Chemical stoichiometry

41. The ratio of amounts of H_2S needed to precipitate all the metal ions from 100 ml of 1 M $AgNO_3$ and 100 ml of 1 M $CuSO_4$ will be

(a) 1:1

(b) 1:2

(c) 2:1

(d) None of these

42. An electric discharge is passed through a mixture containing 50 $c.c.$ of O_2 and 50 $c.c.$ of H_2. The volume of the gases formed (i) at room temperature and (ii) at 110^0C will be

(a) (i) 25 $c.c.$ (ii) 50 $c.c.$

(b) (i) 50 $c.c.$ (ii) 75 $c.c.$

(c) (i) 25 $c.c.$ (ii) 75 $c.c.$

(d) (i) 75 $c.c.$ (ii) 75 $c.c.$

43. 100 ml of 0.1 N hypo decolourised iodine by the addition of x g of crystalline copper sulphate to excess of KI. The value of 'x' is (molecular wt. of $CuSO_4.5H_2O$ is 250)

(a) 5.0 g (b) 1.25 g

(c) 2.5 g (d) 4 g

44. How many grams of caustic potash required to completely neutralise 12.6 gm HNO_3

(a) 22.4 KOH (b) 1.01 KOH

(c) 6.02 KOH (d) 11.2 KOH

45. If isobutane and n-butane are present in a gas, then how much oxygen should be required for complete combustion of 5 kg of this gas

(a) 17.9 kg (b) 9 kg

(c) 27 kg (d) 1.8 kg

46. 16.8 $litre$ gas containing H_2 and O_2 is formed at NTP on electrolysis of water. What should be the weight of electrolysed water

(a) 5 g (b) 9 g

(c) 10 g (d) 12 g

47. On electrical decomposition of 150 ml dry and pure O_2 , 10% of O_2 gets changed to O, then the volume of gaseous mixture after reaction and volume of remaining gas left after passing in turpentine oil will be

(a) 145 ml (b) 149 ml

(c) 128 ml (d) 125 ml

48. What should be the weight of 50% HCl which reacts with 100 g of limestone
    (a) 50% pure
    (b) 25% pure
    (c) 10% pure
    (d) 8% pure

49. What should be the weight and moles of $AgCl$ precipitate obtained on adding 500ml of 0.20 M HCl in 30 g of $AgNO_3$ solution? ($AgNO_3$ = 170)
    (a) 14.35 g
    (b) 15 g
    (c) 18 g
    (d) 19 g

50. A solution of 10 ml $\frac{M}{10}FeSO_4$ was titrated with $KMnO_4$ solution in acidic medium. The amount of $KMnO_4$ used will be
    (a) 5 ml of 0.1 M
    (b) 10 ml of 1.1 M
    (c) 10 ml of 0.5 M
    (d) 10 ml of 0.02 M

51. 1.12 ml of a gas is produced at STP by the action of 4.12 mg of alcohol, with methyl magnesium iodide. The molecular mass of alcohol is
    (a) 16.0
    (b) 41.2
    (c) 82.4
    (d) 156.0

52. 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) X_2Y
    (c) XY_3
    (d) X_2Y_3

53. A compound contains atoms of three elements in A, B and C. If the oxidation number of A is +2, B is +5 and that of C is – 2, the possible formula of the compound is
    (a) $A_3(BC_4)_2$
    (b) $A_3(B_4C)_2$
    (c) ABC_2
    (d) $A_2(BC_3)_2$

54. What will be the volume of CO_2 at NTP obtained on heating 10 grams of (90% pure) limestone
    (a) 22.4 $litre$
    (b) 2.016 $litre$
    (c) 2.24 $litre$
    (d) 20.16 $litre$

55. The ratio of the molar amounts of H_2S needed to precipitate the metal ions from $20mL$ each of $1M$ $Cd(NO_3)_2$ and $0.5M$ $CuSO_4$ is
    (a) 1 : 1
    (b) 2 : 1
    (c) 1 : 2
    (d) Indefinite

56. $12g$ of Mg (at. mass 24) will react completely with acid to give

(a) One mole of H_2

(b) 1/2 mole of H_2

(c) 2/3 mole of O_2

(d) Both 1/2 mol of H_2 and 1/2 mol of O_2

57. 1.5 *mol* of O_2 combine with Mg to form oxide MgO. The mass of Mg (at. mass 24) that has combined is

(a) 72 g (b) 36 g

(c) 48 g (d) 24 g

58. 100 g CaCO₃ reacts with 1 *litre* 1 *N* *HCl*. On completion of reaction how much weight of CO_2 will be obtain

(a) 5.5 g (b) 11 g

(c) 22 g (d) 33 g

(e) 44 g