JEE CHEMISTRY

Topic: Mole Concept

Q.1 Mass of 1 atom of Hydrogen is -

(A) 1.66×10^{-24} g 　　　(B) 10^{-22} g

(C) 10^{-23} g 　　　(D) 10^{-25} g

Q.2 Which of the following contains the largest number of atoms -

(A) 11g of CO_2 　　　(B) 4g of H_2

(C) 5g of NH_3 　　　(D) 8g of SO_2

Q.3 How many atoms are contained in a mole of $Ca(OH)_2$:

(A) $30 \times 6.02 \times 10^{23}$ atoms/mol

(B) $6 \times 6.02 \times 10^{23}$ atoms/mol

(C) 6.02×10^{23} atoms/mol

(D) $5 \times 6.02 \times 10^{23}$ atoms/mol

Q.4 What is correct for 10 g of $CaCO_3$ -

(A) It contains 1g-atom of carbon

(B) It contains 0.3 g-atoms of oxygen

(C) It contains 12 g of calcium

(D) None of these

Q.5 The total number of electrons present in 18 mL water (density 1 g/mL) is -

(A) 6.023×10^{23} 　　　　(B) 6.023×10^{24}

(C) 6.023×10^{25} 　　　(D) 6.023×10^{21}

Q.6 Number of oxygen atoms in 8 gms of ozone is -

(A) 6.02×10^{23}

(B) $\dfrac{6.02 \times 10^{23}}{2}$

(C) $\dfrac{6.02 \times 10^{23}}{3}$

(D) $\dfrac{6.02 \times 10^{23}}{6}$

Q.7 No. of oxalic acid molecules in 100 ml of 0.02 N oxalic acid is -

(A) 6.023×10^{20}

(B) 6.023×10^{21}

(C) 6.023×10^{22}

(D) 6.023×10^{23}

Q.8 Total number of atoms present in 64 gm of SO_2 is -

(A) $2 \times 6.02 \times 10^{23}$

(B) 6.02×10^{23}

(C) $4 \times 6.02 \times 10^{23}$

(D) $3 \times 6.02 \times 10^{23}$

Q.9 The number of oxygen atoms present in 14.6 g of magnesium bicarbonate [$Mg(HCO_3)_2$] is

(A) $6N_A$

(B) $0.6N_A$

(C) N_A

(D) $0.5\ N_A$

Q.10 One mole of P_4 molecules contains -

(A) 1 molecule

(B) 4 molecules

(C) $1/4 \times 6.022 \times 10^{23}$ atoms

(D) 24.088×10^{23} atoms

Q.11 The total number of protons, electrons and neutrons in 12gm of $_6C^{12}$ is -

(A) 1.084×10^{25}

(B) 6.022×10^{23}

(C) 6.022×10^{22}

(D) 18

Q.12 The number of sodium atoms in 2 moles of sodium ferrocyanide $Na_4[Fe(CN)_6]$, is-

(A) 2

(B) 6.023×10^{23}

(C) $8 \times 6.02 \times 10^{23}$

(D) $4 \times 6.02 \times 10^{23}$

Q.13 Out of 1.0 g dioxygen, 1.0 g (atomic) oxygen and 1.0 g of ozone, the maximum number of oxygen atoms are contained in -

(A) 1.0 g of atomic oxygen.

(B) 1.0 g of ozone.

(C) 1.0 g of oxygen gas.

(D) All contain same number of atoms

Q.14 Number of Ca^{+2} and Cl^- ion in 111 g of anhydrous $CaCl_2$ are -

(A) N_A, $2N_A$ (B) $2N_A$, N_A

(C) N_A, N_A (D) None

Q.15 2 moles of H_2 at NTP occupy a volume of

(A) 11.2 litre (B) 44.8 litre

(C) 2 litre (D) 22.4 litre

Q.16 4.0 g of caustic soda (mol mass 40) contains same number of sodium ions as are present in-

(A) 10.6 g of Na_2CO_3 (mol. mass 106)

(B) 58.5 g of NaCl (Formula mass 58.5)

(C) 100 ml of 0.5 M Na_2SO_4

(Formula mass 142)

(D) 1mol of $NaNO_3$ (mol. mass 85)

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Q.17 0.01 mole of iodoform (CHI_3) reacts with Ag to produce a gas whose volume at NTP is -

(A) 224 ml   (B) 112 ml

(C) 336 ml   (D) None of these

Q.18 If 1.6 gms of SO_2 1.5×10^{22} molecules of H_2S are mixed and allowed to remain in contact in a closed vessel until the reaction

$2H_2S + SO_2 \longrightarrow 3S + 2H_2O$,

proceeds to completion. Which of the following statement is true ?

(A) Only 'S' and 'H_2O' remain in the reaction vessel

(B) 'H_2S' will remain in excess

(C) 'SO_2' will remain in excess

(D) None of these

Q.19 1.0 gm of a metal combines with 8.89 gms of Bromine. Equivalent weight of metal is nearly : (at. wt. of Br = 80)

(A) 8   (B) 9   (C) 10   (D) 7

Q.20 2.8 gm of iron displaces 3.2 gm of copper from a solution of copper sulphate solution. If the equivalent mass of iron is 28, then equivalent mass of copper will be -

(A) 16   (B) 32   (C) 48   (D) 64

Q.21 2.76 gm of silver carbonate on being strongly heated yields a residue weighing -

(A) 2.16 gm   (B) 2.48 gm

(C) 2.32 gm   (D) 2.64 gm

Q.22 A hydrocarbon contains 80% of carbon, then the hydrocarbon is -

(A) CH_4 (B) C_2H_4 (C) C_2H_6 (D) C_2H_2

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Q.23 A giant molecule contains 0.25% of a metal whose atomic weight is 59. Its molecule contains one atom of that metal. Its minimum molecular weight is -

(A) 5900   (B) 23600

(C) 11800   (D) $\dfrac{100 \times 59}{0.4}$

Q.24 $CaCO_3$ is 90% pure. Volume of CO_2 collected STP when 10 gms of $CaCO_3$ is decomposed is -

(A) 2.016 litres   (B) 1.008 litres

(C) 10.08 litres   (D) 20.16 litres

Q.25 The formula of a metal oxide is Z_2O_3. If 6 mg. of hydrogen is required for complete reduction of 0.1596 gm metal oxide, then the atomic weight of metal is -

(A) 227.9   (B) 159.6

(C) 79.8   (D) 55.8

Q.26 Percentage of Se in peroxidase anhydrous enzyme is 0.5% by weight (at. wt. = 78.4) then min. mol. wt. of peroxidase anhydrous enzymes is -

(A) 1.568×10^4

(B) 1.568×10^3

(C) 15.68

(D) 2.136×10^4

Q.27 The mass of carbon anode consumed (giving only carbondioxide) in the production of 270 Kg of aluminium metal from bauxite by the Hall process is -

(A) 180 Kg   (B) 270 Kg

(C) 240 Kg   (D) 90 Kg

Q.28 How many moles of lead (II) chloride will be formed from a reaction between 6.5 g of PbO and 3.2 g of HCl ? (Atomic wt. of Pb = 207) -

(A) 0.011   (B) 0.029

(C) 0.044   (D) 0.333

Q.29 The emperical formula of an organic compound is CH_2. One mole of this compound has a mass 42 gm. Its molecular formula is -   (A) CH_2 (B) C_3H_6

(C) C_2H_2 (D) C_3H_8

Q.30 The mass of 70% pure H_2SO_4 required for neutralisation of 1 mol of NaOH -

(A) 49 gm   (B) 98 gm

(C) 70 gm   (D) 34.3 gm

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	A	B	D	B	B	B	A	D	B	D
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	A	C	D	A	B	C	B	C	B	B
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	A	C	B	A	D	A	D	B	B	C