





CHEMISTRY

VMC MODULES ENGLISH

SOME BASIC CONCEPT OF CHEMISTRY

Fundamental

1. If 0.5 mole of $BaCl_2$ mixed with 0.20 mole of Na_3PO_4 the maximum number of moles of $Ba_3(PO_4)_2$ then can be formed is B. 0.5

C. 0.3

D. 0.1

Answer: D



2. 8g of sulphur are burnt to form SO_2 , which is oxidised

by Cl_2 water. The solution is treated with $BaCl_2$ solution.

The amount of $BaSO_4$ precipitated is:

A.1 mole

B. 0.5 mole

C. 0.24 mole

D. 0.25 mole

Answer: D

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3. 0.2 g if a sample of H_2O_2 required 10 ml of 1 N $KMnO_4$ for titration in acidic medium. The percentage purity of H_2O_2 sample is:

A. 0.25

B. 0.85

C. 0.65

D. 0.95

Answer: B



4. A solution is prepared by adding 10g of a substance 'X' to 36g of water. Calculate the mass percentage of the solute.

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5. The vapour density of a volatile chloride of a metal is 95 and the specific heat of the metal is 0.13 cal/g. The equivalent mass of the metal will be approximately.

A. 6 g

B. 12.3 g

C. 18 g

D. 24 g

Answer: B

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6. Calculate the percent loss in weight after complete decomposition of a pure sample of potassium chlorate $KClO_3(s) o KCl + O_2(g)$

A. 0.1225

B. 0.245

C. 0.3918

D. 0.49

Answer: C



7. The density of a molal solution of NaOH is 1.110 g mL^{-1}

. The molarity of the solution is

A. 2.97 M

B. 6.97 M

C. 4.97 M

D. 8.97 M

Answer: A



8. Element X reacts with oxygen to produce a pure sample of X_2O_3 . In a experiment, it is found that 1.00 g of X produces 1.16g of X_2O_3 . What will be the atomic mass of X.

A. 67 g/mole

B. 100.2 g/mole

C. 125 g/mole

D. 150 g/mole

Answer: D



9. A sample of H_2SO_4 (density $1.787gmL^{-1}$) si labelled as 86% by weight. What is the molarity of acid? What volume of acid has to be used to make 1L of $0.2MH_2SO_4$

?

A. 16 ml

B. 10 ml

C. 12 ml

D. 18 ml

Answer: C

10. An aqueous solution of urea containing 18 g urea in 1500 cm^3 of solution has a density of 1.5 g/cm^3 . If the molecular weight of urea is 60. Then the molality of solution is:

A. 0.134 m

B. 0.192 m

C. 0.064 m

D. 0.205 m

Answer: A



11. Calculate the number of molecules of oxalic acid ($H_2C_2O_4$) in 100 mL of 0.2 N oxalic acid

A. $10^{-3} imes 6.023 imes 10^{23}$

B. $2 imes 6.023 imes 10^{23}$

C. $3 imes 6.023 imes 10^{23}$

D. $4 imes 6.023 imes 10^{23}$

Answer: A



12. Calcium carbonate reacts with aqueous HCI to give $CaCI_2$ and CO_2 , write the reaction.

A. 0.1 g

B. 0.5 g

C. 1.5 g

D. 0.94 g

Answer: D



13. Chlorine is prepared in the laboratory by treating manganese dioxide (MnO_2) with aqueous hydrochloric

acid according to the reaction:

 $4HCl(aq)+MnO_2(s)
ightarrow 2H_2O(l)+MnCl_2(aq)+Cl_2(g)$

How many grams of HCI react with 5.0g of manganese dioxide?

A. 84 g

•

B. 0.84 g

C. 8.4 g

D. 4.2 g

Answer: C

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14. Calculate the mass of iron which will be converted into its oxide (Fe_3O_4) by the action of 36 g steam on it.

A. 37.3 gm

B. 3.73 gm

C. 56 gm

D. 5.6 gm

Answer: A



15. When a sample of human blood is diluted 200 time its initial volume and microscopically examined in a layer 0.10

mm thick, an average of 30 RBC are found in 100 imes 100 micrometer square. The number of RBC in 1 mm^3 of undiluted blood is

A. 10^{6}

 ${\sf B.6} imes 10^6$

 ${\rm C.}\,2\times10^{6}$

D. $3 imes 10^6$

Answer: B



16. 1.60 g of a metal were dissolved in HNO_3 to prepare

its nitrate. The nitrate was strongly heated when 2.0 g of

the metal oxide was obtained. Calculate the equivalent weight of the metal.

A. 16 g B. 32 g C. 48 g

D. 12 g

Answer: B



17. Equal volumes of 1 M each of $KMnO_4$ and $K_2Cr_2O_7$ are used to oxidise Fe(II) solution in acidic medium. The amount of Fe oxidised will be A. More with $KMnO_4$

B. more with $K_2 C r_2 O_7$

C. equal with both oxidizing agents

D. cannot be determined

Answer: B

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18. The normality of solution obtained by mixing 100 ml of

0.2 M H_2SO_4 with 100 ml of 0.2 M NaOH is

A. 0.05 N

B. 0.1 N

C. 0.15 N

D. 0.2 N

Answer: B

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19. Among the following which statement is not correct:

A. HNO_2 can act both as reducing agent and as an

oxidizing agent but HNO_3 acts only as an oxidizing

agent.

B. The oxidation number of phosphorus can vary from

-3 to +5

C. The reaction between the NaOH and H_2SO_4 is a

redox reaction.

D. Oxidation number can have positive, negative, zero

or fractional values.

Answer: C

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20. In redox reaction, H_2O_2 oxidises $K_4[Fe(CN)_6]$ into K^+ , Fe^{+3} , CO_3^{-2} and NO_3^- ions in acidic medium, than how many moles of H_2O_2 will react with 1 mole of $K_4[Fe(CN)_6]$

A. 5 mole

B.9 mole

C.8 mole

D. 30.5 mole

Answer: D



21. A 20.00 ml sample of $Ba(OH)_2$ solution is titrated with 0.245 M HCI. If 27.15 ml of HCI is required, then the molarity of the $Ba(OH)_2$ solution will be :

A. 0.166 M

B. 0.180 M

C. 0.333 M

D. 0.666 M

Answer: A



22. Benzene diazonium chloride, $C_6H_5N_2CI$, was decomposed in the presence of hypo phosphorous acid and the nitrogen evolved after drying was found to be 36.9 ml at one atmosphere and $27^{\circ}C$. The amount of salt taken must be nearly:

A. 481 mg

B. 240 mg

C. 210 mg

D. 140 mg

Answer: C

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23. A sample of hard water is found to contain 40 mg of Ca^{2+} ions per litre. The amount of washing shoda (Na_2CO_3) required to soften $5 \cdot 0L$ of the sample would be

A. 1.06 g

B. 5.3 g

C. 53 mg

D. 530 mg

Answer: D



24. The hydrated salt Na_2SO_4 . nH_2O undergoes 56% loss in mass on heating and becomes anhydrous. The value of 'n' will be :

A. 5

B. 3

C. 7

D. 10



25. 1.520g of the hydroxide of a metal on ignition gave 0.995g of oxide. The equivalent weight of metal is

A. 1.52 g

B. 0.995 g

C. 19 g

D. 9 g

Answer: D



26. 100 ml of 0.01 M H_2SO_4 is titrated against 0.2 M $Ca(OH)_2$, volume of $Ca(OH)_2$ required to reach end point will be :

A. 5 ml

B. 10 ml

C. 20 ml

D. 15 ml

Answer: A



27. The molar ratio of Fe^{++} to Fe^{+++} in a mixture of $FeSO_4$ and $Fe_2(SO_4)_3$ having equal number of sulphate ion in both ferrous and ferric sulphate is

A. 1:2

B. 3:2

C. 2:3

D. can't be determined

Answer: B



28. The number of oxygen atoms required to combine with 7 g of N_2 to form N_2O_3 when 80% of N_2 is converted to N_2O_3 .

A. $2.3 imes 10^{23}$

 $\texttt{B.}~3.6\times10^{23}$

C. $1.8 imes10^{21}$

D. $5.4 imes 10^{21}$

Answer: B



29. Change in volume when 100 mL PH_3 decomposed to solid phosphorus and H_2 gas.

A. 50 ml increase

B. 500 ml decrease

C. 900 ml increase

D. No change in volume

Answer: A

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30. Hydrolic acid solution A and B have concentration of

0.5 N and 0.1N respectively. The volume of solutions A and

B required to make 2 litres of 0.2 N hydrochloric are

A. 0.5lofA + 1.5lofB

 $\mathsf{B.}\, 1.5 lof A + 0.5 lof B$

C. 1.0 lof A + 1.0 lof B

 $\mathsf{D.}\, 0.75 lof A + 1.25 lof B$

Answer: A



31. A mole of N_2H_4 loses 10 mol of electrons to form a new compound Y. Assuming that all the nitrogen appears in the new compound, what is the oxidation state of

nitrogen in Y? (There is no change in the oxidation number of hydrogen.)

A. - 1

 $\mathsf{B.}-3$

 $\mathsf{C.}+3$

D.+5

Answer: C

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32. An ore contains 1.34% of the mineral argentite, Ag_2S , by mass. How many gram of this ore would have to be processed in order to obtain 1.00 g of pure solid silver,

Ag?

A. 74.6 g

B. 85.7 g

C. 107.9 g

D. 134 g

Answer: B

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33. A mixture of $C_3H_8(g)\&O_2$ having total volume 100mlin an Eudiometry tube is sparked & it is observed that a contraction of 45ml us observed what can be the composition of reacting mixture.

A. $35mlC_3H_8$ and $65mlO_2$

B. $25mlC_3H_8$ and $75mlO_2$

C. $45mlC_3H_8$ and $55mlO_2$

D. $55mlC_3H_8$ and $45mlO_2$

Answer: B



the equivalent mass of As_2SO_3 is related to its molecular

mass by:

A. M/2

B. M/4

C. M/28

D. M/24

Answer: C

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35. Calculate the no. of molecules in 12g of carbon.

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36. x' g of $KCIO_3$ on decomposition gives 'y' ml of O_2 at

STP. The percentage purity of $KCIO_3$ would be :

A.
$$\frac{y \times 2 \times M}{22.4 \times 3 \times x} \times 100$$

B.
$$\frac{y \times 3 \times M}{224 \times 2 \times x} \times 100$$

C.
$$\frac{y \times 2 \times M}{22400 \times 3 \times x} \times 100$$

D.
$$\frac{y \times 3 \times M}{22400 \times 2 \times x} \times 100$$

Answer: A



37. Calculate the no. of molecules in 64g of oxygen.



38. 10.78 g of H_3PO_4 in 550 ml solution is 0.40 N. Thus this acid:

A. has been neutralized to HPO_4^{2-}

B. has been neutralized to PO_4^{3-}

C. has been reduced to HPO_3^{2-}

D. has been neutralized to $H_2PO_4^-$

Answer: A



39. The labeling on a bottle of H_2O_2 solution is 20 vol, then the concentration of H_2O_2 in percentage strength will be:

A. 0.0303

B. 0.05

C. 0.0455

D. 0.0607

Answer: D



40. 33.6 g of an impure sample of sodium bicarbonate was heated strongly and it gave 4.4 g CO_2 . The percentage purity of $NaHCO_3$ will be:

A. 0.25

B. 0.5

C. 0.75

D. 1

Answer: B


41. 1 mol of N_2 and 4 mol of H_2 are allowed to react in a vessel and after reaction, H_2O is added. Aqueous solution required 1 mol of HCI for neutralization. Mol fraction of H_2 in the mixture after reaction is :

A.
$$\frac{1}{2}$$

B. $\frac{5}{6}$
C. $\frac{1}{3}$
D. $\frac{3}{4}$

Answer: B

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42. A sample of tap water contains 366 ppm of $HCO_3^$ ions with Ca^{2+} ion. Now Ca^{2+} removed by Clark's method by addition of $Ca(OH)_2$. Then what minimum mass of $Ca(OH)_2$ will be required to remove $HCO_3^$ ions completely from 500 g of same tap water

A. 1 g

B. 0.4 g

C. 0.222 g

D. 0.111 g

Answer: C



43. $Fe_{0.94}O
ightarrow Fe^{3\,+}$, the equivalent mass of $Fe_{0.94}O$ will

be:

A.
$$\frac{\text{mol. Mass}}{2}$$

B. $\frac{\text{mol.mass}}{3}$
C. $\frac{3 \times mol. Mass}{8}$
D. $\frac{\text{mol.mass}}{0.87}$

Answer: D

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44. The reaction between yttrium metal and dilute HCl produces $H_2(g)$ and Y^{3+} ions. The molar ratio of yttrium

to that hydrogen produced is

A. 1:2

B.2:1

C. 2:3

D. 3:2

Answer: C



45. The density of liquid ethanol is 0.7892 g/ml at $20^{\circ}C$. If 1.2 mol of ethanol are needed for a particular experimental, what volume of ethanol should be measured out? A. 55 ml

B. 58 ml

C. 70 ml

D. 79 ml

Answer: C

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46. A 10 g sample of a mixture of calcium chloride and sodium chloride is treated with Na_2CO_3 to precipitate calcium as calcium carbonate. This $CaCO_3$ is heated to convert all the calcium to CaO and the final mass of CaO

is 1.12gm. Calculate % by mass of NaCl in the original mixture.

A. 0.152

B. 0.321

C. 0.218

D. 0.1107

Answer: B

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47. 1g of the carbonate of a metal was dissolved in 25mL of N - HCl. The resulting liquid required 5mL of

N-NaOH for neutralisation. The Ew of the metal Carbonate is

A. 50

B. 30

C. 20

D. 40





1. From 200mg of CO_2 , 10^{21} molecules are removed. How many grams and moles of CO_2 are left.

A.
$$2.88 imes10^{-3}$$

B. 1.44×10^{-3}

C. $3.68 imes10^{-3}$

D. $5.42 imes10^{-3}$

Answer: A



2. The nitrate ion can be converted into ammonium ion. The equivalent mass of NO_3^- ion in this reaction would

be :

A. 6.20 g

B. 7.75 g

C. 10.5 g

D. 21.0 g

Answer: B



3. A 2g sample of xenon reacts with fluorine. The mass of the compound produced is 3.158g . The empirical formula of the compound is : (Given : Atomic mass of Xe = 131 g/mole)

A. XeF_2

B. XeF_4

C. XeF_5

D. XeF_6

Answer: B

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4. A hydrate of iron (III) thiocynate $Fe(SCN)_3$, was found to contain $19 \% H_2O$. What is the formula of the hydrate?

A. $Fe(SCN)_3$. H_2O

B. $Fe(SCN)_3$. $2H_2O$

C. $Fe(SCN)_3$. $3H_2O$

D. $Fe(SCN)_3$. $4H_2O$

Answer: C



5. Mole fraction of solvent in 0.2 m binary aqueous solution of camphor (m = molality) is :

A. 0.996

B. 0.004

C. 0.96

D. 0.976

Answer: B



6. DNA has density 1.1g/mL. And its molecular weight is $6 \times 10^3 g/m$. Average volume occupied by its single molecule will be :

A. $9.1 imes10^{-20}$

B. 9.1 imes 10 $^{-21}$

 ${\sf C}.\,9.8 imes10^{-24}$

D. $9.6 imes10^{-28}$



7. 1.0 gm of a mixture of $CaCO_3$ and NaCl reacts completely with 120 ml of N/10 HCl. The percentage of NaCl in the mixture is:

A. 40

B. 0.5

C. 0.6

D. 0.66





8. A liter of sea water (which weighs 1030g) contains about $6 \times 10^{-3}g$ of dissolved oxygen (O_2), such a small concentration can be exoressed as ___ ppm of sea waer

A. 4.2 ppm

B. 5.8 ppm

C. 6.4 ppm

D. 7.5 ppm

Answer: B

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9. 0.62 g Na_2CO_3 . xH_2O completely neutralises 100 ml of N/10 H_2SO_4 . The value of x must be:

A. 1

B. 6

C. 8

D. 10

Answer: A

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10. What is the quantity of water that should be added to

16 gm. Methanol to make the mol fraction of methanol as

0.25?

A. 27 gm

B. 12 gm

C. 18 gm

D. 36 gm

Answer: A

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11. When excess of $CaCO_3$ is treated with 100 ml. of HCI solution, the CO_2 gas obtained was found to be 1.12 litre (at N.T.P.). What is the normality of HCI?

A. 0.2 N

B.1N

C. 0.1 N

D. 2 N

Answer: B



12. What weight of a metal of equivalent weight 12 will

give 0.475g of its chloide?

A. 0.20 gm

B. 0.16 gm

C. 0.12 gm

D. 0.18 gm

Answer: B



13. A sample of H_2O_2 is x% by mass x ml of $KMnO_4$ are required to oxidize one gram of this H_2O_2 sample. Calculate the normality of $KMnO_4$ solution.

A. 0.25 N

B. 0.49 N

C. 0.59 N

D. 1.20 N



15. 30 mL of $0.2NBaCl_2$ is mixed with 40 mL of $0.3NAl_2(SO_4)_3$. How many g of $BaSO_4$ are formed?

A. 0.233 g

B. 0.466 g

C. 1.233 g

D. 2.466 g

Answer: A

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16. Mole fraction of ethanol in ethanol water mixture is 0.25. Hence, the percentage concentration of ethanol by weight of mixture is

A. 0.54

B. 0.25

C. 0.75

D. 0.46

Answer: D



17. What is the percentage loss in water when $BaCI_2$. $2H_2O$ becomes completely anhydrous?

A. 0.1475

B. 0.2822

C. 0.8525

D. 0.4327



18. A gas jar contains 1.7 g of ammonia gas. Calculate the following: a) Number of moles of ammonia present in the gas jar.

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19. A 0.5 g sample containing MnO_2 is treated with HCl liberating Cl_2 is passed into a solution of KI and 30.0 " mL of " 0.1 M $Na_2S_2O_3$ are required to titrate the liberated iodine. Calculate the percentage of MnO_2 is the sample.

A. 0.0138

B. 0.0261

C. 0.261

D. 0.601

Answer: C



20. P and Q are two element that form P_2Q_3 and PQ_2 . If 0.15 mole of P_2Q_3 weighs 15.9 g and 0.15 mole of PQ_2 weighs 9.3g, what are the atomic weights of P and Q?

A. 18,26

B. 26,18

C. 15,24

D. 24,15

Answer: B

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21. Which of the following should be done in order to prepare 0.40 M NaCI starting with 100 ml of 0.30 M NaCI (Mol. Mass of NaCI = 58.5)?

A. Add 0.585 g NaCl

B. Add 20 ml water

C. Add 0.010 ml NaCl

D. Evaporate 10 ml water

Answer: A

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22. A 500 g toothpaste sample has 0.2 g fluoride concentration. What is the concentration of F^{Θ} in ppm ?

 $\mathsf{A.}\ 250$

B.200

C.400

D. 1000

Answer: C



23. The mass of 70% H_2SO_4 required for neutralization

of one mole of NaOH is:

A. 49 gm

B. 98 gm

C. 70 gm

D. 34.3 gm

Answer: C

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24. Hydrogen peroxide in aqueous solution decomposes on warming to give oxygen according to the equation $2H_2O_2(aq) \rightarrow 2H_2O(l) + O_2(g)$ under conditions where 1 mole of gas occupies 24 dm^3 . $100cm^3$ of XM solution of H_2O_2 produces 3 dm^3 of O_2 . Thus, X is :

A. 2.5

B. 1

C. 0.5

D. 0.25



25. For 1.34×10^{-3} moles of $KBrO_3$ to reduce into bromide 4.02×10^{-3} mole of X^{n+} ion is needed. New oxidation state of X is:

 $\mathsf{A.}\,n+2$

 $B.\,n-2$

C. 2

 $\mathsf{D.}-2$



26. Find the percentage of calcium in calcium oxide.

27. 6 mole of FeC_2O_4 on treatment with 2 mole of $K_2Cr_2O_7$ in acidic medium evolves x litre of CO_2 gas at STP. The value of x would be:

A. 22.4l

B. 44.8*l*

 $\mathsf{C.}\,67.2l$

 $\mathsf{D}.\,179.2l$

Answer: D

28. Volume V_1 mL of 0.1 M $K_2Cr_2O_7$ is needed for complete oxidation of 0.678 g N_2H_4 in acidic medium.The volume of 0.3 M $KMnO_4$ needed for same oxidation in acidic medium will be :

A.
$$\frac{2}{5}V_1$$

B. $\frac{5}{2}V_1$
C. $113V_1$
D. $\frac{7}{5}V_1$



29. How many ml of 0.3M $K_2Cr_2O_7$ (acidic) is required for

complete oxidation of 5 ml of 0.2 M SnC_2O_4 solution.

A. 3.33 ml

B. 1.11 ml

C. 11 ml

D. 4.44 ml

Answer: B



30. A mixture of petrol and ethyl alcohol contains 22.0 % alcohol. The density of the mixture is $0.800gmL^{-1}$. What mass of alcohol is there in 40.0 mL of the mixture?

A. 7.04 gm

B. 4.40 gm

C. 11 gm

D. 15 gm



31. Which of the following should be done in order to prepare 0.40 M NaCI starting with 100 ml of 0.30 M NaCI (Mol. Mass of NaCI = 58.5)?

A. add 0.745 g KCI

B. add 20 ml water

C. add 0.1 mole KCI

D. Evaporate 10 ml water



32. 35ml sample of hydrogen peroxide gives off 500 ml of O_2 at $27^{\circ}C$ and 1 atm pressure. Volume strength of H_2O_2 sample will be:

A. 10 volume

B. 13 volume

C. 11 volume

D. 12 volume

Answer: B



33. When 2.76g of silver carbonate is strongly heated, it

yields a residue weighing

A. 2.16 g

B. 2.48 g

C. 2.32 g

D. 2.64 g

Answer: A



34. A spherical ball of radius 3 cm contains 66.66% iron. If density of ball is 1.5 g/ cm^3 then the number of mole of Fe

present approximately is:

A. 1

B. 2

C. 20

D. 10

Answer: B



35. Specific volume of cylindrical virus particle is $6.02 \times 10^{-2} cc/g$, whose radius and length are 7Å and 10Å respectively. If $N_A = 6.023 \times 10^{23}$, find molecular weight of virus.
A. 15.4 Kg/mol

- $\text{B.}\,1.54\times10^4~\text{Kg/mol}$
- $\text{C.}~3.08\times10^{4}~\text{Kg/mol}$
- D. $3.08 imes 10^3$ Kg/mol

Answer: A

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36. One litre of a sample of hard water contain $4.44mgCaCl_2$ and $1.9mgofMgCl_2$. What is the total hardness in terms of ppm of $CaCO_3$?

A. 2 ppm

B. 3 ppm

C.4 ppm

D. 5.12 ppm

Answer: C



37. A 2.0 g sample containing Na_2CO_3 and $NaHCO_3$ loses 0.248 g when heated at 300° C, the temperature at which NaHC03 decomposes to Na_2CO_3 , CO_2 and H_2O . What is the percentage of Na_2CO_3 in the mixture ?

A. 0.3333

B. 0.6666

C. 0.25

D. 0.5

Answer: B



38. 500 ml of a solution contain 12.6 grams of oxalic acid [Mol. Mass = 126 g/mole]. 10 ml of this solution is diluted to 100 ml in a flask. What is the molarity of the resultant solution?

A. 0.1

B. 0.2

C. 0.01

D. 0.02

Answer: D



39. Equal volumes of 0.2M HCI and 0.4M KOH are mixed. The concentration of ions in the resulting solution are:

A.
$$\left[K^+ = 0.4M, \left[C1^-
ight] = 0.2M, \left[H^+
ight] = 0.2M$$

$$\mathsf{B}.\left[K^{+}\right]=0.2M,\left[C1^{-}\right]=0.1M,\left[OH^{-}\right]=0.1M$$

$$\mathsf{C}.\left[K^{\,+}\,\right]=0.1M,\left[C1^{\,-}\,\right]=0.1M,\left[OH^{\,-}\,\right]=0.1M$$

D. $\left[K^{\,+}\,
ight]=0.2M,\left[C1^{\,-}\,
ight]=0.1M,\left[OH^{\,-}\,
ight]=0.2M$

Answer: D



40. 1g of the carbonate of a metal was dissolved in 25mL of N - HCl. The resulting liquid required 5mL of N - NaOH for neutralisation. The Ew of the metal Carbonate is

A. 100

B. 30

C. 40

D. 50

Answer: D



41. A sample of chalk $(CaCO_3)$ is contaminated with calcium sulphate 1.0 g of the solid is dissolved in 230 " mL of " $\frac{N}{10}$ HCl, 40.1 $\frac{N}{10}$ NaOH is requried to neutralise the excess acid. What ist he percentage of chalk in the mixture.

A. 0.05

B. 0.35

C. 0.65

D. 0.95

Answer: D



42. 2 grams of a gas mixture of CO and CO_2 on reaction with excess I_2O_5 yields 2.54 grams of I_2 . What would be the mass% of CO in the original mixture?

A. 70~%

B. 95.3 %

C.88.4%

D. 80.7~%

Answer: A



43. The number of moles of $KMnO_4$ that will be needed to react with one mole of sulphite ion in acidic solution is:

A. 2/5

B. 3/5

C.4/5

D. 1

Answer: A



44. In an organic compound of molar mass greater than 100 containing only C, H and N, the percentage of C is 6 times the percentage of H while the sum of the percentage of C and H is 1.5 times the percentage of N. What is the least molar mass :

A. 175 g/mole

B. 140 g/mole

C. 105 g/mole

D. 210 g/mole

Answer: B



45. 0.7 grams of Na_2CO_3 . xH_2O were dissolved in water and the volume was made to 100 mL, 20 mL of this solution required 19.8 mL of N/10 HCl for complete neutralization. The value of x is Report your answer by rounding it upto nearest whole number.

A. 7

B. 3

C. 2

D. 5

Answer: C

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46. Exactly 4.00 gm of a solution of H_2SO_4 was diluted with water and excess $BaCl_2$ was added. The washed and dried precipitated of $BaSO_4$ weighed 4.08 gm. The percent H_2SO_4 in the original acid solution is:

A. 43.0~%

 $\mathsf{B.}\,4.3\,\%$

 $\mathsf{C.}\,47\,\%$

D. 56~%

Answer: A



47. A sample of ammonium phosphate $(NH_4)_3PO_4$ contains 3.18 moles of hydrogen atoms. The number of moles of oxygen atoms in the sample is

A. 0.265 moles

B. 0.795 moles

C. 1.06 moles

D. 3.18 moles

Answer: C



48. What volume of 96% H_2SO_4 solution (density 1.83 g/mL) is required to prepare 4 litre of 3.0 M H_2SO_4 solution ?

A. 335 ml

B. 670 ml

C. 167.5 ml

D. 572 ml

Answer: A



49. Hardness of water sample is 300 ppm $CaCO_3$ Hence

its molarity is:

A. 0.3 M

B. 0.030 M

C. 0.003 M

D. 0.0015 M

Answer: C





1. 250 " mL of " x M solution and 500 " mL of " y M solution of a solute are mixed and diluted to 2L to produce a final concentration of 1.6 M. If x : y = 5 : 4, calculate x and y.

A. 3.94, 4.92

B. 4.92, 4.92

C. 4.92, 3.94

D. 3.94, 3.94

Answer: C



2. 2.68×10^{-3} moles of a solution containing an ion A^{n+} require 1.61×10^{-1} moles of MnO_4^- ion for the oxidation of A^{n+} to AO_3^- in acidic medium. What is the value of n?

A. 2

B. 3

C. 5

D. 4

Answer: A

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3. 30 ml of N/10 HC1 is required to neutralize 50 ml of a sodium carbonate solution. What volume of water (in ml) must be added to 30 ml of Na_2CO_3 solution so that the final solution has concentration N/50?

A. 20 ml

B. 30 ml

C. 50 ml

D. 60 ml

Answer: D

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4. Molecular mass of KOH is



5. Two acids A and B are titrated separately each time with 25 " mL of " $N - Na_2CO_3$ solution to requrie 10 mL and 40 mL respectively, of their solution for complete neutralisation. What volume of A and B would you mix to produce 1 L of N-acid solution?

A. A = 100 ml , B = 200 ml

B. A = 300 ml , B = 200 ml

C. A = 200 ml , B = 800 ml

D. A = 400 ml , B = 400 ml

Answer: C



6. In an ore the oxidisable is Sn^{2+} . This is ore is titrated with a dichromate solution containing 2.5 g $K_2Cr_2O_7$ in 0.50 litre. A 0.40 g of sample of the ore required 10.0 cm^3 of the titrant to reach equivalent point. If the percentage of tin in ore is x, then what is the value of x/5 ? (K=39.1,Cr=52, Sn=118.7)

A. 0.15

B. 0.25

C. 0.3

D. 0.67

Answer: A



7. A sample of gaseous hydrocarbon occupying 1.12 litre at NTP, when completely burnt in air produced $2.2gCO_2$ and $1.8gH_2O$. Calculate the weight of hydrocarbon taken and the volume of O_2 at NTP required for its combustion.

A. CH_4

 $\mathsf{B.}\, C_2 H_6$

 $\mathsf{C.}\,C_3H_8$

D. C_4H_{10}

Answer: A



8. A sample of hard water contains 20 mg of Ca^{2+} ions per litre. How many millimoles of Na_2CO_3 would be requried to soften 1 L of the sample. Also calculate the mass of Na_2CO_3 .

A. 1

B. 10^{-3}

C. 10

D. 10^{-5}

Answer: B



9. A drug marijuana owes its activity to tetrahydrocannabinol, which contains 70% as many carbon atoms as hydrogen atoms and 15 times as many hydrogen atoms as oxygen atoms. If the number of moles in 1 gm of tetrahydrocannabinol are 0.00318` moles then its molecular formula will be:

A. $C_{21}H_{30}O_2$

B. $C_{21}H_{15}O$

C. $C_{31}H_{15}O$

D. $C_{31}H_{15}O_2$

Answer: A



10. How much $NaNO_3$ must be weighed out to make 50 ml of an aqueous solution containing 70 mg Na^+ per ml?

A. 14 gm

B. 13 gm

C. 18 gm

D. 27 gm

Answer: B



11. A silver coin weighing 2.5 gm was dissolved in HNO_3 and then further treated with excess HCI. The mass of AgCI formed was 2.99 gm. The percentage of silver in the coin will be:

A. 0.75

B. 0.9

C. 0.35

D. 0.1

Answer: B



A. 44.8 ml

B. 22.4 ml

C. 11.8 ml

D. 22400 ml

Answer: A

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15. Molecular mass of NaOH is



16. Gastric juice contains about 3.0 g HCI per litre. If a person produces about 2.5 L of gastric juice per day, how many antacid tablets each containing 400 mg of $Al(OH)_3$ are needed to neutralise all the HCI produced in one day.

A. 13

B. 14

C. 15

D. 16

Answer: B





40.0g of NaOH per litre. What is the basicity of the acid?

B. 1

C. 4

D. 3

Answer: A

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20. Calculate the number of moles in 69g of sodium.

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21. You are given one litre of 0.183 M HCI and one litre of 0.381 M HCI. What is the maximum volume of 0.243 M HCI

which you can make from these two solution? (Assume that no water is added).

A. 1921 ml

B. 1435 ml

C. 928 ml

D. 2017 ml

Answer: B



22. How many milliliter of conc. HCI of specific gravity 1.19 and which contains 37% by mass HCI will be required to prepare 2 litre of decinormal solution?

A. 13.22 ml

B. 23.41 ml

C. 16.58 ml

D. 28.26 ml

Answer: C

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23. Cuprous sulphide and silver sulphide are isomorphous. The atomic mass of Cu is 63.57 g/mole. If the percentage composition of Sulphur in each of these is 20.14% and 12.94% respectively then the atomic mass of silver will be:

A. 126.4 g/mole

B. 107.74 g/mole

C. 47 g/mole

D. 210.23 g/mole

Answer: B

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24. A blackened silver coin weighing 15 g on treatment with HCI yielded 25 ml of H_2S at $12^{\circ}C$ and 775 mmHg. What percentage of the original silver tranished?

A. 0.1088

B. 0.0734

C. 0.0365

D. 0.0153

Answer: D



25. A small amount of $CaCO_3$ completely neutralises 525 mL of 0.1 N HCl and no acid is left in the end. After converting all calcium chlorine to $CaSO_4$, how much plaster of Paris can be obtained ?

A. 3.8 gm

B. 14.2 gm

C. 5.6 gm

D. 17.43 gm

Answer: A



26. 12 ml of a mixture of alkane and alkene having same number of carbon atoms requires exactly 57 ml of oxygen for complete combustion. The name of hydrocarbons if CO_2 formed is 36 ml are

A. CH_4 and C_3H_6

 $B. C_2 H_6$ and $C_2 H_4$

 $C. C_3H_6$ and C_3H_8

D. C_3H_6 and C_3H_4

Answer: C



27. Oxalic acid reacts with NaOH according to the given reaction. $(COOH)_2 + 2NaOH \rightarrow (COONa)_2 + 2H_2O$ If 0.816 g of oxalic acid dihydrate. $(COOH)_22H_2O$, is dissolved in 1 L of water and titrated with 0.120 M NaOH solution, what volume of NaOH will be needed?

A. 108 ml

B. 187 ml

C. 127 ml

D. 151 ml

Answer: A



28. The number of AI^{3+} ions in 100 mL of 0.15 M solution of $AI_2(SO_4)_3$ are:

A. $18 imes 10^{22}$ ions

B. $1.8 imes 10^{22}$ ions

C. $18 imes 10^{24}$ ions

D. $1.8 imes 10^{27}$ ions

Answer: B


29. 0.2 g of a primary aliphatic amine, on treatment with nitrous acid gave 61.36 ml of N_2 gas at STP. The molecular mass of the amine will be:

A. 99 g/mole

B. 87 g/mole

C. 73 g/mole

D. 123 g/mole

Answer: C

30. 10 g of a hydrated salt of $BaCI_2$ was dissolved in one litre water. The solution was then treated with 1.65 litre of 0.05 N $AgNO_3$ till complete precipitation. The number of water molecules in hydrated salt are :

A. 6

B. 10

C. 4

D. 2

Answer: D



31. A solution of acid having 62% by mass of acid has specific gravity of 1.8 g. If the solution is to be diluted to attain a specific gravity of 1.2 then what volume of water should be added to 100 ml of this solution?

A. 200 ml

B. 1000 ml

C. 500 ml

D. 300 ml

Answer: D

32. 20 ml of CO was mixed with 50 ml of O_2 and the mixture was exploded. On cooling, the resulting mixture was shaken with KOH. Which gas and with what volume is left?

A. O_2 , 40 ml

B. O_2 , 20 ml

C. CO_2 , 10 ml

D. CO_2 , 15 ml

Answer: A

33. Calculate the number of particle in each of the following: 50 g of Mg atom



34. Calculate the number of particle in each of the following: 100 g of KOH molecules



35. Anhydrous sodium sulphate can absorb water vapour and convert to its decahydrate. By how many gram would the mass of a 1 g sample of the thoroughly dried sodium sulphate increase, if its is exposed to sufficient water vapour to be converted to the decahydrate.

A. 0.85 gm

B. 1.27 gm

C. 3.17 gm

D. 2.42 gm

Answer: B



36. 250 ml of 0.10 M K_2SO_4 solution is mixed with 250 ml of 0.20 M KCI solution. The concentration of K^+ ions in the resulting solution will be:

A. 0.1 M

B. 0.4 M

C. 0.2 M

D. 0.8 M

Answer: C

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37. 3 L mixture of propane and butane on complete combustion at 298 K gave 10 L CO_2 Calculate the compositon of the gas mixture.

A. $C_3H_8=2$ litre, $C_4H_{10}=1$ litre

B. $C_3H_8 = 1.5$ litre, $C_4H_{10} = 1.5$ litre

C. $C_3 H_8 = 0.5$ litre, $C_4 H_{10} = 2.5$ litre

D. $C_3H_8 = 1.75$ litre, $C_4H_{10} = 1.25$ litre

Answer: A



38. Calculate the number of particle in each of the following: 75 g of K atom.



39. H_2O_2 is reported to be 3.03% by mass. The strength of H_2O_2 in terms of volume of O_2 if density of H_2O_2 solution is 'd' g ml^{-1} will be:

A. 5d' volume

B. 10d' volume

C. 30d' volume

D. 20d' volume

Answer: B



40. Most of the commercial hydrochloric acid is prepared by heating NaCI with conc. H_2SO_4 How much sulphuric acid containing 90% H_2SO_4 by mass is needed for the production of 103 kg of hydrochloric acid?

A. 319.55 kg

B. 888.02 kg

C. 153.63 kg

D. 343.28 kg

Answer: C

41. Find number of atoms in 46g of Na?



42. 100 g of HCI solution with relative density 1.117 g/ml contains 33.4 g of HCI. What volume of this HCI solution will be required to exactly neutralize 5 litre of N/10 NaOH solution?

A. 77.8 ml

B. 48.9 ml

C. 23.2 ml

D. 86.2 ml

Answer: B



43. The normality of a mixture of HCI and H_2SO_4 solution is N/5 Now, 0.287 g of AgCI is obtained when 20 ml of the solution is treated with excess of $AgNO_3$. The percentage of both acids in the mixture will be?

A.
$$HCI=32.44\,\%$$
 , $H_2SO_4=67.56\,\%$

B. $HCI=42.69\,\%$, $H_2SO_4=57.31\,\%$

C. $HCI = 48.75\,\%\,, H_2SO_4 = 51.25\,\%$

D. HCI = 92.51~% , $H_2SO_4 = 7.49~\%$

Answer: B



44. 1.17 g an impure sample of oxalic acid dihydrate was dissolved and make up of 200 ml with water. 10 ml of this solution in acidic medium required 8.5 ml of a solution of potassium permanganate containing 3.16 g per litre of solution. The percentage purity of oxalic acid will be:

A. 0.1265

B. 0.3578

C. 0.8276

D. 0.9154

Answer: D



45. 2.65gm of a diacidic base was dissolved in 500 ml of water. Twenty millilitres of this solution required 12 ml of $\frac{N}{6}$ HCl solution. Calculate the equivalent mass and molucular mass of the base.

A. 35, 70

B. 24, 48

C. 18, 36

D. 53, 106

Answer: D

46. Some amount of NH_4CI was boiled with 50ml of 0.75 N NaOH solution till the reaction was complete. After the completion of the reaction 10 ml of 0.75 N H_2SO_4 was required for the neutralization of the remaining NaOH. The amount of NH_4CI taken was:

A. 1.6 gm

B. 1.2 gm

C. 3.2 gm

D. 8.7 gm

Answer: A



47. 4.0g of a mixture of *Nacl* and Na_2CO_3 was dissolved in water and volume made up to 250mL. 25mL of this solution required 50mL of N/10HCl for complete neutralisation. Calculate the percentage composition of the original mixture.

A. $NaCI=63.75\,\%$, $Na_2CO_3=36.25\,\%$

B. NaCI = 55.85~% , $Na_2CO_3 = 44.15~\%$

C. $NaCI = 48.75\,\%\,, Na_2CO_3 = 51.25\,\%$

D. NaCI=74.75~% , $Na_2CO_3=25.~25~\%$

Answer: B

48. 25g of salt are present in 50g of solution. Calculate

the mass percentage of the solute.





50. 2.20 g of an ammonium salt was boild with 74 ml of 1 N NaOH till the emission of ammonia gas ceased. The excess of unused NaOH solution required 70 ml of N/2 sulphuric acid for neutralization. The percentage of ammonia in the salt is: A. 0.31

B. 0.83

C. 0.66

D. 0.47

Answer: A





1. How many moles of lead (II) chloride will be formed

from a reaction between 6.5g of PbO and 3.2 g of HCI?

A. 0.011

B. 0.029

C. 0.044

D. 0.333

Answer: 2

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2. What is the volume of one molecules of water (density

of $H_2O = 1gcm^{-3}$)

A. $3.0 imes10^{-23}cm^3$

B. $5.5 imes 10^{23} cm^3$

 $\text{C.}\,9.0\times10^{-23} cm^3$

D. $6.023 imes10^{-23}cm^3$

Answer: 1

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3. An organic compound contains carbon , hydrogen and oxygen . Its elemental analysis gave C ,38.41% and H, 9.67% . The empirical formula of the compound would be

A. CHO

B. CH_4O

 $C. CH_3O$

D. CH_2O

Answer: 3



- **4.** What volume of oxygen gas (O_2) measured at $0^\circ C$ and
- 1 atm , is needed to burn completely 1L of propane gas

 (C_3H_8) measured under the same conditions ?

- A. 5L
- B. 10 L
- C. 7 L

D. 6 L



5. During electrolysis of water, the volume of oxygen liberated is $2.24 dm^3$. The volume of hydrogen liberated, under same conditions will be

A. 2.25 dm^3

B. $1.12 dm^3$

 $C. 4.48 dm^3$

D. $0.56 dm^3$

Answer: 3





6. Number of moles of MnO_4^- required to oxidise one mole of ferrous oxalate completely in acidic medium will be

A. 7.5 moles

B. 0.2 mole

C. 0.6 mole

D. 0.4 mole

Answer: 3

7. 10 g of hydrogen and 64 g of oxygen were filled in a steel vessel and exploded . Amount of water prodused in this reaction will be

A. 3 moles

B.4 moles

C.1 mole

D. 2 moles

Answer: 2



8. A bivalent metal has an equivalent mass of 32. The

molecular mass of the metal nitrate is

A. 168

B. 192

C. 188

D. 182

Answer: 3

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9. The number of significant figures is 10.3406 g in :

A. 2

B. 3

C. 6

D. 4

Answer: 5



10. 1.5g $CdCl_2$ was formed to contain 0.9g Cd. Calculate the atmic weight of Cd.

A. 118

B. 112

C. 106.5

D. 53.25

Answer: 3



12. what volume of CO_2 will be liberated at STP if 12 g of carbon is burnt in excess of oxygen ?

A. 11.2 L

B. 22.4 L

C. 2.24 L

D. 1.12 L

Answer: 2



13. The equivalent mass of $MnSO_4$ is half of its molecular

mass when it is converted to

A. Mn_2O_3

B. MnO_2

 $\mathsf{C}.MnO_4^-$

D. $MnO_4^{2\,-}$

Answer: 2

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14. x moles of potassium dichromate oxidizes 1 mole of ferrous oxalate in acidic medium. Here x is :

A. 3

B. 1.5

C. 0.5

D. 1

Answer: 3



15. Express of CO_2 is passed through 50 mL of 0.5 M calcium hydroxide solution. After the completion of the reaction, the solution was evaporated to dryness. The solid calcium carbonated was completely neutralized with 0.1 N hydrochloric acid. The volume of hydrochloric acid required is (At mass of carbon = 40)

A. $200 cm^3$

B. $500 cm^3$

C. $400 cm^3$

D. $300 cm^{3}$

Answer: 2

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16. The number of electrons required to reduce $4.5 imes 10^{-5}$ g of Al^{+3} is :

A. $1.03 imes 10^{18}$

 $\texttt{B.}~3.01\times10^{18}$

C. $4.95 imes 10^{26}$

D. $7.31 imes 10^{20}$

Answer: 2



17. How much volume of oxygen at STP in litres is required

to burn 4g of methane gas completely?

A. 11.2

B. 5.6

C. 2.8

D. 8

Answer: 1



18. Equivalent weight of Potassiumpermaganate in strong

alkaline medium is

A.
$$\frac{\text{molar mass}}{5}$$

B.
$$\frac{\text{molar mass}}{3}$$

C.
$$\frac{\text{molar mass}}{2}$$

D. molar mass itself.

Answer: 4



19. An organic compound contains $40~\%~C,\,6.6~\%~H.$ The

empirical formula of the compound is

A. CH_3O

B. C_4HO_4

 $\mathsf{C}.\,CHO$

D. CH_2O

Answer: 4



20. 1 u (amu) is equal to

A. $1.492 imes 10^{-10} J$

 $\mathsf{B}.\, 1.492 \times 10^{-7} J$

C. $1.492 imes 10^{-13} J$

D. $6.023 imes10^{25}J$

Answer: 1

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21. In the reaction of sodium thiosulphate with I_2 in aqueous medium, the equivalent mass of sodium sulphate

A. molar mass of sodium thiosulphate

B. the average of molar masses of $Na_2S_2O_3$ and I_2

C. half the molar mass of sodium thisoulphate

D. molar mass of sodium thisoulphate * 2

Answer: 1

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22. A compound (60 gm) on analysis gave C = 24gmH=4gm and O=32gm, its empirical formula is

A. CH_2O_2

B. CH_2O

 $\mathsf{C}.\,CH_4O$
$\mathsf{D.}\, C_2 H_4 O_2.$

Answer: 2



23. A mixture of $CaCl_2$ and NaCl weighing 4.44 is treated with sodium carbonate solution to precipitate all the Ca^{2+} ions as calcium carbonate. The calcium carbonate so obtained is heated strongly to get 0.56 g of CaO. The percentage of NaCl in the mixture of (atomic mass of Ca=40) is

A. 75

B. 30.6

C. 25

D. 69.4

Answer: 1

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24. The number of atoms in 4.25 g of NH_3 is approximately

A. $6.023 imes 10^{23}$

B. $4 imes 6.023 imes 10^{23}$

 ${\sf C}.\,1.7 imes10^{24}$

D. $4.25 imes 6.023 imes 10^{23}$



25. In an experiment, 4g of M_2O_x oxide was reduced to 2.8g of the metal. If the atomic mass of the metal is $56gmol^{-1}$, the number of oxygen atoms in the oxide is:

A. 1

B. 2

C. 3

D. 4





26. The number of molecules in 100 mL of 0.02 N H_2SO_4

is

A. $6.02 imes 10^{22}$

 $\texttt{B.}~6.02\times10^{21}$

C. $6.02 imes 10^{20}$

D. $6.02 imes 10^{18}$

Answer: 3

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27. In the conversion $NH_2OH
ightarrow N_2O$, the equivalent weight of NH_2OH will be:

A. M

B. M/2

C. M/4

D. M/5

Answer: 2



28. To dissolve 0.9 g metal, 100 mL of 1 N HCl is used. What

is the equivalent weight of metal?

A. 7

B. 9

C. 10

D. 6

Answer: 2

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29. The amount of oxalic acid required to prepare 300 mL of 2.5 M solution is : (molar mass of oxalic acid = 90 g mol^{-1}):

A. 67.5 g

B. 9.45 g

C. 6.75 g

D. 94.5 g

Answer: 1



30. The amount of H_2S required to precipitate 1.69 g BaS from $BaCl_2$ solution is (Atomic weight Ba=137, S = 32 and H = 1) :

A. 3.4 g

B. 1.7 g

C. 0.34 g

D. 0.17 g

Answer: 3



31. How many moles of iodine are liberated when one mol of potassium dichromate reacts with excess of potassium iodide in the presence of concentrated sulphuric acid?

A. 1

B. 2

C. 3

D. 4

Answer: 3

32. The number of atoms in 0.1 mole of a triatomic gas is

$$\left(N_A = 6.02 imes 10^{23} {
m mol}^{-1}
ight)$$

A. $6.026 imes 10^{22}$

B. 1.806 imes 10^{23}

 $\text{C.}~3.6\times10^{23}$

D. $1.8 imes10^{22}$



33. Which has the maximum number of molecules among

the following?

A. $44gCO_2$

 $\mathsf{B.}\,48gO_2$

 $\mathsf{C.}\, 8gH_2$

D. $64gSO_2$



34. 50.0 kg of N_2 (g) and 10.0 kg of H_2 (g) are mixed to produce NH_3 (g). Calculate the amount of NH_3 (g) formed. Identify the limiting reagent in the production of NH3 in this situation

A. 17 kg

B. 34 kg

C. 20 kg

D. 3 kg

Answer: 1

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35. Stoichiometric ratio of sodium dihydrogen orthophosphate and sodium hydrogen orthophosphate required for synthesis of $Na_5P_3O_{10}$ is

A. 1.5 : 3

B.3:1.5

C. 1:1

D. 2:3



36. 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 .

A. 54.0 g conc. HNO_3

B. 45.0 g conc. HNO_3

C. 90.0 g conc. HNO_3

D. 70.0 g conc. HNO_3



37. If excess of $AgNO_3$ solution is added to 100 mL of a 0.024 M solution of dichlorobis (ethylenediamine) cobalt (III) chloride , how many moles of AgCl be precipitated ?

A. 0.01

B. 0.001

C. 0.002

D. 0.003



 $\mathbf{38.}\,6.02 imes10^{20}$ molecules of urea are present in 100 mL of

its solution. The concentration of urea solution is:

A. 0.1 M

B. 0.02 M

C. 0.01 M

D. 0.001 M

Answer: 3



39. 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)

A. Mg. 0.44 g

 $\mathsf{B}.\,O_2,\,0.28\,\mathsf{g}$

C. Mg, 0.16g

D. $O_2, 0.16g$

Answer: 3

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40. When 22.4L of $H_2(g)$ is mixed with 11.2 L of $Cl_2(g)$,

each at STP, the moles of HCl(g) formed is equal to

A. 0.5 mol of HCl (g)

B. 1.5 mole of HCl (g)

C. 1 mol of HCl (g)

D. 2 mol of HCl (g)

Answer: 3



41. The number of water molecules is maximum in

A. 18 gram of water

B. 18 moles of water

C. 18 molecules of water

D. 1.8 gram of water

Answer: 2



42. If Avogadro number N_A is changed from $6.022 \times 10^{23} mol^{-1}$ to $6.022 \times 10^{20} mol^{-1}$, this would change:

A. the ratio of chemical species to each other in a balanced equation

B. the ratio of elements to each other in a compound

C. the definition of mass in units of grams

D. the mass of one mole of carbon



43. 20.0g of a magnesium carbonate sample decomposes on heating to give carbon dioxide and 8.0 g magnesium oxide . What will be the perpentage purity of magnesium carbonate in the sample ? (Atomic weight of Mg=24)

A. 60

B. 84

C. 75

D. 96



44. What is the mass of 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)

A. 7 g

B. 14 g

C. 28 g

D. 3.5 g



45. 5.0 g of sodium hydroxide `("molar mass 40 g mol"^(-1)) is dissolved in little quanitity of water and the solution is diluted upto 100 mL. What is the molarity of the resulting solution ?

A. 0.1 mol dm^{-3}

B. 1.0 mol dm^{-3}

C. 0.125 mol dm^{-3}

D. 1.25 mol dm^{-3}



46. Suppose elements X and Y combine to form two compounds XY_2 and X_3Y_2 when 0.1 mole of former weigh 10g while 0.05 mole of the latter weigh 9g. What are the atomic weights of X and Y.

A. 40, 30

B. 60, 40

C. 20, 30

D. 30, 20

Answer: 1

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47. The largest number of molecules in

A. 36 g of H_2O

B. 28 g of CO_2

C. 46 g of CH_3OH

D. 54 g of N_2O_5

Answer: 1

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48. The equivalent weight of a metal is 9 and vapour density of its chloride is 59.25. The atomic weight of metal is :

A. 23.9

B. 27.3

C. 36.3

D. 48.3

Answer: 1



49. In an oxidation-reduction reaction, MnO_4^- ion is converted to Mn^{+2} . What is the number of equivalents of $KMnO_4$ (molecular weight = 158) present in 250 mL of 0.04 M $KMnO_4$ solution?

A. 0.02

B. 0.05

C. 0.04

D. 0.07

Answer: 2

Watch Video Solution