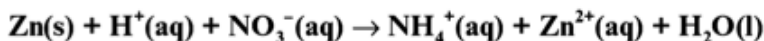
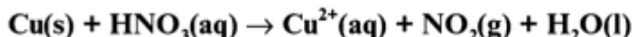


- Q1 A human patient suffering from a duodenal ulcer may show a concentration of HCl of 80×10^{-3} molar in gastric juice. If his stomach receives 3 l of gastric juice per day, how much medicine (antacid syrup) containing 2.6 g of $\text{Al}(\text{OH})_3$ per 100 ml must he consume per day to neutralize the acid?
- (a) 27 ml
(b) 80 ml
(c) 240 ml
(d) 120 ml
- Q2 The empirical formula of a compound is CH_2O . If 0.0833 moles of the compound contains 1.0 g of hydrogen, its molecular formula should be
- (a) $\text{C}_6\text{H}_{12}\text{O}_6$ (b) $\text{C}_5\text{H}_{10}\text{O}_5$
(c) $\text{C}_4\text{H}_8\text{O}_4$ (d) $\text{C}_3\text{H}_6\text{O}_3$
- Q3 A metal oxide has the formula M_2O_3 . It can be reduced by hydrogen to give free metal and water. 0.1596 g of the metal oxide required 6 mg of hydrogen for complete reduction. The atomic mass of the metal is
- (a) 111.60
(b) 159.60
(c) 79.80
(d) 55.80
- Q4 A quantity of 500 g of a urea solution of mole fraction 0.2 is diluted to 1500 g. The mole fraction of solute in the diluted solution is
- (a) 0.05
(b) 0.067
(c) 0.6
(d) 0.1
- Q5 A given sample of pure iron gains 10% of its weight on partially rusting to form Fe_2O_3 . If the fraction of the iron converted to Fe_2O_3 is 'x', then the value of 30 times 'x' is (Fe = 56)

Q6 An impure sample of iron pyrite contains 28% iron, the impurity being silica. If 100 g of the sample is roasted to oxidize all the FeS_2 to Fe_2O_3 , what will be the mass of the roasted sample, in g? (Fe = 56)

A quantity of 1.5 g of brass containing Cu and Zn reacts with 3 M- HNO_3 solution, the following reactions (unbalanced) take place:



The liberated $\text{NO}_2(\text{g})$ was found to be 1.04 l at 25°C and 1 atm.

Q7 What is the percentage of copper in brass?

- (a) 80% (b) 90%
(c) 85% (d) 10%

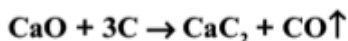
Q8 How many millilitres of 3 M- HNO_3 will be required for complete reaction with brass?

- (a) 9.56 ml (b) 14.34 ml
(c) 6.37 ml (d) 19.12 ml

Q9 How many grams of ammonium nitrate will be formed in the reaction?

- (a) 0.046 g
(b) 0.183 g
(c) 0.092 g
(d) 0.55 g

Crude calcium carbide is made in an electric furnace by the reaction:



The product contains 80% CaC_2 and 20% unreacted CaO.

Q10 How much CaO is to be added to the furnace charge for each 1280 kg of pure CaC_2 produced?

- (a) 1120 kg (b) 1440 kg
(c) 1152 kg (d) 1344 kg

Q11 How much CaO is to be added to the furnace charge for each 1280 kg of crude product?

- (a) 1120 kg (b) 1440 kg
(c) 1152 kg (d) 1344 kg

Q12 What will be the volume of CO gas evolved, measured at 0°C and 1 atm, when 1280 kg of crude product is formed?

- (a) 448 m^3
(b) 358.4 m^3
(c) 537.6 m^3
(d) 89.6 m^3