

Stoichiometry

81. When a certain amount of octane, C_8H_{18} , is burnt completely, 7.04 g CO_2 is formed. What is the mass of H_2O formed, simultaneously?
- (a) 1.62 g (c) 6.48 g
(b) 3.24 g (d) 2.28 g
82. If rocket were fuelled with kerosene and liquid oxygen, what mass of oxygen would be required for every litre of kerosene? Assume kerosene to have the average composition $C_{14}H_{30}$ and density, 0.792 g/ml.
- (a) 5.504 kg (b) 2.752 kg
(c) 1.376 kg (d) 3.475 kg
83. Air contains 20% O_2 , by volume. What volume of air is needed at $0^\circ C$ and 1 atm for complete combustion of 80 g methane?
- (a) 10 l (b) 50 l
(c) 224 l (d) 1120 l
84. Acrylonitrile, C_3H_3N , is the starting material for the production of a kind of synthetic fibre (acrylics). It can be made from propylene, C_3H_6 , by reaction with nitric oxide, NO.
- $$C_3H_6(g) + NO(g) \rightarrow C_3H_3N(g) + H_2O(g) + N_2(g) \text{ (Unbalanced)}$$
- How many grams acrylonitrile may be obtained from 420 kg of propylene and excess NO?
- (a) 265 kg (b) 530 kg
(c) 1060 kg (d) 795 kg
85. A quantity of 2.76 g of silver carbonate on being strongly heated yields a residue weighing (Ag = 108)
- (a) 2.16 g (b) 2.48 g
(c) 2.32 g (d) 2.64 g
86. How many litres of detonating gas may be produced at $0^\circ C$ and 1 atm from the decomposition of 0.1 mole of water, by an electric current?
- (a) 2.24 l (b) 1.12 l
(c) 3.36 l (d) 4.48 l
87. What mass of solid ammonium carbonate $H_2NCOONH_4$, when vaporized at $273^\circ C$, will have a volume of 8.96 l at 760 mm of pressure. Assume that the solid completely decomposes as
- $$H_2NCOONH_4(s) \rightarrow CO_2(g) + 2NH_3(g)$$
- (a) 15.6 g (b) 5.2 g
(c) 46.8 g (d) 7.8 g
88. The mass of sulphuric acid needed for dissolving 3 g magnesium carbonate is
- (a) 3.5 g (b) 7.0 g
(c) 1.7 g (d) 17.0 g
89. Samples of 1.0 g of Al are treated separately with an excess of sulphuric acid and an excess of sodium hydroxide. The ratio of the number of moles of the hydrogen gas evolved is
- (a) 1:1 (b) 3:2
(c) 2:1 (d) 9:4
90. The minimum mass of water needed to slake 1 kg of quicklime, assuming no loss by evaporation, is
- (a) 243.2 g (b) 642.8 g
(c) 160.7 g (d) 321.4 g
91. When 20 g Fe_2O_3 is reacted with 50 g of HCl, $FeCl_3$ and H_2O are formed. The amount of unreacted HCl is (Fe = 56)
- (a) 27.375 g (b) 22.625 g
(c) 30 g (d) 4.75 g
92. SO_2 gas is slowly passed through an aqueous suspension containing 12 g $CaSO_3$ till the milkiness just disappears. What amount of SO_2 would be required?
- (a) 6.4 mole (b) 0.3 mole
(c) 0.1 mole (d) 0.2 mole