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NEET SOME BASIC CONCEPTS OF CHEMISTRY — PYQS

Max. Marks: 204 **Questions:** 51

Section A (MCQ) — 51 questions

Q.1 When 1 dm^3 of CO_2 gas is passed over hot coke, the volume of gaseous mixture after complete reaction at STP becomes 1.4 dm^3. The composition of the gaseous mixture at STP is : [NEET (UG) 2026]

(1) 0.6 dm^3 of CO, 0.8 dm^3 of CO_2
(2) 0.8 dm^3 of CO, 0.8 dm^3 of CO_2
(3) 0.6 dm^3 of CO, 0.4 dm^3 of CO_2
(4) 0.8 dm^3 of CO, 0.6 dm^3 of CO_2

Scan or tap for the full solution

Q.2 The number of hydrogen atoms present in 5.4 g of urea is :
(Given : Molar mass of urea : 60 g mol^{-1}, N_A : 6.022 × 10^{23} particles mol^{-1}) [NEET (UG) 2026]

(1) 2.168 × 10^{22} (2) 2.168 × 10^{23}
(3) 1.084 × 10^{22} (4) 1.084 × 10^{23}

Scan or tap for the full solution

Q.3 The numbers 17.0145 and 21.0235 were rounded to three figures after the decimal point. The resulting numbers, respectively, are [RE-NEET (UG) 2026]

(1) 17.015 and 21.024 (2) 17.014 and 21.023
(3) 17.015 and 21.023 (4) 17.014 and 21.024

Scan or tap for the full solution

Q.4 The amount of carbon dioxide evolved upon complete combustion of 116 g of n-butane is
(Given: atomic mass in amu H = 1, C = 12 and O = 16) [RE-NEET (UG) 2026]

(1) 362 g (2) 352 g (3) 322 g (4) 176 g

Scan or tap for the full solution

Q.5 Among the following, choose the ones with equal number of atoms.
A. 212 g of Na_2CO_3(s) [molar mass = 106 g]
B. 248 g of Na_2O(s) [molar mass = 62 g]
C. 240 g of NaOH(s) [molar mass = 40 g]
D. 12 g of H_2(g) [molar mass = 2 g]
E. 220 g of CO_2(g) [molar mass = 44 g]
Choose the correct answer from the options given below: [NEET (UG) 2025]

(1) B, C, and D only (2) B, D, and E only
(3) A, B, and C only (4) A, B, and D only

Scan or tap for the full solution

Q.6 Dalton's Atomic theory could not explain which of the following? [NEET (UG) 2025]

(1) Law of multiple proportion
(2) Law of gaseous volume
(3) Law of conservation of mass
(4) Law of constant proportion

Scan or tap for the full solution

Q.7 1 gram of sodium hydroxide was treated with 25 mL of 0.75 M HCl solution, the mass of sodium hydroxide left unreacted is equal to [NEET (UG) 2024]

(1) 750 mg (2) 250 mg (3) Zero mg (4) 200 mg

Scan or tap for the full solution

Q.8 The highest number of helium atoms is in [NEET (UG) 2024]

(1) 4 mol of helium (2) 4u of helium
(3) 4 g of helium (4) 2.271098 L of helium at STP

Scan or tap for the full solution

Q.9 A compound X contains 32% of A, 20% of B and remaining percentage of C. Then, the empirical formula of X is :
(Given atomic masses of A=64 ; B=40 ; C=32 u) [NEET (UG) 2024]

(1) A_2BC_2 (2) ABC_3 (3) AB_2C_2 (4) ABC_4

Scan or tap for the full solution

Q.10 The amount of glucose required to prepare 250 mL of $\frac{M}{20}$ aqueous solution is :
(Molar mass of glucose : 180 g mol^{-1}) [RE-NEET (UG) 2024]

(1) 2.25 g (2) 4.5 g (3) 0.44 g (4) 1.125 g

Scan or tap for the full solution

Q.11 1.0 g of H_2 has same number of molecules as in: [RE-NEET (UG) 2024]

(1) 14 g of N_2 (2) 18 g of H_2O
(3) 16 g of CO (4) 28 g of N_2

Scan or tap for the full solution

Q.12 The right option for the mass of CO_2 produced by heating 20 g of 20% pure limestone is
(Atomic mass of Ca = 40)
$[CaCO_3 \xrightarrow{1200\ K} CaO + CO_2]$ [NEET (UG) 2023]

(1) 1.76 g (2) 2.64 g (3) 1.32 g (4) 1.12 g

Scan or tap for the full solution

Q.13 In one molal solution that contains 0.5 mole of a solute, there is [NEET (UG) 2022]

(1) 500 mL of solvent (2) 500 g of solvent
(3) 100 mL of solvent (4) 1000 g of solvent

Scan or tap for the full solution

Q.14 What mass of 95% pure $CaCO_3$ will be required to neutralise 50 mL of 0.5 M HCl solution according to the following reaction?
$CaCO_{3(s)} + 2HCl_{(aq)} \longrightarrow CaCl_{2(aq)} + CO_{2(g)} + 2H_2O_{(l)}$
[Calculate upto second place of decimal point]
[NEET (UG) 2022]

(1) 1.25 g (2) 1.32 g (3) 3.65 g (4) 9.50 g

Scan or tap for the full solution

Q.15 The density of the solution is 2.15 g mL^{-1}, then mass of 2.5 mL solution in correct significant figures is : [NEET (UG) 2022 (Phase 2)]

(1) 53.75 g (2) 5375×10^{-3} g
(3) 5.4 g (4) 5.38 g

Scan or tap for the full solution

Q.16 An organic compound contains 78% (by wt.) carbon and remaining percentage of hydrogen. The right option for the empirical formula of this compound is : [Atomic wt. of C is 12, H is 1]
[NEET (UG) 2021]

(1) CH_4 (2) CH (3) CH_2 (4) CH_3

Scan or tap for the full solution

Q.17 Which one of the following has maximum number of atoms? [NEET (UG) 2020]

(1) 1 g of Mg(s) [Atomic mass of Mg = 24]
(2) 1 g of O_2(g) [Atomic mass of O = 16]
(3) 1 g of Li(s) [Atomic mass of Li = 7]
(4) 1 g of Ag(s) [Atomic mass of Ag = 108]

Scan or tap for the full solution

Q.18 The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is : [NEET (UG) 2019]

(1) 10 (2) 20 (3) 30 (4) 40

Scan or tap for the full solution

Q.19 A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4. The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be
[NEET 2018]

(1) 1.4 (2) 3.0 (3) 2.8 (4) 4.4

Scan or tap for the full solution

Q.20 In which case is number of molecules of water maximum? [NEET 2018]

(1) 18 mL of water
(2) 0.18 g of water
(3) 0.00224 L of water vapours at 1 atm and 273 K
(4) 10^{-3} mol of water

Scan or tap for the full solution

Q.21 Suppose the elements X and Y combine to form two compounds XY_2 and X_3Y_2. When 0.1 mole of XY_2 weighs 10 g and 0.05 mole of X_3Y_2 weighs 9 g, the atomic weights of X and Y are
[NEET 2016 (Phase 2)]

(1) 40, 30 (2) 60, 40 (3) 20, 30 (4) 30, 20

Scan or tap for the full solution

Q.22 What is the mass of the precipitate formed when 50 mL of 16.9% solution of $AgNO_3$ is mixed with 50 mL of 5.8% NaCl solution ? (Ag = 107.8, N = 14, O = 16, Na = 23, Cl = 35.5) [AIPMT 2015]

(1) 3.5 g (2) 7 g (3) 14 g (4) 28 g

Scan or tap for the full solution

Q.23 If Avogadro number N_A, is changed from 6.022×10^{23} mol^{-1} to 6.022×10^{20} mol^{-1}, this would change [AIPMT 2015]

(1) the mass of one mole of carbon
(2) the ratio of chemical species to each other in a balanced equation
(3) the ratio of elements to each other in a compound
(4) the definition of mass in units of grams.

Scan or tap for the full solution

Q.24 The number of water molecules is maximum in [AIPMT 2015]

(1) 1.8 gram of water (2) 18 gram of water
(3) 18 moles of water (4) 18 molecules of water

Scan or tap for the full solution

Q.25 20.0 g of a magnesium carbonate sample decomposes on heating to give carbon dioxide and 8.0 g magnesium oxide. What will be the percentage purity of magnesium carbonate in the sample? (At. wt. of Mg = 24) [AIPMT 2015]

(1) 96 (2) 60 (3) 84 (4) 75

Scan or tap for the full solution

Q.26 A mixture of gases contains H_2 and O_2 gases in the ratio of 1 : 4 (w/w). What is the molar ratio of the two gases in the mixture ? [AIPMT 2015 (Cancelled)]

(1) 16 : 1 (2) 2 : 1 (3) 1 : 4 (4) 4 : 1

Scan or tap for the full solution

Q.27 Equal masses of H_2, O_2 and methane have been taken in a container of volume V at temperature 27°C in identical conditions. The ratio of the volumes of gases H_2:O_2 : methane would be [AIPMT 2014]

(1) 8 : 16 : 1 (2) 16 : 8 : 1
(3) 16 : 1 : 2 (4) 8 : 1 : 2

Scan or tap for the full solution

Q.28 When 22.4 litres of $H_{2(g)}$ is mixed with 11.2 litres of $Cl_{2(g)}$, each at S.T.P. the moles of $HCl_{(g)}$ formed is equal to [AIPMT 2014]

(1) 1 mol of $HCl_{(g)}$ (2) 2 mol of $HCl_{(g)}$
(3) 0.5 mol of $HCl_{(g)}$ (4) 1.5 mol of $HCl_{(g)}$

Scan or tap for the full solution

Q.29 1.0 g of magnesium is burnt with 0.56 g O_2 in a closed vessel. Which reactant is left in excess and how much ? (At. wt. Mg = 24, O = 16) [AIPMT 2014]

(1) Mg, 0.16 g (2) O_2, 0.16 g
(3) Mg, 0.44 g (4) O_2, 0.28 g

Scan or tap for the full solution

Q.30 6.02×10^{20} molecules of urea are present in 100 mL of its solution. The concentration of solution is [NEET 2013]

(1) 0.001 M (2) 0.1 M (3) 0.02 M (4) 0.01 M

Scan or tap for the full solution

Q.31 How many grams of concentrated nitric acid solution should be used to prepare 250 mL of 2.0 M HNO_3? The concentrated acid is 70% HNO_3. [NEET 2013]

(1) 70.0 g conc. HNO_3 (2) 54.0 g conc. HNO_3
(3) 45.0 g conc. HNO_3 (4) 90.0 g conc. HNO_3

Scan or tap for the full solution

Q.32 In an experiment it showed that 10 mL of 0.05 M solution of chloride required 10 mL of 0.1 M solution of $AgNO_3$, which of the following will be the formula of the chloride (X stands for the symbol of the element other than chlorine) [NEET 2013 (Karnataka)]

(1) X_2Cl_2 (2) XCl_2 (3) XCl_4 (4) X_2Cl

Scan or tap for the full solution

Q.33 Which has the maximum number of molecules among the following ? [AIPMT 2011 (Mains)]

(1) 44 g CO_2 (2) 48 g O_3
(3) 8 g H_2 (4) 64 g SO_2

Scan or tap for the full solution

Q.34 The number of atoms in 0.1 mol of a triatomic gas is ($N_A = 6.02 \times 10^{23}$ mol^{-1}) [AIPMT 2010 (Prelims)]

(1) 6.026×10^{22} (2) 1.806×10^{23}
(3) 3.600×10^{23} (4) 1.800×10^{22}

Scan or tap for the full solution

Q.35 25.3 g of sodium carbonate, Na_2CO_3 is dissolved in enough water to make 250 mL of solution. If sodium carbonate dissociates completely, molar concentration of sodium ion, Na^+ and carbonate ions, CO_3^{2-} are respectively (Molar mass of Na_2CO_3 = 106 g mol^{-1}) [AIPMT 2010 (Prelims)]

(1) 0.955 M and 1.910 M
(2) 1.910 M and 0.955 M
(3) 1.90 M and 1.910 M
(4) 0.477 M and 0.477 M

Scan or tap for the full solution

Q.36 10 g of hydrogen and 64 g of oxygen were filled in a steel vessel and exploded. Amount of water produced in this reaction will be [AIPMT 2009]

(1) 3 mol (2) 4 mol (3) 1 mol (4) 2 mol

Scan or tap for the full solution

Q.37 What volume of oxygen gas (O_2) measured at 0°C and 1 atm, is needed to burn completely 1 L of propane gas (C_3H_8) measured under the same conditions? [AIPMT 2008]

(1) 5 L (2) 10 L (3) 7 L (4) 6 L

Scan or tap for the full solution

Q.38 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? [AIPMT 2008]

(1) 0.011 (2) 0.029 (3) 0.044 (4) 0.333

Scan or tap for the full solution

Q.39 An organic compound contains carbon, hydrogen and oxygen. Its elemental analysis gave C, 38.71% and H, 9.67%. The empirical formula of the compound would be [AIPMT 2008]

(1) CHO (2) CH_4O (3) CH_3O (4) CH_2O

Scan or tap for the full solution

Q.40 Volume occupied by one molecule of water (density = 1 g cm^{-3}) is [AIPMT 2008]

(1) 3.0×10^{-23} cm^3 (2) 5.5×10^{-23} cm^3

(3) 9.0×10^{-23} cm^3 (4) 6.023×10^{-23} cm^3

Scan or tap for the full solution

Q.41 An element, X has the following isotopic composition:

^{200}X : 90% ^{199}X : 8.0% ^{202}X : 2.0%

The weighted average atomic mass of the naturally occurring element X is closest to [AIPMT 2007]

(1) 201 amu (2) 202 amu (3) 199 amu (4) 200 amu

Scan or tap for the full solution

Q.42 Concentrated aqueous sulphuric acid is 98% H_2SO_4 by mass and has a density of 1.80 g mL^{-1}. Volume of acid required to make one litre of 0.1 M H_2SO_4 solution is [AIPMT 2007]

(1) 16.65 mL (2) 22.20 mL

(3) 5.55 mL (4) 11.10 mL

Scan or tap for the full solution

Q.43 The maximum number of molecules is present in [AIPMT 2004]

(1) 15 L of H_2 gas at STP

(2) 5 L of N_2 gas at STP

(3) 0.5 g of H_2 gas

(4) 10 g of O_2 gas

Scan or tap for the full solution

Q.44 In Haber process 30 litres of dihydrogen and 30 litres of dinitrogen were taken for reaction which yielded only 50% of the expected product. What will be the composition of gaseous mixture under the aforesaid condition in the end ? [AIPMT 2003]

(1) 20 litres ammonia, 20 litres nitrogen, 20 litres hydrogen

(2) 10 litres ammonia, 25 litres nitrogen, 15 litres hydrogen

(3) 20 litres ammonia, 10 litres nitrogen, 30 litres hydrogen

(4) 20 litres ammonia, 25 litres nitrogen, 15 litres hydrogen

Scan or tap for the full solution

Q.45 Which has maximum molecules? [AIPMT 2002]

(1) 7 g N_2 (2) 2 g H_2

(3) 16 g NO_2 (4) 16 g O_2

Scan or tap for the full solution

Q.46 The percentage of C, H and N in an organic compound are 40%, 13.3% and 46.7% respectively then empirical formula is [AIPMT 2002]

(1) $C_3H_{13}N_3$ (2) CH_2N (3) CH_4N (4) CH_6N

Scan or tap for the full solution

Q.47 2.5 litre of 1 M NaOH solution is mixed with another 3 litre of 0.5 M NaOH solution. Then find out molarity of resultant solution. [AIPMT 2002]

(1) 0.80 M (2) 1.0 M (3) 0.73 M (4) 0.50 M

Scan or tap for the full solution

Q.48 Percentage of Se in peroxidase anhydrous enzyme is 0.5% by weight (at. wt. = 78.4), then the minimum molecular weight of peroxidase anhydrous enzyme is [AIPMT 2001]

(1) 1.568×10^4 (2) 1.568×10^3

(3) 15.68 (4) 2.136×10^4

Scan or tap for the full solution

Q.49 Molarity of liquid HCl, if density of solution is 1.17 g/cc, is [AIPMT 2001]

(1) 36.5 (2) 18.25 (3) 32.05 (4) 42.10

Scan or tap for the full solution

Q.50 Specific volume of cylindrical virus particle is 6.02×10^{-2} cc/g whose radius and length are 7 Å and 10 Å respectively. If $N_A = 6.02 \times 10^{23}$, find molecular weight of virus. [AIPMT 2001]

(1) 15.4 kg/mol (2) 1.54×10^4 kg/mol

(3) 3.08×10^4 kg/mol (4) 3.08×10^3 kg/mol

Scan or tap for the full solution

Q.51 Volume of CO_2 obtained by the complete decomposition of 9.85 g of $BaCO_3$ is [AIPMT 2000]

(1) 2.24 L (2) 1.118 L (3) 0.84 L (4) 0.56 L

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	4	2	4	2	4	2	2	1	2	1	1
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	1	2	2	3	4	3	3	3	1	1	2
Ques.	23	24	25	26	27	28	29	30	31	32	33
Ans.	1	3	3	4	3	1	1	4	3	2	3
Ques.	34	35	36	37	38	39	40	41	42	43	44
Ans.	2	2	2	1	2	3	1	4	3	1	2
Ques.	45	46	47	48	49	50	51				
Ans.	2	3	3	1	3	1	2				