CHEMISTRY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

SOME BASIC PRINCIPLES OF CHEMISTRY

Exercise

1. Suppose the elements X and Y combine to form two compounds of 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 , what are tha atomic masses of X and Y ?

    A. 40,30

    B. 60,40

    C. 20,30

    D. 30,20

Answer: A

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

A. the definition of mass in units of grams

B. the mass of one mole of carbon

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

D. the ratio of elements to each other in a

compound

Answer: B

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3. 20.0 g of a magnesium carbonate sample

decomposes on heating to give carbon dioxide

and 8.0 g magnesium oxide. What be the

percentage purity of magnsesium carbonate

in the sample?

A. 75

B. 96

C. 60

D. 84

Answer: D

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4. 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?

A. 28 g

B. 3.5 g

C. 7 g

D. 14 g

Answer: C

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5. The number of water molecules is maximum

in

A. 18 molecules water

B. 1.8 g of water

C. 18 g of water

D. 18 moles of water

Answer: D

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6. When $22.4L$ of $H_2(g)$ is mixed with 11.2 of $Cl_2(g)$, each at STP, the moles of HCl(g) formed is equal to

A. 1 mole of HCl (g)

B. 2 moles of HCl (g)

C. 0.5 mole of HCl (g)

D. 1.5 moles of HCl (g)

Answer: A

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7. 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?

A. Mg,0.16 g

B. O_2, $0.16g$

C. Mg,0.44 g

D. O_2, $0.28g$

Answer: A

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8. How many grams of concentrated nitric acid

solution should be used to prepare $250mL$ of

$2.0 M HNO_3$? The concentrated acid is $70 \% HNO_3$:

A. 45.0g conc . HNO_3

B. 90.0g conc.HNO_3

C. 70 .0 g conc .HNO_3

D. 54.0g conc . HNO_3

Answer: A

9. 6.02×10^{20} molecules of urea are present in 100 ml of its solution. The concentration of solution is :

A. 0.02 M

B. 0.01 M

C. 0.001 M

D. 0.1 M

Answer: B

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10. The number of atoms in 0.1 mol of a triatomic gas is:

A. 6.026×10^{22}

B. 1.806×10^{23}

C. 3.600×10^{23}

D. 1.800×10^{22}

Answer: B

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11. 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:

A. 2 moles

B. 3 moles

C. 4 moles

D. 1 moles

Answer: C

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12. If the density of water is 1 g cm^{-3} then the volume occupied by one molecule of water is approximately

A. $9.0 \times 10^{-23} cm^3$

B. $6.023 \times 10^{-23} cm^3$

C. $3.0 \times 10^{-23} cm^3$

D. $5.5 \times 10^{-23} cm^3$

Answer: C

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13. What volume of oxygen gas (O_2) measured at $0°C$ and 1 atm is needed to burn completely $1L$ of propane gas (C_3H_8) measured under the same condition?

A. 7 L

B. 6 L

C. 5 L

D. 10 L

Answer: C

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14. How many moles of lead (II) choride will be formed from a reaction between 6.5 g of PbO and 3.2 g of HCl?

    A. 0.044

    B. 0.333

    C. 0.011

    D. 0.029

Answer: D

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

A. 0.6 mole

B. 0.4 mole

C. 7.5 mole

D. 0.2 mole

Answer: B

16. The number of moles of $KMnO_4$ that will be needed to react with $1mol$ of sulphite ion in acidic solution is
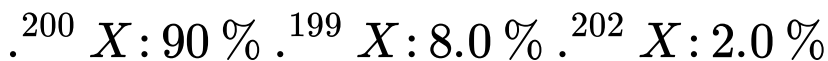
    A. $4/5$

    B. $2/5$

    C. 1

    D. $3/5$

Answer: B

17. An element X has the following isotopic composition:

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

The weight average atomic mass of the naturally occurring element X is closest to

A. 201u

B. 202 u

C. 199 u

D. 200 u

Answer: D

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18. The number of moles of $KMnO_4$ reduced

by $1\text{mol of} KI$ in alkaline medium is

A. one fifth

B. five

C. one

D. two

Answer: C

19. The mass of carbon anode consumed (giving only carbon dioxide) in the production of $270kg$ of aluminium metal from bauxite by the Hall process is

A. 180 kg

B. 270 kg

C. 540 kg

D. 90 kg

Answer: D

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20. The maximum number of molecules is present in :

A. 15 L of H_2 gas at STP

B. 5 L of N_2 gas at STP

C. 0.5 g of H_2 gas

D. 10 g of O_2 gas

Answer: A

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21. In Haber process 30 litre of dihydrogen and 30 litres of dinitrogen were taken for reaction which yielded only50% of the expected product. What will be the composition of

gaseous mixture under the aforesaid condition in the end ?

    A. 20 L ammonia , 10 L nitrogen , 30 L hydrogen

    B. 20 L ammonia , 25 L nitrogen , 15 L hydrogen

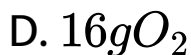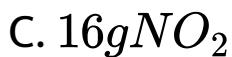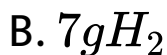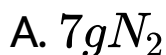   C. 20 L ammonia , 20 L nitrogen , 20 L hydrogen

    D. 10 L ammonia , 25 L nitrogen , 15 L hydrogen

Answer: D

22. Which has maximum number of molecules?

A. $7gN_2$

B. $7gH_2$

C. $16gNO_2$

D. $16gO_2$

Answer: B

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

A. $15.4 kg/mol$

B. $1.54 \times 10^4 kg/mol$

C. $3.08 \times 10^4 kg/mol$

D. $3.08 \times 10^3 kg/mol$

Answer: A

24. Percentage of Se in peroxidase anhydrase enzyme is 0.5% by weight (at. Wt. $= 78.4$), then minimum molecular weight of peroxidase anhydrase enzyme is:

    A. 1.568×10^3

    B. 15.68

    C. 2.168×10^4

D. 1.568×10^4

Answer: D

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25. Assuming fully decomposed, the volume of CO_2 released at STP on heating 9.85 g of $BaCO_3$ (Atomic mass of Ba=137) will be

A. 1.12 L

B. 0.84 L

C. 2.24 L

D. 4. 96 L

Answer: A

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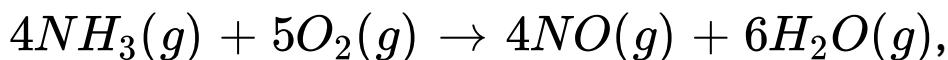26. The number of atoms in $4.25gNH_3$ is approximately:

A. 4×10^{23}

B. 2×10^{23}

C. 1×10^{23}

D. 6×10^{23}

Answer: D

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27. In the reaction,

$$4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(g),$$

when 1 mole of ammonia and 1 mole of O_2 are

made to react to completion

A. 1.0 mole of H_2O is produced

B. 1.0 mole of NO will be produced

C. all the oxygen will be consumed

D. all the ammonia will be consumed

Answer: C

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28. Haemoglobin contains 0.33% of iron by weight. The molecular weight of heamoglobin is approximately 67200. The number of iron

atoms (At. Wt. of Fe=56) present in one molecule of haemoglobin is

A. 1

B. 6

C. 4

D. 2

Answer: C

29. Given the number: 161 cm, 0.161 cm, 0.0161 cm. The number of significant figures for the three numbers are

A. 3.4 and 5 respectively

B. 3,4 and 4 respectively

C. 3,3 and 4 respectively

D. 3,3 and 3 respectively

Answer: D

30. If $0.24g$ of a volatile liquid upon vaporization gives $45ml$ of vapors at NTP, what will be the vapor density of the substance? (Density of $H_2 = 0.089fL^{-1}$)
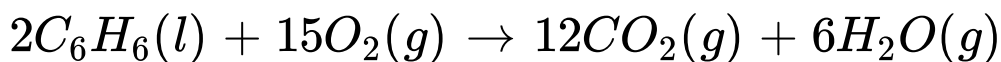
A. 95.93

B. 59.93

C. 95.39

D. 5.993

Answer: B

31. Liquid benzene C_6H_6) burns in oxygen according to the equation,

$$2C_6H_6(l) + 15O_2(g) \rightarrow 12CO_2(g) + 6H_2O(g)$$

How many litres of O_2 at STP are needed to complete the combustion of 39 g of liquid benzene ? (Mol . Weight if $O_2 = 32, C_6H_6 = 78$)

A. 74 L

B. 11.2 L

C. 22. 4 L

D. 84 L

Answer: D

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32. The number of moles of oxygen in 1 L of air

containing 21% oxygen by volume , under

standard conditions , is

A. 0.0093 mole

B. 2.10 moles

C. 0.186 mole

D. 0.21 mole

Answer: A

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33. The percentage weight of Zn in white vitriol $[ZnSO_4 \cdot 7H_2O]$ is approximately equal to (at. Mass of Zn =65 , S= 32, O=16 and H=1)

A. 33. 65 %

B. 32. 56 %

C. 23.65 %

D. 22.65 %

Answer: D

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34. If N_A is Avogadro's number then number of valence electrons in 4.2 g of nitride ions (N^{3-})

A. $2.1N_A$

B. $4.2N_A$

C. $1.6N_A$

D. $3.2N_A$

Answer: C

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35. In the final answer of the expression

$$\frac{(29.2 - 20.2)\left(1.79 \times 10^5\right)}{1.37}.$$ The number of

significant figures is

A. 1

B. 2

C. 3

D. 4

Answer: C

36. The number of gram molecules of oxygen in 6.02×10^{24} CO molecules is/are

    A. 10 g molecules

    B. 5 g molecules

    C. 1 g molecules

    D. 0.5 molecules

Answer: B

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37. The number of oxygen atoms in 4.4 of CO_2 is

    A. 1.2×10^{23}

    B. 6×10^{22}

    C. 6×10^{23}

    D. 12×10^{23}

Answer: A

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38. Boron has two stable isotopes, $.^{10}B(19\%)$ and $.^{11}B(81\%)$. The atomic mass that should appear for boron in the periodic table is

A. 10.8

B. 10.2

C. 11.2

D. 10

Answer: A

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39. If $1L$ of O_2 at $15°C$ and $750mm$ pressure contains N molecules, the number of molecules in 2 litre of SO_2 under the same conditions of temperature and pressure will be

A. $N/2$

B. N

C. 2 N

D. 4 N

Answer: C

40. Ratio of C_p and C_v of a gas X is 1.4, the number of atom of the gas 'X' present in 11.2 litres of it at NTP will be

A. 6.02×10^{23}

B. 1.2×10^{23}

C. 3.01×10^{23}

D. 2.01×10^{23}

Answer: A

41. A metal oxide has the formula Z_2O_3 . It can be reduced by hydrogen to give free metal and water . 0.1596 g of the metal oxide requires 6 mg of hydrogen for complete reduction . The atomic weight of the metal is

A. 27 .9

B. 159.6

C. 79.8

D. 55.8

Answer: D

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42. What is the weight of oxygen required for the complete combustion of 2.8 kg of ethylene?

A. 2.8 kg

B. 6.4 kg

C. 9.6 kg

D. 96 kg

Answer: C

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43. One litre hard water contains 12.00 mg Mg^{2+} millieqivalent of washing soda required to remove its hardness is

A. 1

B. 12.6

C. 1×10^{-3}

D. 12.16×10^{-3}

Answer: A

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44. I cc N_2O at NTP contains

A. $\dfrac{1.8}{224} \times 10^{22}$ atoms

B. $\dfrac{6.02}{22400} \times 10^{23}$ molecules

C. $\dfrac{1.32}{224} \times 10^{23}$ electrons

D. All of the above

Answer: D

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45. At STP , the density of CCl_4 vapour in g/L

will be nearest to

A. 6.87

B. 3.42

C. 10.26

D. 4.57

Answer: A

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