doubtnut
India's Number 1 Education App

CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

BASIC CONCEPT OF CHEMISTRY

Multiple Choice Question

1. Drug agidothymidine (AZT) was first isolated from plant and then synthesised in laboratory for treating ____ patients.

A. Cancer

B. AIDS

C. Heart

D. Kidney

Answer: B

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2. Tamiflue is the medicine to treat the patients of

A. Jaundice

B. Malaria

C. Swineflue

D. Typhoid

Answer: C

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3. The phlogiston theory was suggested for

A. Hydrolysis reaction

B. Neutralization reaction

C. Reduction reaction

D. Combustion reaction

Answer: D

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4. The major source of energy _____ .

A. is air

B. is water

C. is wind

D. are fossil fuels

Answer: D

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5. Candela is the unit of

A. Energy

B. Stress

C. Force

D. Luminous intensity

Answer: D

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6. Which of the following is not a unit of length / distance ?

A. Radian

B. Angstrom

C. Micron

D. Light year

Answer: A

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7. 2 cubic metre in cubic centimeter is equal to_____.

A. 2×10^{-3}

B. 2×10^{3}

C. 2×10^{-6}

D. 2×10^{6}

Answer: D

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8. The temperature at absolute zero is

A. $0^{\circ} C$

B. $273^{\circ} C$

C. $-273^{\circ} C$

D. $25^{\circ} C$

Answer: C

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9. SI unit of pressure is

A. Atmosphere

B. Pascal

C. Dyne per square metre

D. Torr

Answer: B

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10. One nanometer is ____ metre.

A. 10^{-19}

B. 10^{-13}

C. 10^{-9}

D. 10^{-6}

Answer: C

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11. The prefix hecto. Stands for_____

A. 10^4 m

B. 10^3 m

C. 10^2 m

D. 10 m

Answer: C

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12. The prefix pico stands for_____

A. 10^9 m

B. 10^{-9} m

C. 10^{12} m

D. 10^{-12} m

Answer: D

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13. The unit of electric potential is

A. kgm^2s^2C

B. kgm^2Cs^{-2}

C. $kgm^2A^{-1}s^{-3}$

D. $kgms^{-3}C^{-1}$

Answer: C

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14. A kg is _____ times heavier than mg.

A. 10^3

B. 10^5

C. 10^6

D. 10^8

Answer: C

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15. $kg.\ m.\ s^{-2}$ is the unit of _____ .

A. Acceleration

B. Force

C. Energy

D. Pressure

Answer: B

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16. 5 L of a gas corresponds to

A. 5 m^3

B. 0.5 m^3

C. $0.5 \times 10^{-2} m^3$

D. $0.5 \times 10^5 m^3$

Answer: C

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17. One fermi is

A. 10^{-15} cm

B. 10^{-13} cm

C. 10^{-10} cm

D. 10^{-12} cm

Answer: B

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18. A sample was weighted using two different balances. The results were

(i) 3.929 g (ii) 4.0 g

How would the weight of the sample be reported ?

A. 3.93 g

B. 3 g

C. 3.9 g

D. 3.929 g

Answer: A

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19. Dimensions of pressure are same as that of

A. Energy

B. Force

C. Force per unit volume

D. Energy per unit volume

Answer: D

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20. The prefix 10^{18} is

A. giga

B. kilo

C. exa

D. nano

Answer: C

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21. Which halogen can be purified by sublimation ?

A. I_2

B. Cl_2

C. Br_2

D. F_2

Answer: A

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22. Difference in density is the basis of

A. Ultrafiltration

B. Molecular sieving

C. Molecular attraction

D. Gravity separation

Answer: D

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23. The mass is neither created nor destroyed during chemical combination of matter is_____ .

A. Law of combination

B. Law of conservation of mass

C. Law of combination of mass

D. Law of definite composition

Answer: B

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24. The percentage of silver and chlorine in two samples of silver chloride prepared by heating silver foil in the current of chlorine and by the interaction of silver nitrate and hydrochloric acid were found to be identical. This illustrates the law of

A. conservation of mass

B. constant proportion

C. multiple proportion

D. reciprocal proportion

Answer: B

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25. Water and hydrogen peroxide illustrate the law of

A. reciprocal proportion

B. multiple proportion

C. constant proportion

D. definite composition

Answer: B

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26. Nitrogen forms five stable oxides having formulae N_2O, NO, N_2O_3, N_2O_4 and N_2O_5. The formation of these oxides explains the

A. Law of definite proportion

B. Law of multiple proportion

C. Law of reciprocal proportion

D. Law of conservation of mass

Answer: B

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27. At the same temperature and pressure , equal volumes of different gases contain the same number of

A. equal weights

B. equal masses

C. equal densities

D. equal number of moles

Answer: D

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28. In complete combustion of propane at 300 K and 1 atmospheric pressure the ratio of volumes of propane to oxygen is

A. $1:3$

B. $1:5$

C. $2:3$

D. $2:5$

Answer: B

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29. Among the following pairs of compounds, the one that illustrates the law of multiple proportions is

A. NH_3 and NCl_3

B. H_2S and SO_2

C. CS_2 and $FeSO_4$

D. CuO and Cu_2O

Answer: D

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30. Irrespective of the source, pure sample of water always yields $88.89\,\%$ mass of oxygen and $11.11\,\%$ mass of hydrogen. This is explained by the law of

A. conservation of mass

B. multiple proportions

C. constant composition

D. constant volume

Answer: C

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31. A compound made of two elements A and B is found to contains 25% A (atomic mass 12.5) and 75% B (atomic mass 37.5). The simplest formula of the the compound is :-

A. AB

B. AB_2

C. AB_3

D. A_3B

Answer: A

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32. Two oxides of a metal contain $50\,\%$ and $40\,\%$ metal M respectively. If the formula of the first oxide is MO_2, the formula of the second oxide will be

A. MO_2

B. MO_3

C. M_2O

D. M_2O_5

Answer: B

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33. According to Dalton's atomic theory, the smallest particle in which matter could exist is called

A. an atom

B. an electron

C. a molecule

D. a proton

Answer: A

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34. $\frac{1}{12}th$ gm atom of carbon

A. contains 1 atom of carbon

B. contains Avogadro number of carbon

C. corresponds to one mole of carbon

D. corresponds to 1 a.m.u.

Answer: D

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35. Which of the following is not an element?

A. Diamond

B. Silica

C. Lawrencium

D. Graphite

Answer: B

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36. Which of the following is not a mixture?

A. Honey

B. Liquid petroleum gas

C. Distilled water

D. Iodized table salt

Answer: C

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37. Equivalent weight of crystalline oxalic acid is

A. 90

B. 53

C. 63

D. 45

Answer: C

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38. Which of the following statements is not correct ?

A. An element of a substance contains only one kind of atoms

B. A mixture is not always heterogeneous

C. Elements can exist as atoms or molecules but compounds exist only as molecules

D. Atoms of same element have always same atomic mass numbers

Answer: D

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39. Atomicity of silver in silver phosphate molecule is

A. 1

B. 2

C. 3

D. 4

Answer: C

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40. How many times an atom of calcium is heavier than an atom of carbon ? (C = 12, Ca = 40)

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41. The mass of one molecule of oxygen is

A. 32 g

B. $\frac{32}{6.02 \times 10^{23}} g$

C. $\frac{16}{6.02 \times 10^{23}} g$

D. 0.32 g

Answer: B

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42. One a.m.u. is equal to

A. $1.66 \times 10^{-22} g$

B. $1.66 \times 10^{-24} g$

C. 1 g

D. $\frac{1}{12} g$

Answer: B

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43. Which of the following has maximum number of molecules ? (C = 12, O = 16, N = 14, H = 1)

A. 1 mole of H_2O gas

B. 32 g of CO

C. 2.24 L of N_2 at N.T.P.

D. 22 g of CO_2

Answer: B

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44. The number of atoms present in 1 g of hydrogen gas is the same as are present in

A. 4 g of Helium

B. 32 g of Oxygen

C. 7 g of Nitrogen

D. 24 g of Carbon

Answer: A

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45. The number of molecules in 11 g of carbon dioxide approximately (C = 12, O = 16)

A. 0.5×10^{23}

B. 1.5×10^{23}

C. 2.5×10^{23}

D. 3.5×10^{23}

Answer: B

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46. 3.42 g of sucrose are dissolved in 18g of water in a beaker. The number of oxygen atoms in the solution are

A. 3.67×10^{26}

B. 6.6×10^{23}

C. 3.67×10^{24}

D. 6.0×10^{22}

Answer: C

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47. One millimole of C_aSO_4 weighs _____ .

(Ca = 40, S = 32, O = 16)

A. 136 g

B. 13.6 g

C. 0.136 g

D. 0.0136 g

Answer: C

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48. If 10^{21} molecules are removed from 200 mg of CO_2, the number of moles of CO_2 left will be ?

A. 2.88×10^{-3}

B. 1.66×10^{-3}

C. 4.54×10^{-3}

D. 1.66×10^{-2}

Answer: A

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49. The modern atomic weight scale is based on

A. O^{16}

B. C^{12}

C. H^{1}

D. C^{13}

Answer: B

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50. The mass of a molecule of water is

A. $3 \times 10^{-25} kg$

B. $3 \times 10^{-26} kg$

C. $1.5 \times 10^{-26} kg$

D. $2.5 \times 10^{-26} kg$

Answer: B

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51. With increase of temperature, which of these changes?

A. molality

B. weight fraction of solute

C. fraction of solute present in water

D. mole fraction

Answer: C

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52. Which of the following represents Avogadro's hypothesis ?

A. Gases react together in volumes which bear a simple ratio to one another

B. One mole of all gases occupies $22.4m^3$ at N.T.P.

C. Equal volumes of all gases under same conditions of temperature and pressure contain equal number of atoms

D. Equal volumes of all gases under same conditions of temperature and pressure contain equal number of molecules

Answer: D

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53. Which of the following statements is not correct ?

A. One mole of carbon and $1/3$ mole of carbon dioxide contain same number of atoms

B. One mole of NH_3 and one mole of BF_3 contain same number of atoms

C. One mole of CO_2 occupies more volume than one mole of CO at N.T.P.

D. One mole of carbon is 6.02×10^{23} times heavier than an atom of carbon

Answer: C

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54. At identical conditions of temperature and pressure for complete combustion of 10 m^3 of sulphur dioxide volume of oxygen required is_____ .

A. $1m^3$

B. $5m^3$

C. $10m^3$

D. $20m^3$

Answer: B

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55. The number of moles in 0.44 g of CO_2 is

(C = 12, O = 16)

A. 100

B. 10

C. 0.1

D. 0.01

Answer: D

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56. The volume occupied by 0.2 mole of methane at N.T.P. is

A. $4.48dm^3$

B. $8.96dm^3$

C. $4.4dm^3$

D. $2.24dm^3$

Answer: A

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57. The volume of 1.0 g of hydrogen in litres at N.T.P. is

A. $1.12dm^3$

B. $11.2dm^3$

C. $22.4dm^3$

D. $2.24dm^3$

Answer: B

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58. One mole of methane (CH_4) contains

A. 6.02×10^{23} atoms of Hydrogen

B. 1.204×10^{24} atoms of Carbon

C. 2.408×10^{24}atoms of Hydrogen

D. 6 gm of Carbon

Answer: C

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59. One gram mole of a gas at NTP occupies 22.4 L. This fact is derived from

A. Law of constant composition

B. Avogadro's hypothesis

C. Gay Lussac's law of combining volume

D. Dalton's atomic theory

Answer: B

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60. Avagadro's number is the number of molecules present in

A. 1 L of a gas at N.T.P.

B. 22.4 ml of a gas at N.T.P.

C. 22.4 L of a gas at N.T.P.

D. $22.4m^3$ of a gas at N.T.P.

Answer: C

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61. The number of O_3 molecules in 16 g of ozone is approximately.

A. 2×10^{23}

B. 3×10^{23}

C. 4×10^{23}

D. 6×10^{23}

Answer: A

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62. Number of gram atoms of oxygen present in 0.3 mole of $(COOH)_2.2H_2O$ is

A. 0.3

B. 0.6

C. 1.8

D. 18

Answer: C

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63. The number of atoms of 0.03 g of aluminium is nearly (Al = 27)

A. 6.68×10^{20}

B. 6.68×10^{21}

C. 6.68×10^{22}

D. 6.68×10^{23}

Answer: A

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64. Suppose the chemists had selected 10^{20} as the number of particles in a mole. The molar mass of oxygen gas would be

(Use Avogadro number = 6.0×10^{23})

A. $5.33 \times 10^{-3} g$

B. $5.35 \times 10^{-23} g$

C. $5.33 \times 10^{-43} g$

D. $32 \times 10^{3} g$

Answer: A

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65. Number of moles of water in 1 dm^3 of water with density $1 g / cc$ are

A. 55.56

B. 55.56×10^{3}

C. 5.556

D. 55.56×10^{-3}

Answer: A

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66. One mole of CO_2 corresponds to

A. 22.4 L at 1 atm and $25^\circ C$

B. 44 g

C. 1 g

D. 6.02×10^{23} C-atoms and 6.02×10^{23} O-atoms

Answer: B

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67. How many molecules of sulphur are present in 9.6 g of sulphur (atomic mass of S = 32) ?

A. 2.25×10^{22}

B. 2.408×10^{23}

C. 6.02×10^{23}

D. 18.06×10^{22}

Answer: A

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68. The number of carbon monoxide molecular present in 1 dm^3 at N.T.P. is _____ .

A. 6.02×10^{23}

B. 6.02×10^{22}

C. 0.269×10^{22}

D. 2.69×10^{22}

Answer: D

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69. The number of oxygen present in 11.2 L of ozone at N.T.P. are_____ .

A. 1.20×10^{24}

B. 9.03×10^{23}

C. 6.02×10^{23}

D. 3.01×10^{23}

Answer: B

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70. One litre of a gas weighs 3.57×10^{-3} kg at N.T. P.

The gas is _____ . (C = 12, O = 16, S = 32)

A. Carbon monoxide

B. Sulphur dioxide

C. Sulphur trioxide

D. Carbon dioxide

Answer: C

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

A. $4.2N_A$

B. $2.4N_A$

C. $1.6N_A$

D. $3.2N_A$

Answer: B

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72. 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. 0.21 mole

C. 2.10 mole

D. 0.186 mole

Answer: A

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73. The vapour density of a gas is 11.2. The volume occupied by 11.2 g of the gas at STP will be

A. 22.4 L

B. 11.2 L

C. 1 L

D. 44.8 L

Answer: B

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74. The volume occupied by 4.4 g of CO_2 at STP is

A. 22.4 L

B. 0.224 L

C. 2.24 L

D. 0.1 L

Answer: C

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

A. 6×10^{23}

B. 2×10^{23}

C. 4×10^{23}

D. 1×10^{23}

Answer: A

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76. One mole of calcium phosphide on reaction with excess of water gives

A. one mole of phosphine

B. two moles of phosphoric acid

C. one mole of phosphorous pentoxide

D. two moles of phosphine

Answer: D

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77. Which of the following contains maximum number of atom?

A. 2.0 mole of S_8

B. 6.0 mole of S

C. 5.5 mole of SO_2

D. 44.8 litre of CO_2 of STP

Answer: C

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78. A sample of AlF_3 contains 3.0×10^{24} F^- ions. The number of formula units of the sample are

A. 9×10^{24}

B. 3×10^{24}

C. 0.75×10^{24}

D. 1.0×10^{24}

Answer: D

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79. The total number of protons in 10 g of calcium carbonate is $\left(N_0 = 6.023 \times 10^{23}\right)$:-

A. 1.5057×10^{24}

B. 2.0478×10^{24}

C. 3.0115×10^{24}

D. 14.0956×10^{24}

Answer: C

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80. The number of molecules in 8.96L of a gas at $0^{\circ}C$ and 1 atmosphere pressure is approximately

A. 6.023×10^{23}

B. 12.04×10^{23}

C. 18.06×10^{23}

D. 24.08×10^{22}

Answer: D

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81. If $3 \cdot 01 \times 10^{20}$ molecules are removed from 98 mg of H_2SO_4, then the number of moles of H_2SO_4 left are

A. 0.1×10^{-3}

B. 0.5×10^{-3}

C. 1.66×10^{-3}

D. 9.95×10^{-3}

Answer: B

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82. 25.4 gm of iodine and 14.2 gm of chlorine are made to react completely ot yield mixture of ICI and ICI_3 Ratio of moles of ICI & ICI_3 formed is (Atomic mass I: 127, Cl=35.5)

A. 0.1, 0.1

B. 0.2, 0.2

C. 0.1, 0.2

D. 0.2, 0.1

Answer: A

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83. A sample of $CaCO_3$ has $C_a = 40\,\%$, $C = 12\,\%$ and $O = 48\,\%$. If the law of constant proportion is true then the weight of calcium in 5 g of a sample of $CaCO_3$ from another source will be

A. 0.20 g

B. 2.0 g

C. 2.5 g

D. 4.0 g

Answer: B

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84. The number of silver atoms present in a 90% pure silver wire weighing 10 g is (Ag = 108)

A. 5.57×10^{22}

B. 0.62×10^{23}

C. 5.0×10^{22}

D. 6.2×10^{29}

Answer: C

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85. On analysis, a certain compound was found to contain iodine and oxygen in the ratio of 254:80. The formula of the compound is: (At. mass I=127,O=16)

A. IO

B. I_2O

C. I_2O_3

D. I_2O_5

Answer: C

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86. A phosphorus oxide has 43.6% phosphorus (P = 31).

The empirical formula of the compound is

A. P_2O_5

B. P_2O_3

C. P_4O_6

D. PO_2

Answer: A

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87. If we take 2.2 g of CO_2, 6.02×10^{21} atoms of nitrogen and 0.03 gram atom of oxygen, then the molar ratio of C,N and O atom will be

A. $1:2:5$

B. $5:1:3$

C. $5:1:2$

D. $2:5:3$

Answer: B

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88. The phosphate of a metal has the formula $MHPO_4$. The formula of its chloride would be

A. MCl

B. M_2Cl_2

C. MCl_2

D. MCl_3

Answer: C

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89. A compound contains atoms A, B and C. the oxidation number of A is $+2$, of B is $+5$ and of C is -2. The possible formula of the compound is

A. $A_3(B_4C)_2$

B. $A_3(BC_4)_2$

C. ABC_2

D. $A_2(BC_3)_2$

Answer: B

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90. For preparing 0.1 N solution of a compound from the impure sample of which the percentage purity is known, the weight of the substance required will be

A. less than the theoretical weight

B. more than the theoretical weight

C. same as the theoretical weight

D. none of these

Answer: B

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91. The percentage of nitrogen in urea is about:

A. 85

B. 46

C. 18

D. 28

Answer: B

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92. The hydrate salt $Na_2CO_3.xH_2O$ undergoes 63% loss in mass on heating and becomes anhydrous. The value of x is :

A. 10

B. 7

C. 5

D. 3

Answer: A

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93. The chloride of a metal (M) contains 65.5% of chlorine. 100 ml of the vapour of the chloride of the metal at STP weights 0.72 g. The molecular formula of the metal chloride is:

A. MCl_4

B. MCl_3

C. MCl_2

D. MCl

Answer: B

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94. What weight of NaOH will contain the same number of oxygen atoms as are present in 9.8 g of sulphuric acid ? (Na = 23, O = 16, S = 32, H = 1)

A. 4 g

B. 16 g

C. 40 g

D. 160 g

Answer: B

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95. One gram formula weight of copper sulphate $(CuSO_4)$ contains

A. one atom of copper

B. one gram atom of sulphur

C. 6.02×10^{23} atoms of oxygen

D. four grams of oxygen

Answer: B

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96. If one atom of hydrogen weighs 1.66×10^{-24} g then mass of one atom of nitrogen is

A. $1.162 \times 10^{-23} g$

B. $1.162 \times 10^{-24} g$

C. $2.324 \times 10^{-23} g$

D. $2.324 \times 10^{-24} g$

Answer: C

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97. The amount of zinc required to produce 224 ml of H_2 at STP on treatment with dilute H_2SO_4 will be (Zn = 65)

A. 6.5 g

B. 0.65 g

C. 65 g

D. 0.065 g

Answer: B

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98. 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. 2.24 L

C. 4.06 L

D. 0.84 L

Answer: A

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99. Amount of oxygen in $32.2 g \text{of} Na_2SO_4.10H_2O$ is:

A. 20.8

B. 2.24

C. 22.4

D. 2.08

Answer: C

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100. The specific heat of a metal os 0.16 its approximate atomic weight would be

A. 32

B. 16

C. 64

D. 40

Answer: C

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101. The weight of a molecule of the compound $C_{60}H_{22}$ is:

A. $1.09 \times 10^{-21}g$

B. $1.4 \times 10^{-21}g$

C. $5.025 \times 10^{23}g$

D. $16.023 \times 10^{23}g$

Answer: B

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102. The number of water molecules present in a drop of water (volume 0.0018 ml) density = 1 gmL^{-1} at room temperature is

A. 1.084×10^{18}

B. 6.023×10^{19}

C. 4.84×10^{17}

D. 6.023×10^{23}

Answer: B

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103. The number of moles of $KMnO_4$ required to oxidise $1mol$ of $Fe(C_2O_4)$ in acidic medium is

A. 0.167

B. 0.6

C. 0.2

D. 0.4

Answer: B

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104. 10 g $CaCO_3$ gives on strong heating CO_2. It gives quicklime (in grams)

A. 5 g

B. 4.4 g

C. 5.6 g

D. 4 g

Answer: C

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105. A $100ml$ solution of $0.1NHCl$ was titrated with $0.2?$ $NNaOH$ solution. The titration. The remaining titration war completed by adding $0.25NKOH$ solution. The volume of KOH required for completing the titration is

A. 16 ml

B. 32 ml

C. 35 ml

D. 70 ml

Answer: A

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106. The volume of water to be added to $100cm^3$ of $0.5NH_2SO_4$ to get decinormal concentration is

A. $400cm^3$

B. $450cm^3$

C. $500cm^3$

D. $100cm^3$

Answer: A

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107. 250 ml of a sodium carbonate solution contains 2.65 grams of Na_2CO_3. If 10 ml of this solution is diluted to one litre, what is the concentration of the resultant solution (mol. Wt. of Na_(a)$CO_3 = 106$)

A. 0.1 M

B. 0.01 M

C. 0.001 M

D. $10^{-4}M$

Answer: C

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108. The maximum amount of $BaSO_4$ precipitated on mixing $BaCl_2$ (0.5 M) with H_2SO_4 (1M) will correspond to

A. 1.0 M

B. 0.5 M

C. 1.5 M

D. 2.0 M

Answer: B

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109. 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 ammonia will be consumed

D. all the oxygen will be consumed

Answer: D

Watch Video Solution

110. What mass of calcium chloride in grams would be enough to produce $14 \cdot 35$ g of AgCl? (At. mass: Ca=40, Ag=108)

A. 5.55 gm

B. 8.295 gm

C. 16.5 gm

D. 11.19 gm

Answer: A

Watch Video Solution

111. 12 g of Mg (at. Mass 24) will react completely with acid to give

A. one mole of H_2

B. $1/2$ mol of H_2

C. $2/3$ mol of O_2

D. both $1/2$ mol of H_2 and $1/2$ mol of O_2

Answer: B

Watch Video Solution

112. 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

A. 0.7

B. 0.5

C. 0.3

D. 0.1

Answer: A

Watch Video Solution

113. 1.12 ml of a gas is produced at STP by the action of 4.12 mg of alcohole, with methyl magnesium iodide. The molecular mass of alcohol is

A. 16.0

B. 41.2

C. 82.4

D. 156.0

Answer: C

Watch Video Solution

114. Sulphuryl chloride SO_2Cl_2 reacts with water to give a mixture of H_2SO_4 and HCl. Moles of $NaOH$ requried to neutralise the solution formed by adding 1 " mol of "SO_2Cl_2 to excess water is are

A. 1

B. 2

C. 3

D. 4

Answer: D

Watch Video Solution

115. When burnt in air, 14.0 g mixture of carbon and sulphur gives a mixture of CO_2 and SO_2 in the volume ratio of $2:1$, volume being measured at the same conditions of temperature and pressure moles of carbon in the mixture is

A. 0.75

B. 0.5

C. 0.40

D. 0.25

Answer: B

Watch Video Solution

116. 1 mole of mixture of CO and CO_2 requires exactly 28 g KOH in solution for complete conversion of all the CO_2 into K_2CO_3. How much amount more of KOH will be required for conversion into K_2CO_3 ? If one mole of mixture is completely oxidised to CO_2.

A. 112 g

B. 84 g

C. 56 g

D. 28 g

Answer: B

Watch Video Solution

117. 10 g $CaCO_3$ were dissolved in 250 ml of 1 M HCl or the solution was boiled. What volume of 2 M KOH would be required to equivalence point

after boiling? Assume no change in volume during boiling.

A. 50 ml

B. 25 ml

C. 75 ml

D. 60 ml

Answer: B

Watch Video Solution

118. 1.575 g of oxalic acid $(COOH)_2.xH_2O$ are dissolved in water and the volume made up to 250 mL. On titration 16.68 mL of this soltuion requires 25 mL of $\frac{N}{15}NaOH$ solution for complete neutralisation. Calculate x.

A. 3

B. 2

C. 4

D. 5

Answer: B

Watch Video Solution

119. The height of a child is 4 feet and 2 inches. This height may be noted in cm as _____ . (1 inch = 2.54 cm)

A. 1.27×10

B. 1.27×10^2

C. 1.27×10^3

D. 1.27×10^4

Answer: B

Watch Video Solution

120. The multiple of 10^{-15} m has the prefix _____ .

A. femto

B. myria

C. Tetra

D. Giga

Answer: A

Watch Video Solution

121. The law of multiple proportion may be illustrated by _____ .

A. $KCl, KClO_3$

B. H_2O, D_2O

C. H_2O, H_2O_2

D. $CaO, CaCO_3$

Answer: C

Watch Video Solution

122. The different pure samples of sugar contained 51.4% oxygen, 42.1% carbon and 6.5% hydrogen by weight.

This data is supported by _____ .

A. Law of conservation of mass

B. Law of multiple proportion

C. Law of definite proportion

D. Law of reciprocal proportion

Answer: C

Watch Video Solution

123. 1.0 g of an oxide of A contained 0.5 g of A. 4.0 g of another oxide of A contained 1.6 g of A contained 1.6 g of A. The data indicate the law of

A. Law of reciprocal proportion

B. Law of conservation of mass

C. Law of constant proportion

D. Law of multiple proportion

Answer: D

Watch Video Solution

124. In the reaction, $N_2 + 3\ \ \mathrm{H}_2 \rightarrow 2NH_3,$ the ratio of volumes of nitrogen, hydrogen and ammonia is 1 : 3 : 2 These ratio illustrate the law of

A. Law of multiple proportion

B. Avogadro's Law

C. Law of conservation of volume

D. Gay Lussac's law of combing volumes of gases.

Answer: D

Watch Video Solution

125. 'a' grams of element A combine with 'b' grams of element B. 'b' grams of element B combine with 'c' grams of element C. If elements A and C combine, the probable ratio in which their weights combine together could be

A. $2a : b$

B. $2a : c$

C. $2b : a$

D. $2b : c$

Answer: B

Watch Video Solution

126. If law of conservation of mass was to hold true, then $20 \cdot 8g$ of $BaCl_2$ on reaction with $9 \cdot 8g$ of H_2SO_4 will produce $7 \cdot 3g$ of HCl and $BaSO_4$ equal to

A. 11.65 gm

B. 23.3 gm

C. 25.5 gm

D. 30.6 gm

Answer: B

Watch Video Solution

127. On analysis a certain compound was found to contain iodine and oxygen in the ration of 254 g of iodine (at. mass 127) and 80 g oxygen (at. mass 16). What is the formula of the compound?

A. IO

B. I_2O

C. I_5O_3

D. I_2O_5

Answer: D

Watch Video Solution

128. One a.m.u. stands for

A. an atom of carbon $\left(C^{12}\right)$

B. $1/12th$ of a carbon atom $\left(C^{12}\right)$

C. $1/12th$ of a H-atom

D. 1 atom of all elements

Answer: B

Watch Video Solution

129. Which of the following is a compound?

A. Petrol

B. Gasoline

C. Steam

D. Air

Answer: C

Watch Video Solution

130. Atomicity of ammonium sulphate molecule is

A. 4

B. 10

C. 12

D. 15

Answer: D

Watch Video Solution

131. The mass of an atom of carbon is

A. 1 g

B. $\frac{1}{12}g$

C. $1.99 \times 10^{-23}g$

D. $1.99 \times 10^{23}g$

Answer: C

Watch Video Solution

132. Which of the following weighs the least?

A. 2 gram of atoms of Nitrogen

B. 3×10^{23} atoms of carbon

C. 20 g of Carbon dioxide

D. 1 mole of Sulphur dioxide

Answer: B

Watch Video Solution

133. Which of the following has the largest number of atoms?

A. 0.5 g atom of Cu

B. 0.635 g of Cu

C. 0.25 moles of Cu-atom

D. 1 g of Cu

Answer: A

Watch Video Solution

134. Two flasks A and B of equal volume contain 2 g of H_2 and 2g of N_2 respectively at the same temperature and pressure. The number of molecules in flask A is

A. same as the number of molecules in flask B

B. half the number of molecules in flask B

C. 7 times the number of molecules in flask B

D. 14 times the number of molecules in flask B

Answer: D

Watch Video Solution

135. 0.25 gram atom of an element weighs 45.2 g. The atomic mass of the element X is

A. 11.3

B. 180.8

C. 45.2

D. 54.8

Answer: B

Watch Video Solution

136. One gram is more than _____ .

A. mass of 0.1 mole of NaOH

B. mass of 6.023×10^{22} molecules of CO_2

C. mass of $2.24dm^3$ of hydrogen gas at N.T.P.

D. mass of $2.24dm^3$ of ozone gas at N.T.P.

Answer: C

Watch Video Solution

137. Which of the following has the smallest number of molecules?

A. 0.1 mole of CO_2 gas

B. 11.2 L of CO_2 gas

C. 22 g of CO_2 gas

D. 22.4×10^3 ml of CO_2 gas

Answer: A

Watch Video Solution

138. If the air contains $20\,\%$ of oxygen by volume and all volumes are measured at the same conditions of temperature and pressure, then the volume of air required to burn $2dm^3$ of ethane is _____ .

A. $3.5dm^3$

B. $7dm^3$

C. $27dm^3$

D. $35dm^3$

Answer: D

Watch Video Solution

139. Ten grams of each of the following are present in different flasks. Which of these contain maximum number of atoms?

(B = 10.8, Ba = 137.8, Be = 9, Bi = 209)

A. Bismuth

B. Boron

C. Beryllium

D. Barium

Answer: C

Watch Video Solution

140. The total number of atoms present in 0.2 mole of sucrose $(C_{12}H_{22}O_{11})$ is

A. 5.418×10^{22}

B. 5.418×10^{24}

C. 5.418×10^{23}

D. 5.418×10^{25}

Answer: B

Watch Video Solution

141. $2.24dm^3$ of methane at N.T.P. contain same number of molecules as are present in _____ .

A. 1 mole of ozone

B. 3 g of ethane

C. 3.4 g of ammonia

D. 0.64 g of sulphur dioxide

Answer: B

Watch Video Solution

142. A given sample of $AlCl_3$ contains $6.02 \times 10^{20} Al^{3+}$ ions. The moles of Cl^- ions are

A. 1.0×10^{-3}

B. 3.0×10^{-3}

C. 3.0×10^{3}

D. 0.33×10^{-3}

Answer: B

Watch Video Solution

143. Which of the following has maximum mass ?

A. 25 g of iodine

B. 2.5 gram atom of oxygen

C. 2.5 gram molecule of water

D. 2.5 gram molecule of nitrogen gas

Answer: D

Watch Video Solution

144. The number of gram molecules of oxygen in 6.02×10^{24} water molecules is _____ .

A. 5 gram molecule

B. 2 gram of molecule

C. 1 gram of molecule

D. 0.5 gram of molecule

Answer: A

Watch Video Solution

145. $10dm^3$ of N_2 gas and 10 dm^3 of gas X at the same temperature contain the same number of molecules The gas X is

A. CO_2

B. CO

C. H_2

D. NO

Answer: B

Watch Video Solution

146. 7.5 grams of a gas occupy 5.8 litres of volume at STP the gas is

A. N_2O

B. NO

C. CO

D. CO_2

Answer: B

Watch Video Solution

147. Number of atoms in $558.5\ g\ Fe(at.\ wt.55.85)$ is:

A. 6.023×10^{22}

B. twice that in 60 g carbon

C. half that in 8 g He

D. $558.5 \times 6.023 \times 10^{23}$

Answer: A

Watch Video Solution

148. The isotopic abundance of $C-12$ and $C-14 \text{is} 98\,\%$ and $2\,\%$ respectively. What would be the number of $C-14$ isotope in $12g$ carbon sample?

A. 1.032×10^{22}

B. 3.0×10^{22}

C. 5.88×10^{22}

D. 6.02×10^{22}

Answer: A

Watch Video Solution

149. How many moles of magnesium phosphate, $Mg_3(PO_4\_(2)$ will contain 0.25 mole of oxygen atoms?

A. 1.25×10^{-2}

B. 2.5×10^{-2}

C. 0.02

D. 3.125×10^{-2}

Answer: D

Watch Video Solution

150. Two elemets $X($ atomic weight $= 75)$ and $Y($ atomic weight $= 16)$ combine to give a compound having 75.8% X.` The formula of the compound is

A. XY

B. X_2Y

C. X_2Y_2

D. X_2Y_3

Answer: D

Watch Video Solution

151. Two elements X (at. wt. = 52) and Y (at. wt. = 12) combine to give a compound having 76% X. The compound is

A. XY

B. X_2Y

C. XY_2

D. X_2Y_3

Answer: A

Watch Video Solution

152. 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. 6

B. 1

C. 2

D. 4

Answer: D

Watch Video Solution

153. The molar mass of oxygen and sulphur dioxide are 32 and 64 respectively. If $1 \times 10^{-3} m^3$ at $25^\circ C$ and 1.013×10^5 Pa pressure contains N molecules, then the number of molecules in $2 \times 10^{-3} m^3$ sulphur dioxide under same condition of temperature and pressure is

A. $\frac{3N}{2}$

B. $\frac{N}{2}$

C. 2N

D. 6N

Answer: C

Watch Video Solution

154. 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. $3:16$

Answer: C

Watch Video Solution

155. If 0.44 g of a colourless oxide of nitrogen occupies 224 ml of 1520 mm Hg and $273^{\circ}C,$ then the compound is

A. NO_2

B. N_2O

C. NO_4

D. N_2O_2

Answer: B

Watch Video Solution

156. $50mL$ of $10NH_2SO_4$, $25mL$ of $12NHCI$ and $40mL$ of $5NHNO_3$ are mixed and the volume of the mixture is made 1000 mL by adding water. The normality of resulting solution will be

A. 2 N

B. 1 N

C. 3 N

D. 4 N

Answer: B

Watch Video Solution

157. An aqueous solution of 6.3 g of oxalic acid dihydrate is made upto 250 mL. The volume of 0.1 N NaOH required to completely neutralise 10 mL of this solution is :

A. 20 ml

B. 40 ml

C. 10 ml

D. 4 ml

Answer: B

Watch Video Solution

158. $3.92g$ of ferrous ammonium sulphate crystals are dissolved in $100ml$ of water, $20ml$ of this solution requires $18ml$ of $KMnO_4$ during titration for complete oxidation. The weight of $KMnO_4$ present in one litre of the solution is

A. 3.476 g

B. 12.38 g

C. 1.238 g

D. 34.76 g

Answer: A

Watch Video Solution

159. In order to prepare one litre normal solution of $KMnO_4$, how many grams of $KMnO_4$ are required if the solution is used in acidic medium for oxidation

A. 158 g

B. 62.0 g

C. 31.6 g

D. 790 g

Answer: C

Watch Video Solution

160. The set of numerical coefficients that balances the chemical equation

$$K_2CrO_4 + HCl \rightarrow K_2Cr_2O_7 + KCl + H_2O$$

A. 2, 2, 1, 2, 1

B. 2, 2, 1, 1, 1

C. 2, 1, 1, 2, 1

D. 1, 1, 2, 2, 1

Answer: A

Watch Video Solution

161. If 224 mL of triatomic gas has a mass of 1 g at 273 K and 1 atm. Pressure, then the mass of one atom is

A. $8.30 \times 10^{-23} gm$

B. $2.08 \times 10^{-23} gm$

C. $5.53 \times 10^{-23} gm$

D. $6.24 \times 10^{-23} gm$

Answer: C

Watch Video Solution

162. Gastric juice contains 3g HCl per liter. If a person produces 2.5 L of gastric juice per day, how many antacid tables each containing 400 mg of $Al(OH)_3$ are needed to neutralize all the HCl produced in one day ?

A. 18

B. 14

C. 20

D. 17

Answer: B

Watch Video Solution

163. How many of 0.1 N HCl are required to react completely with 1 g mixture of Na_2CO_3 and $NaHCO_3$ containing equimolar amounts of two ?

A. 157.7 ml

B. 15.77 ml

C. 147.7 ml

D. 14.77 ml

Answer: A

Watch Video Solution

164. If $1/6$, in place of $1/12$, mass of carbon atom is taken to be the relative atomic mass unit, the mass of one one of a substance will:

A. be a function of the molecular mass of the substance

B. remain unchanged

C. increase two fold

D. decrease twice

Answer: D

Watch Video Solution

165. A compound made of two elements A and B is found to contains 25% A (atomic mass 12.5) and 75% B (atomic mass 37.5). The simplest formula

of the the compound is :-

A. AB

B. AB_2

C. AB_3

D. A_3B

Answer: A

Watch Video Solution

166. 10 g of a piece of marble was put into excess of dilute HCl acid. When the reaction was complete, $1120cm^3$ of CO_2 was obtained at STP. The percentage of $CaCO_3$ in the marble is

A. $25\ \%$

B. $50\ \%$

C. $75\ \%$

D. $100\ \%$

Answer: B

Watch Video Solution

167. When the same amount of zinc is treated separately with excess of H_2SO_4 and excess of $NaOH$, the ratio of volumes of H_2 evolved is:

A. $1:1$

B. $1:2$

C. $2:1$

D. $3:4$

Answer: A

Watch Video Solution

168. A phosphorus oxide has $43.6\,\%$ phosphorus. The empirical formula of the compound is

A. P_2O_5

B. P_2O_3

C. PO_2

D. P_3O_2

Answer: A

Watch Video Solution

169. The haemoglobin from the red blood corpuscles of most mammals contains approximately $0.33\,\%$ of iron by weight. The molecular weight of haemoglobin as $67,200$.

The number of iron atoms in each molecule of haemoglobin is (atomic weight of iron $= 56$):

A. 4

B. 3

C. 2

D. 1

Answer: A

Watch Video Solution

170. The number of molecules contained in a drop of water with volume 0.5 c.c. at $4^{\circ}C$ is

A. $\frac{0.5 \times 273 \times 760}{277 \times 760}$

B. $\frac{0.5 \times 277 \times 760}{273 \times 760}$

C. $\frac{0.5}{18} \times 6.02 \times 10^{23}$

D. $0.5 \times 6.02 \times 10^{23}$

Answer: C

Watch Video Solution

171. At room temperature and pressure, two flasks of equal volumes are filled with H_2 and SO_2 separately. Particles which are equal in number in two flasks are

A. Atoms

B. Electrons

C. Molecules

D. Neutrons

Answer: C

Watch Video Solution

172. Element X reacts with oxygen to form a compound, whose simplest formula is X_2O_3. If 0.359 g of X react to give 0.559 g of the compound, atomic weight of X is found to be

A. 47.9 amu

B. 49.7 amu

C. 43.08 amu

D. 51.0 amu

Answer: C

Watch Video Solution

173. In known elements, the maximum number is of

A. Metals

B. Non-metals

C. Metalloids

D. Gases

Answer: A

Watch Video Solution

174. Which one of the following is not an element ?

A. Graphite

B. Silica

C. Diamond

D. Ozone

Answer: B

Watch Video Solution

175. Which one of the following pair of substances illustrates law of multiple proportions?

A. CO and CO_2

B. H_2O and D_2O

C. NaCl and NaBr

D. MgO and $Mg(OH)_2$

Answer: A

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176. Two elements X and Y have atomic weight of 14 and 16. They from a series of compounds A, B, C, D and E in which the same amount of element X, Y is present in the ratio $1:2:3:4:5$. If the compound A has 28 parts by weight of X and 16 parts by weight of Y, then the compound of C will have 28 parts weight of X and

A. 32 parts by mass of Y

B. 48 parts by mass of Y

C. 64 parts by mass of Y

D. 80 parts by mass of Y

Answer: B

Watch Video Solution

177. ng of substance X reacts with mg of substance Y to from pg of substance R and p g of substance S. This reaction can be represented as, $X + Y = R + S$. The relation which can be established in the amounts of the reactants and the products will be

A. x - y = m - n

B. x + y = m + n

C. x = y

D. p = q

Answer: B

Watch Video Solution

178. In compound A, $1.00g$ nitrogen units with $0.57g$ oxygen. In compound B, $2.00g$ nitrogen combines with $2.24g$ oxygen. In compound C, $3.00g$

nitrogen combines with $5.11g$ oxygen. These results obey the following law

A. Law of constant proportion

B. Law of multiple proportion

C. Law of reciprocal proportion

D. Dalton's law of partial pressure

Answer: B

Watch Video Solution

179. Total number of atoms represented by the compound $CuSO_4.5H_2O$ are

A. 27

B. 21

C. 5

D. 8

Answer: B

Watch Video Solution

180. The percentage of element M is 53 in its oxide of molecular formula M_2O_3. Its atomic mass is about

A. 45

B. 9

C. 18

D. 27

Answer: D

Watch Video Solution

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

A. 1×10^{23}

B. 2×10^{23}

C. 4×10^{23}

D. 6×10^{23}

Answer: D

Watch Video Solution

182. A metal M of equivalent mass E forms an oxide of molecular formula M_xO_y The atomic mass of the metal is given by the correct equation .

A. 2E (y/x)

B. xyE

C. E/Y

D. Y/E

Answer: A

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183. Equivalent weight of crystalline oxalic acid is

A. 30

B. 63

C. 53

D. 45

Answer: B

Watch Video Solution

184. In the following reaction, which choice has value twice that of the equivalent mass of the oxidising agent

$SO_2 + H_2O \rightarrow 3S + 2H_2O$

A. 64

B. 32

C. 16

D. 48

Answer: B

Watch Video Solution

185. Which one of the following parts of gases contains the same number of molecules?

A. 16 g of O_2 and 14 g of N_2

B. 8 g of O_2 and 22 g of CO_2

C. 28 g of N_2 and 22 g of CO_2

D. 32 g of O_2 and 32 g of N_2

Answer: A

Watch Video Solution

186. 19.7 kg of gold was recovered from a smuggler. How many atoms of gold were recovered?

A. 100

B. 6.02×10^{23}

C. 6.02×10^{24}

D. 6.02×10^{25}

Answer: D

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187. Which among the following is the heaviest?

A. One mole of oxygen

B. One molecule of SO_3

C. 10 moles of hydrogen

D. 44 g of CO_2

Answer: D

Watch Video Solution

188. 1 mole of methylamine on reaction with nitrous acid gives at NTP:

A. 1 L of nitrogen

B. 11.2 L of nitrogen

C. 22.4 L of nitrogen

D. 5.6 L of nitrogen

Answer: C

Watch Video Solution

189. The number of molecules in 18 mg of water in terms of Avogadro number N is

A. $10^{-3}N$

B. $10^{-2}N$

C. $10^{-1}N$

D. 10 N

Answer: A

Watch Video Solution

190. If 1 ml of water contains 20 drops. Then no. of molecules in a drop of water is

A. 6.023×10^{23} molecules

B. 1.376×10^{21} molecules

C. 1.344×10^{18} molecules

D. 4.346×10^{20} molecules

Answer: B

Watch Video Solution

191. If two compounds have the same empirical formula but different molecular formulae they must have

A. different percentage composition

B. different molecular mass

C. same viscocity

D. same vapour density

Answer: B

Watch Video Solution

192. How much water should be added to 200 c.c of seminormal solution of NaOH to make it exactly decinormal?

A. 200 cc

B. 400 cc

C. 800 cc

D. 600 cc

Answer: C

Watch Video Solution

193. When sulphur dioxide gas is passed throught acidified potassium dichromate solution, the colour of the solution changes from:

A. Bleaching powder

B. White vitriol

C. Mohr's salt

D. Microcosmic salt

Answer: C

Watch Video Solution

194. What is the stoichiometric coefficient fo Ca in the reaction ?

$Ca + Al^{3+} \rightarrow Ca^{2+} + Al$

A. 2

B. 1

C. 3

D. 4

Answer: C

Watch Video Solution

195. The ratio of amounts of H_2S needed to precipitate all the metal ions from $100ml$ of $1MAgNO_3$ and $100ml$ of $1MCuSO_4$ will be

A. $1:1$

B. $1:2$

C. $2:1$

D. $2:2$

Answer: B

Watch Video Solution

196. The set of numerical coefficients that balances the chemical equation

$K_2CrO_4 + HCl \rightarrow K_2Cr_2O_7 + KCl + H_2O$

A. 1, 1, 2, 2, 1

B. 2, 2, 1, 1, 1

C. 2, 1, 1, 2, 1

D. 2, 2, 1, 2, 1

Answer: D

Watch Video Solution

197. How much copper is present in 50 g of $CuSO_4$

A. 1.99 g

B. 3.98 g

C. 6.35 g

D. 3.17 g

Answer: A

Watch Video Solution

198. The number of oxygen atoms present in 1 mole of oxalic acids dihydrate is

A. 6×10^{23}

B. 6.022×10^{34}

C. 7.22×10^{23}

D. 36.13×10^{23}

Answer: D

Watch Video Solution

199. What volume of water is to be added to 100 cm^3 of 0.5 M NaOH solution to make it 0.1 M solution ?

A. $200cm^3$

B. $400cm^3$

C. $500cm^3$

D. $100cm^3$

Answer: B

Watch Video Solution

200. The empirical formula of a compound is CH_2O_2.

What could be its molecular formula ?

A. $C_2H_2O_2$

B. $C_2H_2O_4$

C. $C_2H_4O_4$

D. CH_4O_4

Answer: C

Watch Video Solution

201. A compound contains two elements 'X' and 'Y' in the ratio of 50% each. Atomic mass 'X' is 20 and 'Y' is 40. what can be its simplest formula?

A. XY

B. X_2Y

C. XY_2

D. X_2Y_3

Answer: B

Watch Video Solution

202. How many atoms in total are present in 1kg of sugar?

A. 7.92×10^{25} atoms

B. 6×10^{23} atoms

C. 6.022×10^{25} atoms

D. 1000 atoms

Answer: A

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203. Fill in the blanks with appropriate words given below :

Molecular mass is the _____ of atomic masses of elements present in a molecule. The mass of one mole of a substance in grams is called its _____ mass. The atomic masses represented in periodic table are their _____ masses.

A. Product, gram molecular, average atomic.

B. sum, molar, average atomic

C. product, molar, relative atomic

D. sum, molar, formula

Answer: B

Watch Video Solution

204. Match the column I with column II and mark the appropriate choice.

Column I	Column II
(A) Mass of H_2 produced when 5 mole of zinc reacts with excess of HCl	(i) 3.01×10^{23} molecules
(B) Mass of all atoms of a compound with formula $C_{70}H_{22}$	(ii) 6.023×10^{23} molecules
(C) Number of molecules in 3.55 g of Cl_2	(iii) 1.43×10^{-21} g
(D) Number of molecules in 64 g of SO_2	(iv) 10 g

A. $(A) \rightarrow (ii), (B) \rightarrow (i), (C) \rightarrow (iv), (D) \rightarrow (iii)$

B. $(A) \rightarrow (i), (B) \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (iv)$

C. $(A) \rightarrow (iv), (B) \rightarrow (iii), (C) \rightarrow (i), (D) \rightarrow (ii)$

D. $(A) \rightarrow (iv), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (i)$

Answer: C

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205. Match the mass of elements given in coloumn I with the no. of moles given in column II and mark the appropriate choice.

Column I		Column II	
(A)	28 g of He	(i)	2 moles
(B)	46 g of Na	(ii)	7 moles
(C)	60 g of Ca	(iii)	1 mole
(D)	27 g of Al	(iv)	1.5 moles

A. $(A) \rightarrow (iv), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (i)$

B. $(A) \rightarrow (iii), (B) \rightarrow (ii), (C) \rightarrow (i), (D) \rightarrow (iv)$

C. $(A) \rightarrow (i), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (iv)$

D. $(A) \rightarrow (ii), (B) \rightarrow (i), (C) \rightarrow (iv), (D) \rightarrow (iii)$

Answer: D

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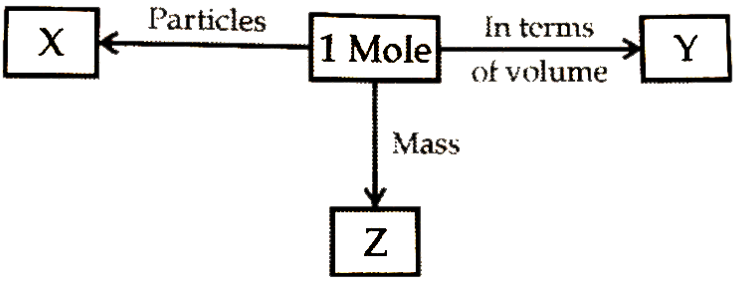
206. Fill in the blanks by choosing the correct options.



A.

X	Y	Z
6.023×10^{23}molecules	22.4L at any pressure	Gram molecular mass

B.

X	Y	Z
6.023×10^{23} atoms/molecules	22.4L at NTP	Gram atomic mass

C.

X	Y	Z
6.023×10^{23}atoms	22.4L at any temperature	1gram mole

D.

X	Y	Z
6.023×10^{23}particles	22.4L at NTP	Molar volume

Answer: B

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207. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice.

Assertion : 1 mole of water is equal to 6.023×10^{23} molecules.

Reason : The mass of one mole of a substance in grams is called the molar mass.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true but reason is not the correct explanation of assertion.

C. Assertion is true but reason is false.

D. Both assertion and reason are false.

Answer: B

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208. Match the prefixes present in column I with their multiples in column II and mark the appropriate choice.

Column I (Prefixes)	Column II (Multiples)
(A) pico	(i) 10^{9}
(B) femto	(ii) 10^{-6}
(C) micro	(iii) 10^{-12}
(D) giga	(iv) 10^{-15}

A. $(A) \rightarrow (i), (B) \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (iv)$

B. $(A) \rightarrow (ii), (B) \rightarrow (i), (C) \rightarrow (iv), (D) \rightarrow (iii)$

C. $(A) \rightarrow (iv), (B) \rightarrow (iii), (C) \rightarrow (i), (D) \rightarrow (ii)$

D. $(A) \rightarrow (iii), (B) \rightarrow (iv), (C) \rightarrow (ii), (D) \rightarrow (i)$

Answer: D

Watch Video Solution

209. 10 litres of O_2 gas is reacted with 30 litres of CO at S.T.P. The volumes of each gas present at the end of the reaction are

A. 10 L CO_2, 10 L CO

B. 20 L CO_2, 20 L CO

C. 10 L CO_2, 20 L CO

D. 20 L CO_2, 10 L CO

Answer: D

Watch Video Solution

210. What is the total number of electrons present in 0.16 g of methane ?

A. 6.023×10^{22}

B. 16

C. 12.04×10^{23}

D. 6.023×10^{24}

Answer: A

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211. Few quantities with their units are listed below. Mark the units which are not correctly matched.

(i) Density : kg m^{-3}

(ii) Velocity of light : m s^{-1}

(iii) Planck's constant : $J^{-1}s^{-1}$

(iv) Acceleration : ms^{-2}

(v) Force : Kg m

A. (ii) and (iv)

B. (i) and (iii)

C. (iii) and (v)

D. (iv) and (v)

Answer: C

Watch Video Solution

212. Iron can be obtained by reduction of iron oxide (Fe_3O_4) with CO according to the reaction :

$Fe_3O_4 + 4CO \rightarrow 3Fe + 4CO_2$

How many kg of Fe_3O_4 should be heated with CO to get 3 kg iron ?

A. 8.12 kg

B. 4.14 kg

C. 6.94 kg

D. 16.8 kg

Answer: B

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213. A balanced equation for combustion of methane is given below:

$CH_{4(g)} + O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_g$

Which of the following statements is not correct on the basis of the above chemical equation?

A. One mole of CH_4 reacts with 2 moles of oxygen to give one mole of CO_2 and 2 moles of water

B. One molecule of CH_4 reacts with 2 molecules of oxygen to give one molecule of CO_2 and 2 molecules of water

C. 22.4 L of methane reacts with 44.8 L of oxygen to give 44.8 L of CO_2 and 22.4 L of water

D. 16 g of methane reacts with 64 g of O_2 to give 44 g of CO_2 and 36 g of water

Answer: C

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214. Equal masses of H_2, O_2 and methane have been taken in a container of volume V at temperature $27^\circ C$ in identical conditions. The ratio of

the volume of gases $H_2 : O_2$: methane would be

A. $8 : 16 : 1$

B. $16 : 8 : 1$

C. $16 : 1 : 2$

D. $8 : 1 : 2$

Answer: C

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215. 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 mol of $HCl_{(g)}$

B. 2 mol of $HCl_{(g)}$

C. 0.5 mol of $HCl_{(g)}$

D. 1.5 mol of $HCl_{(g)}$

Answer: A

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216. 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, 0.16 g

C. Mg, 0.44 g

D. O_2, 0.28 g

Answer: A

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Test Your Grasp

1. Which of the following phrases would be incorrect to use ?

A. A molecule of an element

B. An atom of an element

C. A molecule of a compound

D. An atom of a compound

Answer: D

Watch Video Solution

2. The formula of barium tetrafluorobromate (III) will be

A. $Ba(BF_4)_2$

B. $Ba(BrF_4)$

C. $Ba(BrF_4)_2$

D. $Ba_3(BrF_4)_2$

Answer: C

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3. Which of the following is an element ?

A. Silica

B. Magnesia

C. Nitrate

D. Graphite

Answer: D

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4. The ratio of mass of 1 mole of sulphur and 10^{23} atoms of sulphur is _____ . (S = 32)

A. $\frac{32}{6.023}$

B. 32×6.023

C. 6.023

D. 32

Answer: C

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5. Which of the following has maximum number of molecules ? (C = 12, O = 16, N = 14, H = 1)

A. 1 g of CO_2

B. 1 g of N_2

C. 1 g of O_2

D. 1 g of H_2

Answer: D

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6. Which of the following weighs the maximum ?

(O = 16)

A. 2.24 dm^3 of O_3 at N.T.P.

B. 22.4 cm^3 of O_3 at N.T.P.

C. 6.023×10^{24} atoms of oxygen

D. 6.023×10^{23} molecules of O_3

Answer: C

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7. If weight of one drop of H_2O_2 is 3.4×10^{-5} kg. The number of hydrogen peroxide molecules present in two drops of H_2O_2 is _____ . (H = 1, O = 16)

A. 1.2×10^{20}

B. 1.2×10^{21}

C. 1.2×10^{22}

D. 1.2×10^{17}

Answer: B

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8. The number of potassium atoms present in 1 equivalent of $KMnO_4$ is _____ .

A. 6.02×10^{23}

B. 3.01×10^{24}

C. 1.204×10^{23}

D. 1

Answer: C

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9. Two containers P and Q of equal volume (1 litre each) contain 6 g of O_2 and SO_2 respectively at 300 K and 1 atmosphere, then

A. Number of molecules in P is less than that in Q.

B. Number of molecules in P and Q is same

C. Number of molecules in Q is less than that in P.

D. Either (a) or (b)

Answer: C

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10. 1 amu is equal to

A. $\frac{1}{14}$ of O - 16

B. $\frac{1}{12}$ of C - 12

C. 1 g of H_2

D. 1.66×10^{-23} kg

Answer: B

Watch Video Solution

11. Which of the following contains maximum number of atoms ?

A. 6.023×10^{21} molecules of CO_2

B. 0.44 g of CO_2

C. 22.4 L of CO_2 at STP

D. None of these

Answer: C

Watch Video Solution

12. $3g$ of an oxide of a metal is converted completely to $5g$ chloride. Equivalent weight of metal is:

A. 3.325

B. 33.25

C. 12

D. 20

Answer: B

Watch Video Solution

13. The simplest formula of a compound containing 50% of element X (atomic mass 10) and 50% of element Y (atomic mass 20) is

A. XY

B. XY_3

C. X_2Y

D. X_2Y_3

Answer: C

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14. 100 cm^3 of 0.1 N HCl is mixed with 100 cm^3 of 0.2 N NaOH solution. The resulting solution is

A. 0.1 N and the solution is basic.

B. 0.1 N and the solution is acidic.

C. 0.05 N and the solution is basic.

D. 0.05 N and the solution is acidic.

Answer: C

Watch Video Solution

15. The number of molecules in 16 g of methane is

A. 3.0×10^{23}

B. $\frac{16}{6.02} \times 10^{23}$

C. 6.02×10^{23}

D. $\frac{16}{3.0} \times 10^{23}$

Answer: C

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16. A molal solution is one that contains 1 mol of a solute dissolved in

A. one litre of the solvent

B. 1000 g of the solvent

C. one litre of the solution

D. 22.4 litres of the solution

Answer: B

Watch Video Solution

17. How much of NaOH is reuired to neutralise 1500 cm^3 of 0.1 N HCl (Na=23)?

A. 60 g

B. 4 g

C. 6 g

D. 40 g

Answer: C

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18. Which has maximum number of molecules?

A. 7 g N_2

B. 16 g NO_2

C. 2 g H_2

D. 16 g O_2

Answer: C

Watch Video Solution

19. 30g Mg and 30g O_2 are reacted and the residual mixture contains:

A. 50 g of Magnesium oxide and 10 g of oxygen

B. 40 g of Magnesium oxide and 20 g of oxygen

C. 45 g of Magnesium oxide and 15 g of oxygen

D. 60 g of Magnesium oxide only

Answer: A

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20. In the chemical reaction, $K_2Cr_2O_7 + xH_2SO_4 + ySO_2 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + zH_2O,$ the value of x, y and z respectively are :

A. 4, 1, 4

B. 1, 3, 1

C. 3, 2, 3

D. 2, 1, 2

Answer: B

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21. If potassium chlorate is 80% pure, then 48 g of oxygen would be produced from (atomic mass of K = 39)

A. 153.12 gm of $KClO_3$

B. 122.5 gm of $KClO_3$

C. 245 gm of $KClO_3$

D. 98 gm of $KClO_3$

Answer: A

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22. The ratio of the molar amounts of H_2S needed to precipitate the metal ions from 20 mL each 1 M Cd $(NO_3)_2$ and 0.5 M $CuSO_4$ is

A. $1:1$

B. $2:1$

C. $1:2$

D. indefinite

Answer: B

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23. When $2.76g$ of silver carbonate is strongly heated, it yields a residue weighing

A. 2.16 gm

B. 2.48 gm

C. 2.32 gm

D. 2.64 gm

Answer: A

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24. 2 gm of a mixture of CO and CO_2 on reaction with excess of I_2O_5 produced 2.54 gm of I_2. What will be the mass $\%$ of CO_2 in the original mixture ?

A. 35

B. 70

C. 30

D. 60

Answer: C

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25. $7.36g$ of a mixture of KCI and KI was dissolved in H_2O to prepare 1 litre solution 25 ml of this required $8.45ml$ of $0.2NAgNO_3$, what is $\%$ of KI in mixture ?

A. 57.28

B. 5.72

C. 47.28

D. 49.12

Answer: A

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26. On subjecting 10ml mixture of N_2 and CO to repeated electric spark to form CO_2 and NO, 7 ml of O_2 was required for combustion. What was the mole precent of CO in the mixture ? (All volumes were measured under identical conditions)

A. 60

B. 40

C. 6

D. 4

Answer: A

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27. 2.24 ml of a gas 'X' is produced at STP by the action of 4.6 mg of a alcohol (ROH) with methyl magnesium iodide the molecular mass of

alcohol and the gas 'X' are respectively

A. 0,46, CH_4

B. 4,6,C_2H_6

C. 46,CH_4

D. 46,C_2H_4

Answer: C

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28. 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. 60 and 40

B. 30 and 40

C. 40 and 30

D. 40 and 60

Answer: C

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29. Number of atoms in $558.5\ g\ Fe(at.\ wt.55.85)$ is:

A. twice that of 60 g carbon

B. 6.023×10^{22}

C. half that in 8 g He

D. $558.5 \times 6.023 \times 10^{23}$

Answer: A

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30. One mole of magnesium nitride on reaction with an excess of water gives

A. two moles of ammonia

B. one mole of nitric acid

C. one mole of ammonia

D. two moles of nitric acid

Answer: A

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31. Common SI prefix used for 10^2 is

A. kilo-

B. hecto-

C. deka-

D. centi-

Answer: B

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32. The symbol 'ms' represents

A. mole second

B. molar solubility

C. meter second

D. meter per second

Answer: C

Watch Video Solution

33. The symbol for $1 \times 10^{-6} g$ is

A. deci g

B. milli g

C. micro g

D. pico g

Answer: C

Watch Video Solution

34. Number of moles of magnesium in a metallic piece of magnesium containing 8.46×10^{24} atom are

A. 3.77

B. 14.05

C. 7.05×10^{23}

D. 3.525×10^{23}

Answer: B

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35. Mass of one O-16 atom is

A. 16 amu

B. 8 amu

C. 1 amu

D. 32 amu

Answer: A

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36. Formula mass of sodium chloride is

A. 46.5

B. 58.5 kg

C. 46.5 amu

D. 58.5 amu

Answer: D

Watch Video Solution

37. Molar mass of nitrogen is

A. 14 amu

B. 14 g/mol

C. 28 amu

D. 28 g/mol

Answer: B

Watch Video Solution

38. The formula mass of sodium phosphate (Na_3PO_4) is 164 amu, the mass of 0.146 mol of sodium phosphate is

A. 0.0009 amu

B. 2.394 amu

C. 23.94 amu

D. 3.294 amu

Answer: C

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39. Number of moles of gold present in a piece of gold has a mass 12.6 g is (AU = 197)

A. 0.063

B. 0.0634

C. 0.0639

D. 0.0648

Answer: C

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40. The percentage of oxygen present in water is

A. $33.33\ \%$

B. $50\ \%$

C. $63.5\ \%$

D. $88.9\ \%$

Answer: D

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41. 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. $7:32$

B. $1:4$

C. $1:8$

D. $3:5$

Answer: A

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42. A phosphorus oxide has $43.6\ \%$ phosphorus (P = 31).

The empirical formula of the compound is

A. PO_2

B. P_2O_3

C. P_2O_5

D. P_4O_6

Answer: C

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43. How many formula units are there in a 42 g sample of $(NH_4)_2Cr_2O_7$? (formula wt. = 252)

A. 1.4×10^{22}

B. 1×10^{23}

C. 6×10^{23}

D. 7×10^{23}

Answer: B

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44. If 10^{21} molecules are removed from 200 mg of CO_2, the number of moles of CO_2 left will be ?

A. 4.54×10^{-3}

B. 3.53×10^{-3}

C. 2.88×10^{-3}

D. 1.66×10^{-3}

Answer: C

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45. A sample of AlF_3 contains 3.0×10^{24} F^- ions. The number of formula units of the sample are

A. 1×10^{24}

B. 2×10^{24}

C. 3×10^{24}

D. 4×10^{24}

Answer: A

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46. A sample of $CaCO_3$ has $C_a = 40\,\%$, $C = 12\,\%$ and $O = 48\,\%$. If the law of constant proportion is true then the weight of calcium in 5 g of a sample of $CaCO_3$ from another source will be

A. 0.2 g

B. 0.4 g

C. 2 g

D. 4 g

Answer: C

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47. The number of gram atoms of oxygen present in 0.25 mole of $(COOH)_2 2H_2O$ is

A. 0.25

B. 0.5

C. 1.0

D. 1.5

Answer: D

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48. One mole of hydrogen peroxide (H_2O_2) has a mass same as that of

A. 0.1 mole of Glucose $(C_6H_{12}O_6)$

B. 2 mole of ammonia

C. 33.6 L of CO_2 at NTP

D. 0.1 mole of SO_2

Answer: B

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49. A compound made of two elements A and B are found to contain 25% A (at. mass $12 \cdot 5$) and 75% B (at. mass $37 \cdot 5$) The simplest formula of the compound is

A. AB

B. AB_2

C. AB_3

D. A_2B_3

Answer: A

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50. Two elemets $X($ atomic weight $= 75)$ and $Y($ atomic weight $= 16)$ combine to give a compound having 75.8% X.` The formula of the compound is

A. XY

B. X_2Y

C. X_3Y_2

D. X_2Y_3

Answer: D

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