NEET : CHAPTER WISE TEST-1

SUBJECT :- CHEMISTRY **DATE.....**

CLASS :- 11th **NAME.....**

CHAPTER :- MOLE CONCEPT **SECTION.....**

(SECTION-A)

1. Centigrade and Fahrenheit scales are related as :

(A) $\frac{C}{5}=\frac{F-32}{9}$ (B) $\frac{C}{9}=\frac{F-32}{5}$

(C) $\frac{C}{8}=\frac{F-32}{5}$ (D) None of these

2. Avogadro number is :

(A) Number of atoms in one gram of the element

(B) Number of mililitre which one mole of a gaseous substance occupies at NTP (1 atm & 0ºC)

(C) Number of molecules present in one gram molecular mass of a substance.

(D) All are correct

3. Molecular weight of SO_2 is

(A) 64 gm (B) 64 amu

(C) 32 gm (D) 32 amu

4. If the atomic mass of Sodium is 23, the number of moles in 46 g of sodium is :

(A) 1 (B) 2 (C) 2.3 (D) 4.6

5. How many atoms are there in 100 amu of He ?

(A) 25 (B) 50

(C) 75 (D) 100

6. Number of molecules of water in a drop of water weighing 0.09 g are :

(A) 3.01×10^{21} (B) 6.02×10^{21}

(C) 3.01×10^{22} (D) 3.01×10^{20}

7. The largest number of molecules is present in 1 g of

(A) CO_2 (B) H_2O

(C) C_2H_5OH (D) N_2O_5.

8. Total number of atoms in 196 amu H_2SO_4 are :

(A) 14 N_A (B) 14

(C) 7 N_A (D) 7

9. One mole of P_4 molecules contain :

(A) 1 molecule

(B) 4 molecules

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

(D) 24.088×10^{23} atoms

10. Which has maximum number of atoms :

(A) 24 g of C (12) (B) 56 g of Fe (56)

(C) 27 g of Al (27) (D) 108 g Ag (108)

11. The total number of protons, electrons and neutrons in 12 g of $^{12}_{6}C$ is :

(A) 1.084×10^{25} (B) 6.022×10^{23}

(C) 6.022×10^{22} (D) 18

12. A sample of aluminium has a mass of 54.0 g. What is the mass of the same number of magnesium atoms? (At. wt. Al = 27, Mg = 24)

(A) 12 g (B) 24 g

(C) 48 g (D) 96 g.

13. The total number of electrons present in 8.0 g of methane is

(A) 4.8×10^{24} (B) 3.01×10^{24}

(C) 4.8×10^{25} (D) 3.01×10^{23}.

14. How many moles of electron weigh one kilogram :

(A) 6.023×10^{23}

(B) $\frac{1}{9.108} \times 10^{31}$

(C) $\frac{6.023}{9.108} \times 10^{54}$

(D) $\frac{1}{9.108\times 6.023} \times 10^{8}$

15. 16 g of an ideal gas SO_x occupies 5.6 L. at STP. The value of x is

(A) x = 3 (B) x = 2

(C) x = 4 (D) none of these

16. Number of electrons in 1.8 mL of $H_2O(\ell)$ is about :

(A) 6.02×10^{23} (B) 3.011×10^{23}

(C) 0.6022×10^{21} (D) 60.22×10^{20}

17. If 1.5 moles of oxygen combine with Al to form Al_2O_3, the weight of Al used in the reaction is :

(A) 27 g (B) 40.5 g

(C) 54g (D) 81 g

18. How many moles of potassium chlorate need to be heated to produce 11.2 litre oxygen at N.T.P.

(A) $\frac{1}{2}$ mol (B) $\frac{1}{3}$ mol

(C) $\frac{1}{4}$ mol (D) $\frac{2}{3}$ mol

19. When 100g of ethylene polymerises entirely to polyethene, the weight of polyethene formed as per the equation $n(C_2H_4) \rightarrow (-CH_2-CH_2-)_n$ is :

(A) (n/2)g (B) 100g
(C) (100/n)g (D) 100ng

20. How many mole of $Zn(FeS_2)$ can be made from 2 mole zinc, 3 mole iron and 5 mole sulphur.

(A) 2 mole (B) 3 mole
(C) 4 mole (D) 5 mole

21. 500 mL of a glucose solution contains 90 g of glucose. The concentration of the solution is

(A) 0.1 M (B) 1.0 M
(C) 0.2 M (D) 2.0 M

22. What volume of a 0.8 M solution contains 100 milli moles of the solute?

(A) 100 mL (B) 125 mL
(C) 500 mL (D) 62.5 mL

23. Which of the following concentration factor is affected by change in temperature ?

(A) Molarity (B) Molality
(C) Mole fraction (D) Weight fraction

24. An aqueous solution of ethanol has density 1.025 g/mL and it is 2M. What is the molality of this solution ?

(A) 1.79 (B) 2.143
(C) 1.951 (D) None of these.

25. If 500 ml of 1 M solution of glucose is mixed with 500 ml of 3 M solution of glucose final molarity of solution will be :

(A) 1 M (B) 0.5 M
(C) 2 M (D) 1.5 M

26. The molality of the solution containing 20% w/w solution of NaOH is :

(A) 4.5 m (B) 6.25 m
(C) 0.3 m (D) 1 m

27. The oxidation number of Oxygen in Na_2O_2 is :

(A) + 1 (B) + 2
(C) – 2 (D) – 1

28. The oxidation states of Sulphur in the anions SO_3^{2-} , $S_2O_4^{2-}$ and $S_2O_6^{2-}$ follow the order :

(A) $S_2O_6^{2-} < S_2O_4^{2} < SO_3^{2-}$
(B) $S_2O_4^{2-} < SO_3^{2-} < S_2O_6^{2-}$
(C) $SO_3^{2-} < S_2O_4^{2-} < S_2O_6^{2-}$
(D) $S_2O_4^{2} < S_2O_6^{2-} < SO_3^{2-}$

29. Match List-I (Compounds) with List-II (Oxidation states of Nitrogen) and select answer using the codes given below the lists :

List-I	List-II
(A) NaN_3	(1) +5
(B) N_2H_2	(2) +2
(C) NO	(3) –1/3
(D) N_2O_5	(4) –1

(Code) :

	(A)	(B)	(C)	(D)
(A)	3	4	2	1
(B)	4	3	2	1
(C)	3	4	1	2
(D)	4	3	1	2

30. If, from 10 moles NH_3 and 5 moles of H_2SO_4 , all the H-atoms are removed in order to form H_2 gas, then find the number of H_2 molecules formed.

(A) 20 N_A (B) 10 N_A
(C) 5 N_A (D) N_A

31. The density of liquid mercury is 13.6 g/cm^3. How many moles of mercury are there in 1 litre of the metal ? (Atomic mass of Hg = 200.)

(A) 68 mole (B) 69 mole
(C) 70 mole (D) 71 mole

32. 64 g of an organic compound has 24 g carbon and 8 g hydrogen and the rest is oxygen. The empirical formula of the compound is :

(A) CH_4O (B) CH_2O
(C) C_2H_4O (D) None

33. 25.4 g of iodine and 14.2g of chlorine are made to react completely to yield a mixture of ICl and ICl_3. Calculate the number of moles of ICl and ICl_3 formed.

(A) 0.1 mole, 0.1 mole
(B) 0.1 mole, 0.2 mole
(C) 0.5 mole, 0.5 mole
(D) 0.2 mole, 0.2 mole

34. When a mixture of 10 mole of SO_2 , 15 mole of O_2 was passed over catalyst , 8 mole of SO_3 was formed. How many mole of $SO_2$and O_2 did not enter into combination ?

(A) 2 moles of SO_2, 11 moles of O_2
(B) 3 moles of SO_2, 11.5 moles of O_2
(C) 2 moles of SO_2, 4 moles of O_2
(D) 8 moles of SO_2, 4 moles of O_2

35. 0.5 mole of H_2SO_4 is mixed with 0.2 mole of Ca $(OH)_2$. The maximum number of moles of $CaSO_4$ formed is

(A) 0.2 (B) 0.5 (C) 0.4 (D) 1.5

(SECTION-B)

36. A 500 g toothpaste sample has 0.4 g fluoride concentration. The fluoride concentration in terms of ppm will be :

(A) 200 (B) 400
(C) 500 (D) 800

37. The volume of water that must be added to a mixture of 250 ml of 0.6 M HCl and 750 ml of 0.2 M HCl to obtain 0.25 M solution of HCl is :

(A) 750 ml (B) 100 ml
(C) 200 mℓ (D) 300 mℓ

38. Silver metal reacts with nitric acid according to the equation

$3Ag\ (s) + 4HNO_3\ (aq) \longrightarrow 3AgNO_3\ (aq) + NO\ (g) + 2H_2O\ (l)$

The volume of 1.15 M HNO_3 (aq) required to react with 0.784 g of silver is –

(A) 4.74 mL (B) 6.32 mL
(C) 8.43 mL (D) 25.3 mL

39. H_3PO_4 (98 g mol^{-1}) is 98% by mass of solution. If the density is 1.8 g/ml, calculate the molarity.

(A) 18 (B) 20 (C) 22 (D) 24

40. The average oxidation state of Fe in Fe_3O_4 is :

(A) – 8/3 (B) 8/3 (C) 2 (D) 3

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 :

(A) 199 amu (B) 200 amu
(C) 201 amu (D) 202 amu

42. Suppose the elements X and Y combine to form two compounds XY_2 and X_3Y_2. When 0.1 mole of XY_2 and XY_2 weights 10 g and 0.05 mole of X_3Y_2 weights 9 g, the atomic weights of X and Y are

(A) 30, 20 (B) 40, 30
(C) 60, 40 (D) 20, 30

43. In which case is the number of molecules of water maximum ?

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

44. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is :

(A) 40 (B) 10 (C) 20 (D) 30

45. A sample of a mixture of $CaCl_2$ and Na_2CO_3 weighing 4.22 g was treated to precipitate all the Ca as $CaCO_3$. This $CaCO_3$ is heated and quantitatively converted into 0.959 g of CaO. Calculate the percentage of $CaCl_2$ in the mixture.

(Atomic mass of Ca = 40, O = 16, C = 12 and Cl = 35.5)

(A) 55.28 % (B) 37.3 %
(C) 45.00 % (D) 49.01 %

46. Mixture of two metals having mass 2 gm (A = 15, B = 30) and are bivalent and dissolve in HCl and evolve 2.24 L H_2 at STP. what is mass of A present in mixture?

(A) 1 gm (B) 1.5 gm
(C) 0.5 gm (D) 0.75 gm

47. A 5.2 molal aqueous solution of methyl alcohol, CH_3OH, is supplied. What is the mole fraction of methyl alcohol in the solution?

(A) 0.100 (B) 0.190
(C) 0.086 (D) 0.050

48. The ratio of masses of oxygen and nitrogen in a particular gaseous mixture is 1 : 4. The ratio of number of their molecule is :

(A) 1 : 4 (B) 7 : 32
(C) 1 : 8 (D) 3 : 16

49. Amongst the following statements, that which was not proposed by Dalton atomic theory was :

(A) When gases combine or reproduced in a chemical reaction they do so in a simple ratio by volume provided all gases are at the same temperature & pressure.
(B) Matter consists of indivisible atoms
(C) Chemical reactions involve reorganization of atoms. These are neither created nor destroyed in a chemical reaction.
(D) All the atoms of a given element have identical properties including identical mass. Atoms of different elements differ in mass.

50. According to S.I. the system, _____ was used to measure the amount of substance.

(A) mole (B) weight machine
(C) weight (D) mass