

MATHS4U

Assignment 10th Class

It's all about believing Topic:- Natures of matter

1. A sample of pure water, irrespective of source, contains 88.89% oxygen and 11.11% hydrogen by mass. The data supports the (a) law of conservation of mass (b) law of constant composition (c) law of multiple proportion (d) law of reciprocal proportion.
2. The law of multiple proportion was discovered by (a) John Dalton (b) Richter (c) Joseph Proust (d) A. Lavoisier
3. 10.0 g of CaCO_3 on heating gave 4.4 g of CO_2 and 5.6 of CaO. The observation is in agreement with the (a) law of constant composition (b) law of multiple proportions (c) law of reciprocal proportion (d) law of conservation of mass
4. Atoms of the same two elements can combine in different ratios to form different compounds. This law is called the (a) law of constant composition (b) law of multiple proportion (c) law of reciprocal proportion (d) law of conservation of mass
5. An atom is (a) the smallest particle of matter known (b) the smallest particle of a gas (c) the smallest indivisible particle of an element that can take part in a chemical change (d) radioactive emission
6. The number of metals which exist as gas is /are _____ (a) one (b) two (c) three (d) none
7. An example of a liquid metal is and that of a liquid non-metal is (a) gallium – mercury (b) mercury – chlorine (c) mercury – bromine (d) bromine – sulphur
8. Brass is an example of a _____ (a) homogeneous compound (b) homogeneous mixture (c) heterogeneous mixture (d) heterogeneous compound
9. Air is regarded as a mixture because (a) its pressure may vary (b) its temperature may change (c) its volume changes under different conditions (d) its composition may vary
10. Which of the following is not a noble gas? (a) Helium (b) Neon (c) Argon (d) Hydrogen
11. Which of the following is not a compound? (a) Sulphur dioxide (b) Chalk (c) Lead (d) Sulphuric acid
12. The mass of sodium in 11.7 g of sodium chloride is (a) 2.3 g (b) 4.6 g (c) 6.9g (d) 7.1g
13. $\text{CoCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$ The mass of calcium chloride formed when 2.5 g calcium carbonate are dissolved in excess of hydrochloric acid is (a) 1.39g (b) 2.78g (c) 5.18 g (d) 17.8g
14. The volume of CO_2 gas formed when 2.5 g calcium carbonate are dissolved in excess hydrochloric acid at 0°C and 1 atm pressure is [1 mole of any gas at 0°C and 1 atm pressure occupies 22.414 L volume]. (a) 1.12 L (b) 56.0 L (c) 0.28L (d) 0.56L
15. A compound consists of 47.8% zinc and 52.2% chlorine by mass. The empirical formula is Zn_xCl_y where x and y can have the values (a) 1 and 1 (b) 1 and 2 (c) 2 and 1 (d) 2 and 3 respectively
16. In the following equations $\text{Na}_2\text{CO}_3 + x\text{HCl} \rightarrow \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$ the value of x is (a) 1 (b) 2 (c) 3 (d) 4
17. The equation $\text{Cu} + x\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + y\text{NO}_2 + 2\text{H}_2\text{O}$ the values of X and Y are (a) 3 and 1 (b) 8 and 6 (c) 4 and 2 (d) 7 and 1 respectively

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18. In the equation $\text{NaOH} + \text{HNO}_3 \rightarrow \text{NaHO}_3 + \text{H}_2\text{O}$ nitric acid is acting as (a) an oxidizing agent (b) an acid (c) a nitrating agent (d) a dehydrating agent
19. The Percentage of hydrogen in H_2O is (a) 44.45 (b) 5.55 (c) 88.89 (d) 11.11
20. Empirical formula of a compound is CH_2O . Its molecular mass is 60. The molecular formula will be (a) CH_2O (b) $\text{C}_2\text{H}_2\text{O}_2$ (c) $\text{C}_3\text{H}_6\text{O}_3$ (d) None of these
21. The number of gram – atoms in 8 g of He are (a) 2 (b) 1.204×10^{24} (c) 3.10×10^{23} (d) none of these
22. Which of the following contains the largest number of molecules? (a) 0.2 mole of H_2 (b) 8.0 g of H_2 (c) 17 g of H_2O (d) 6.0 g of CO_2
23. Which of the following weighs the most? (a) 10^{23} molecules of H_2 (b) 1 mole of H_2O (c) 1 mole of N_2 (d) 10^{22} atoms of oxygen.
24. The mass of magnesium oxide formed by burning 1.216 g magnesium in excess oxygen is (a) 0.416 g (b) 1.616 g (c) 2.016 g (d) 2.816 g
25. Which of the following samples contain the smallest number of atoms? (a) 1 g of CO_2 (g) (b) 1 g of C_8H_{18} (l) (c) 1 g of C_2H_6 (g) (d) 1 g LiF (s)
26. A sample of ammonium phosphate $(\text{NH}_4)_3 \text{PO}_4$ contains 3.18 mole of hydrogen atoms. The number of moles of oxygen atoms in the sample is (a) 0.265 (b) 0.795 (c) 1.06 (d) 4.00
27. When pentane, C_5H_{12} is burned in excess oxygen, the products of the reaction are CO_2 (g) and H_2O (l). The balanced equation for this combustion is (a) $\text{C}_5\text{H}_{12}(\text{g}) + x\text{O}_2(\text{g}) \rightarrow 5\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\text{l})$ the coefficient (x) of oxygen should be (a) 16 (b) 12 (c) 11 (d) 8
28. Carbon dioxide collected at STP on heating x g of CaCO_3 (a) 22.4 L (b) 2.24 L (c) 2.24 xL (d) 0.224 xL
29. What is the total number of atoms present in 25.0 mg of camphor, $\text{C}_{10}\text{H}_{16}+\text{O}$? (a) 9.89 $\times 10^{19}$ (b) 2.67×10^{21} (c) 6.07×10^{20} (d) 2.57×10^{21} .

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30. A compound having the empirical formula $(C_3H_4O)_n$ has a molecular weight of 170 ± 5 .
The molecular formula of this compounds is (a) $C_9H_{12}O_3$ (b) C_3H_4O (c) $C_6H_8O_2$ (d) $C_9H_{12}O_2$.
31. If 55.6 g of $PbCl_2$ reacted with 50.0g of KI in aqueous solution to obtain PbI_2 and KCl , the limiting reactant is at. Mass: Pb = 208, I = 127, K = 39, Cl = 35.5. (a) $PbCl_2$ (b) KI (c) PbI_2 (d) KCl .
32. Amount of $BaSO_4$ formed on mixing the aqueous solution of 2.08 g $BaCl_2$ and excess of dilute H_2SO_4 is at. Mass: Ba = 137, Cl = 35.5, O = 16, S = 32 (a) 2.33 g (b) 2.08 g (c) 1.04 g (d) 1.165 g
33. 12.33 L of H_2 and 36.99 L of N_2 are mixed at certain temperature and pressure to prepare NH_3 . The volume of NH_3 produced at same temperature and pressure is (a) 4.11 L (b) 8.22 L (c) 12.33 L (d) 24.66 L
34. The total number of valence electrons in 4.2 g of N_3^- ion, is (N_A is the Avogadro number) (a) $1.6 N_A$ (b) $3.2 N_A$ (c) $2.1 N_A$ (d) $4.2 N_A$
35. The number of moles of OH^- in 0.3L of 0.005M $Ba(OH)_2$ is (a) 0.075 (b) 0.005 (c) 0.045 (d) 0.003
36. A metal oxide has the formula M_2O_3 . If 0.1596 g of the metal oxide requires 6 mg of hydrogen for complete reduction, then the atomic weight of the metal is (a) 227.9 (b) 159.6 (c) 79.8 (d) 55.8
37. A balanced chemical equation is in accordance with (a) Avogadro's law (b) Law of constant proportion (c) Law of conservation of mass (d) Law of gaseous volumes
38. A gaseous mixture contains oxygen and nitrogen in the ratio of 1 : 4 by weight. Therefore, the ratio of their number of molecules is (a) 1 : 4 (b) 1 : 8 (c) 7 : 32 (d) 3 : 16

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39. Atomic weight of chlorine is 35.5. It has two isotopes of atomic weight 35 and 37. What is the percentage of the heavier isotope in the sample? (a) 5 (b) 10 (c) 25 (d) 20
40. Volume at STP of 0.42 g of CO_2 is the same as that of (a) 0.01 g of hydrogen (b) 0.085 g of NH_3 (c) 320 mg of gaseous SO_2 (d) All of the above
41. 12 L hydrogen and 1.12 L of chlorine are mixed and exploded. The composition by volume of the mixture will be (a) 0.8 L hydrogen and 22.4 L of HCl (b) 24 L of hydrogen and 22.4 L of chlorine (c) 22.4 L of HCl (d) 0.8 L of chlorine and 20.8 L of HCl
42. 4.0 grams of caustic soda contains (a) 6.02×10^{23} atoms of H (b) 4 g atoms of Na (c) 6.02×10^{23} atoms of Na (d) 4 moles of NaOH

Answer

1. b 2. A 3. D 4. B 5. C 6. D 7. C 8. B 9. D 10. D 11. C 12. B 13. B 14. D
15. B 16. B 17. C 18. B 19. D 20. B 21. A 22. B 23. D 24. B 25. A 26. C 27.
D 28. D 29. B 30. A 31. B 32. A 33. B 34. A 35. D 36. D 37. C 38. C 39. C
40. D 41. A 42. C