

ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION SOLUTION-02(CLASS-11)

TOPIC- SOME BASIC CONCEPT OF CHEMISTRY



<u>SUBTOPIC</u>-MOLE CONCEPT SUBJECT – CHEMISTRY DURATION – 30 mins

F.M. - 15 DATE -16.06.20

1.1 Naturally occurring chlorine is 75.53% Cl³⁵ which has an atomic mass of 34.969 amu and 24.47% Cl³⁷ which has a mass of 36.966 amu. Calculate the average atomic mass of chlorine-

(a) 35.5 amu(b) 36.5 amu(c) 71 amu(d) 72 amu

Ans. a

```
1.2 How many carbon atoms are present in 0.35 mol of C_6H_{12}O_6-
```

```
(a) 6.023 \times 10^{23} carbon atoms (b) 1.26 \times 10^{23} carbon atoms (c) 1.26 \times 10^{24} carbon atoms (d) 6.023 \times 10^{24} carbon atoms
```

Ans. c

1.3 Calculate the mass in gm of $2N_A$ molecules of CO_2 -(a)22 g (b) 44 g (c) 88 g (d) none of these

Ans. c

1.4 How many years it would take to spend Avogadro's number of rupees at the rate of 1 million rupees in one second -

(a) 19.098×10^{19} years(b) 19.098 years(c) 19.098×10^{9} years(d) None of these

Ans. c

```
1.5 Calculate the number of Cl<sup>-</sup> and Ca<sup>+2</sup> ions in 222 g anhydrous CaCl<sub>2</sub>-
```

(a) 2NA ions of Ca^{+2} 4 N ions of Cl^{-} (b) 2NA ions of Cl^{-} 4N ions of Ca^{+2}

(c) 1NA ions of Ca^{+2} & 1N ions of $Cl^{-}(d)$ none of these.

Ans. a

```
1.6 What is the molecular mass of a substance, each molecule of which contains 9 carbon atoms, 13 hydrogen atoms and 2.33 \times 10<sup>-23</sup> g of other component?
```

(a) 135.04(b) 153.04(c) 115.04(d) None of the above

Ans. a

1.7 The density of O_2 at 0°C and 1 atm is 1.429g / litre. The molar volume of gas is –

(a) 22.4 lit.(b) 11.2 lit(c) 33.6 lit(d) 5.6 lit.

Ans. a

```
1.8 How many g of S are required to produce 10 moles and 10g of H_2\,SO_4 respectively?
```

```
(a) 320 g, 3.265 g (b) 310 g, 3.265 g (c) 230 g, 3.526 g (d) 300 g, 3.265 g
```

Ans. a

1.9 The number of atoms present in one mole of an element is equal to Avogadro number. Which of the following element contains the greatest number of atoms?

(a)4g He (b)46g Na(c) 0.40g Ca(d)12g He Ans. d

1.105 Moles of CH₄contains-

a)120.46×10²³ atoms of Hb) 4 gm-atoms of hydrogen b) 1.81x 10^{23} molecules of CH₄ d)3g of Carbon Ans. a

1.11Which of the following pairs have the same number of atoms?

a) 16 g of O_2 (g) and 4 g of H_2 (g) b) 16 g of O_2 and 44 g of CO_2 c) 28 g of N_2 and 32 g of O_2 d) 12 g of C(s) and 25 g of Na(s) **Ans. c**

1.12What is the mass percent of carbon in carbon dioxide?

a) 0.034%b) 27.27%c) 3.4%d) 28.7%

Ans. b

1.13 The empirical formula and molecular mass of a compound are CH_2O and 180 g respectively. What will be the molecular formula of the compound?

a)C₉H₁₈O₉ b)CH₂O c)C₆H₁₂O₆d)C₂H₄O₂ Ans. c

1.14 The number of Ammonia molecules is the maximum in-

a) 34 molecules of water b) 3.4 g of water c) 34 g of water d) 34 moles of water Ans.d

1.15 Which of the following has the least volume?

a)20g O₂b)5g-atoms of C c)0.005moles of Cd)28g $N_{\rm 2}$

Ans. c

PREPARED BY: MR. ARNAB PAUL CHOWDHURY