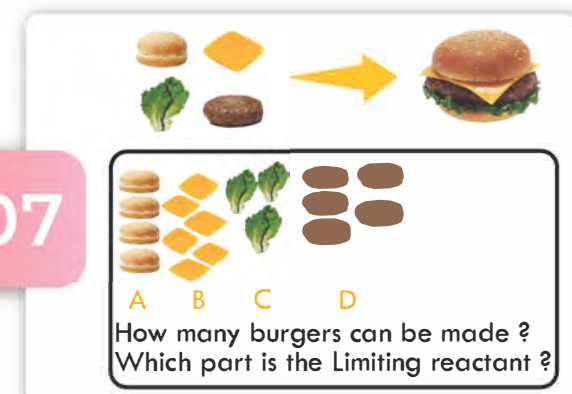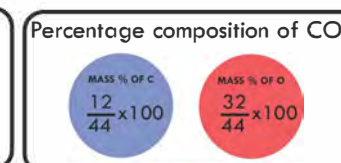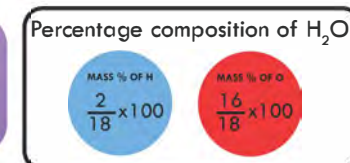NEET 2019

08 — STOICHIOMETRIC CALCULATIONS

FIRST IDENTIFY THE LIMITING REACTANT BY CALCULATING THE REQUIRED MOLES & AVAILABLE MOLES OF REACTANTS.

THEN CALCULATE THE AMOUNT OF PRODUCT FROM THE AMOUNT OF LIMITING REACTANT

When 22.4L of $H_2(g)$ is mixed with 11.2L of $Cl_2(g)$, each at STP, the moles of HCl(g) formed is equal to
(A) 0.5 (B) 1.5 (C) 1 (D) 2
AIPMT 2014