

Time : 1 hour 30 Minute

STD 9 Science

Total Marks : 50

Chapter Based Test

section A

* Choose the correct option from the given options [7]

- Nitrogen and hydrogen combine together to form ammonia.
 $N_2 + 3H_2 \rightarrow 2NH_3$ [Relative atomic masses of N = 14u, H = 1u]
The mass of nitrogen and hydrogen which combine together to form 6.8g ammonia is,
(A) $N_2 = 2.8g, H_2 = 4.0g$ (B) $N_2 = 5.6g, H_2 = 1.2g$ (C) $N_2 = 4.0g, H_2 = 2.8g$ (D) $N_2 = 12g, H_2 = 5.6g$
- In a chemical reaction 10.6g of sodium carbonate reacted with 12g of ethanoic acid.
The products were 4.4g carbon dioxide, 1.8g of water and sodium ethanoate. The mass of sodium ethanoate formed is
(A) 16.4g (B) 0.16g (C) 24g (D) 8.2g
- Mass of one atom of oxygen is:
(A) $\frac{16}{6.023 \times 10^{23}}g$ (B) $\frac{32}{6.023 \times 10^{23}}g$ (C) $\frac{1}{6.023 \times 10^{23}}g$ (D) 8u
- _____ deduced that all kind of matter are made up of "anu".
(A) Dalton (B) Sir. J. J. Thomson (C) Kanad (D) Rutherford
- Atomic theory was given by:
(A) John Dalton (B) Neils Bohr (C) E. Rutherford (D) Haber Bosch
- The atomic theory of matter was proposed by:
(A) John Kennedy. (B) Lavoisier. (C) Proust. (D) John Dalton.
- One of the following elements has an atomicity of 'one'. This element is:
a. Helium.
b. Hydrogen.
c. Sulphur.
d. Ozone.

* Fill in the blank with correct answer [4]

- Matter can neither be created nor be destroyed is law of _____.
- Fill in the following blanks:
64g of oxygen gas contains _____ Moles of oxygen atoms.
- Fill in the following blanks:
1 mole contains _____ atoms, molecules or ions of a substance.
- Fill in the following blanks with suitable words:
In a chemical reaction, the sum of the masses of the reactants and the products remains unchanged. This is called _____.

*** Do as directed**

[2]

12. Find the ratio by mass of the combining elements in the following compounds.
MgCl₂
13. Give a brief description of the following:
Atomic mass unit.

section B

*** Answer the Questions in brief**

[10]

1. 'If 100 grams of calcium carbonate (whether in the form of marble or chalk) are decomposed completely, then 56 grams of calcium oxide and 44 grams of carbon dioxide are obtained'. Which law of chemical combination is illustrated by this statement?
2. Calculate the number of molecules in 88g of this gas sample. [Given, atomic masses of C = 12u, O = 16u, N_A = 6.022 × 10²³ per mole]
3. Calculate the mole ratio of 240g calcium and 240g of magnesium.
(Ca = 40u; Mg = 24u)
4. Calculate the number of moles of magnesium present in a magnesium ribbon weighing 12g. Molar atomic mass of magnesium is 24g mol⁻¹.
5. Define mole. What are the two things that a mole represents?

section C

*** Answer the Questions in detail**

[12]

1. If the aluminium salt of an anion X is Al₂X₃, what is the valency of X? What will be the formula of the magnesium salt of X?
2. The formula of carbonate of a metal M is M₂CO₃.
- What will be the formula of its iodide?
 - What will be the formula of its nitride?
 - What will be the formula of its phosphate?
3. Why is it necessary to use the symbol for the elements?
4. Calculate the molecular masses of the following:
- Hydrogen, H₂
 - Oxygen, O₂
 - Chlorine, Cl₂
 - Ammonia, NH₃
 - Carbon dioxide, CO₂
- (Atomic masses: H = 1 u; O = 16 u; Cl = 35.5 u; N = 14 u; C = 12 u)

section D

*** Answer the Questions in detail [5 marks each]**

[15]

1. State the law of conservation of mass. Give one example to illustrate this law.
2. State the various postulates of Dalton's atomic theory of matter.
3. The mass of one atom of an element X is 2.0 × 10⁻²³g.

- i. Calculate the atomic mass of element X.
- ii. What could element X be?

