Atomic, Molecular and Equivalent masses

41. The element whose a atom has mass of $10.86 \times 10^{-26} kg$ is
(a) Boron (b) Calcium
(c) Silver (d) Zinc

42. The number of gram atoms of oxygen present in 0.3 gram mole of $(COOH)_2.2H_2O$ is
(a) 0.6 (b) 1.8
(c) 1.2 (d) 3.6

43. A gaseous mixture contains CH_4 and C_2H_6 in equimolecular proportion. The weight of 2.24 litres of this mixture at NTP is
(a) 4.6 g (b) 1.6 g
(c) 2.3 g (d) 23 g

44. Vapour density of a metal chloride is 66. Its oxide contains 53% metal. The atomic weight of the metal is
(a) 21 (b) 54
(c) 27.06 (d) 2.086

45. One gram of hydrogen is found to combine with 80g of bromine one gram of calcium valency=2 combines with 4g of bromine the equivalent weight of calcium is
(a) 10 (b) 20
(c) 40 (d) 80

46. The equivalent weight of $MnSO_4$ is half its molecular weight when it is converted to
(a) Mn_2O_3 (b) MnO_2
(c) MnO_4 (d) MnO_4^{2-}

51. 100 mL of PH_3 on decomposition produced phosphorus and hydrogen. The change in volume is
(a) 50 mL increase
(b) 500 mL decrease
(c) 900 mL decrease
(d) Nil.

52. 12g of Mg (at. mass 24) on reacting completely with acid gives hydrogen gas, the volume of which at STP would be
(a) 22.4 L (b) 11.2 L
(c) 44.8 L (d) 6.1 L

53. Which of the following has least mass
(a) 2 g atom of nitrogen
(b) 3×10^{23} atoms of C
(c) 1 mole of S

(d) 7.0 g of Ag

54. How many mole of helium gas occupy 22.4 L at 0^oC at 1 atm. pressure

(a) 0.11 (b) 0.90

(c) 1.0 (d) 1.11

55. Volume of a gas at STP is 1.12×10^{-7} cc. Calculate the number of molecules in it

(a) 3.01×10^{20} (b) 3.01×10^{12}

(c) 3.01×10^{23} (d) 3.01×10^{24}

56. 4.4 g of an unknown gas occupies $2.24L$ of volume at standard temperature and pressure. The gas may be

(a) Carbon dioxide

(b) Carbon monoxide

(c) Oxygen

(d) Sulphur dioxide

57. The number of moles of oxygen in 1 L of air containing 21% oxygen by volume, in standard conditions, is

(a) 0.186 *mol* (b) 0.21 *mol*

(c) 2.10 *mol* (d) 0.0093 *mol*

58. The number of molecules in 8.96 L of a gas at 0^oC and 1 atmosphere pressure is approximately

(a) 6.02×10^{23}

(b) 12.04×10^{23}

(c) 18.06×10^{23}

(d) 24.08×10^{22}

59. 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

60. The molecular weight of a gas is 45. Its density at STP is

(a) 22.4 (b) 11.2

(c) 5.7 (d) 2.0

61. Equivalent weight of a bivalent metal is 37.2. The molecular weight of its chloride is

(a) 412.2 (b) 216

(c) 145.4 (d) 108.2

62. On reduction with hydrogen, 3.6 g of an oxide of metal left 3.2 g of metal. If the vapour density of metal is 32,

the simplest formula of the oxide would be

(a) MO (b) M_2O_3

(c) M_2O (d) M_2O_5

63. The number of molecules in 4.25 *g* of ammonia are

(a) 0.5×10^{23} (b) 1.5×10^{23}

(c) 3.5×10^{23} (d) 1.8×10^{32}