Full-1[NEET+JEE]

Some Basic Concepts of Chemistry -16

Naruto Uzumaki "I'm always going to believe in myself. That's the one thing that will never change." **E**ven if the world doubts you... don't stop believing in yourself. That is your real strength

1. **(NEET) One mole of an ideal gas at STP occupies:**
   (A) 11.2 L
   (B) 22.4 L
   (C) 44.8 L
   (D) 1 L
2. **(JEE) At STP, 2.24 L of a gas weighs 1.6 g. The molar mass of the gas is:**
   (A) 16 g/mol
   (B) 32 g/mol
   (C) 44 g/mol
   (D) 28 g/mol
3. **(NEET) Number of protons in 4.9 g of H_2SO_4:**
   (A) 3.0×10^{23}
   (B) 6.0×10^{23}
   (C) 9.0×10^{23}
   (D) 1.2×10^{24}
4. **(JEE) Calculate the total number of electrons in 1.15 g of NaCl. (Atomic masses: Na = 23, Cl = 35.5)**
   (A) 1.2×10^{23}
   (B) 2.4×10^{23}
   (C) 4.8×10^{23}
   (D) 6.0×10^{23}
5. **(NEET) 1 atom of oxygen weighs: (O = 16)**
   (A) 2.66×10^{-23} g
   (B) 1.66×10^{-23} g
   (C) 8.00×10^{-23} g
   (D) 3.32×10^{-23} g
6. **(JEE) Calculate the number of molecules in 5.6 g of nitrogen gas.**
   (A) 1.5×10^{23}
   (B) 2.4×10^{23}
   (C) 3.0×10^{23}
   (D) 4.8×10^{23}
7. **(NEET) Molarity of 9.8 g of H_2SO_4 in 1 L solution is:**
   (A) 0.05 M
   (B) 0.1 M
   (C) 0.2 M
   (D) 0.5 M

8. **(JEE) A solution has 5 g NaOH in 500 g water. Calculate molality.**
   (A) 0.05 m
   (B) 0.1 m
   (C) 0.25 m
   (D) 0.5 m
9. **(NEET) Convert 0.5 M NaOH solution to molality (density = 1.04 g/mL).**
   (A) 0.48 m
   (B) 0.50 m
   (C) 0.52 m
   (D) 0.60 m
10. **(JEE) A solution is 20% NaOH by weight. Density = 1.2 g/mL. Find molarity.**
   (A) 4.5 M
   (B) 6.0 M
   (C) 8.0 M
   (D) 10.0 M
11. **(NEET) What will be the molarity of 100 mL 1 M HCl solution diluted to 250 mL?**
   (A) 0.2 M
   (B) 0.25 M
   (C) 0.4 M
   (D) 0.5 M
12. **(JEE) 200 mL 0.5 M HCl is mixed with 300 mL 0.2 M HCl. Find the final molarity.**
   (A) 0.28 M
   (B) 0.32 M
   (C) 0.36 M
   (D) 0.40 M
13. **(NEET) How many litres of O_2 at STP are required to completely burn 4 g of H_2?**
   (A) 11.2 L
   (B) 22.4 L
   (C) 44.8 L
   (D) 5.6 L
14. **(JEE) How many grams of CO_2 are produced by burning 44 g CH_4 in excess O_2?**
   (A) 88 g
   (B) 132 g
   (C) 176 g
   (D) 264 g
15. **(NEET) 2 g H_2 reacts with 32 g O_2. Identify the limiting reagent.**
   (A) H_2
   (B) O_2
   (C) Both
   (D) None
16. **(JEE) 5 g Ca reacts with 10 g O_2. Calculate the limiting reagent and moles of CaO formed.**
   (A) Ca, 0.1 mol
   (B) O_2, 0.15 mol
   (C) Ca, 0.125 mol
   (D) O_2, 0.25 mol
17. **(NEET) If the theoretical yield of a reaction is 10 g and actual yield is 8 g, the % yield is:**
   (A) 60%
   (B) 70%

(C) 80%

(D) 90%

18. **(JEE) An impure sample of $CaCO_3$ weighing 10 g on heating gave 2.24 L CO_2 at STP. Calculate the % purity of sample.**

(A) 50%

(B) 60%

(C) 70%

(D) 80%

19. **(NEET) An organic compound contains 40% C, 6.7% H and 53.3% O. The empirical formula is:**

(A) CH_2O

(B) C_2H_4O

(C) $C_3H_6O_2$

(D) CHO

20. **(JEE) A compound contains C = 75%, H = 25%. Empirical formula is:**

(A) CH

(B) CH_2

(C) CH_4

(D) C_2H_6

21. **(NEET) Mass % of oxygen in H_2O is:**

(A) 11.1%

(B) 33.3%

(C) 66.6%

(D) 88.9%

22. **(JEE) Calculate mass % of sulphur in H_2SO_4.**

(A) 32.6%

(B) 49.0%

(C) 65.3%

(D) 50.0%

23. **(NEET) The average atomic mass of chlorine with isotopes Cl-35 (75%) and Cl-37 (25%) is:**

(A) 35.0

(B) 35.5

(C) 36.0

(D) 37.0

24. **(JEE) Boron has isotopes ^{10}B (20%) and ^{11}B (80%). Average atomic mass is:**

(A) 10.0

(B) 10.2

(C) 10.8

(D) 11.0

25. **(NEET) Vapour density of a gas with molar mass 44 g/mol is:**

(A) 11

(B) 22

(C) 44

(D) 88

26. **(JEE) A gaseous oxide has vapour density 22. Find its molecular mass.**

(A) 22

(B) 32

(C) 44

(D) 64

27. **(NEET) Which law states that "mass can neither be created nor destroyed in a chemical reaction"?**

(A) Law of constant proportion

(B) Law of conservation of mass

(C) Law of multiple proportion

(D) Law of reciprocal proportion

28. **(JEE) Two oxides of nitrogen contain 30 g oxygen with 14 g and 28 g nitrogen. The law illustrated is:**

(A) Law of definite proportion

(B) Law of conservation of mass

(C) Law of multiple proportion

(D) Law of reciprocal proportion

29. **(NEET) Equivalent weight of H_2SO_4 in acid-base reactions is:**

(A) 98

(B) 49

(C) 24.5

(D) 196

30. **(JEE) Equivalent weight of $KMnO_4$ in acidic medium is (M = 158):**

(A) 31.6

(B) 39.5

(C) 52.6

(D) 79