ASSIGNMENT-7 Stoichiometry-1

Some Basic Concepts of chemistry

1. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is **[NEET (National) 2019]**

(a) 20 (b) 30 (c) 40 (d) 10

2. 20.0 g of a magnesium carbonate sample decomposes on heating to give carbon dioxide and 8.0 g magnesium oxide. What will be the percentage purity of magnesium carbonate in the sample? (Atomic weight of Mg = 24) **[CBSE AIPMT 2015]**

(a) 75 (b) 96 (c) 60 (d) 84

3. What is the mass of precipitate formed when 50 mL of 16.9% solution of $AgNO_3$ is mixed with 50 mL of 5.8% NaCl solution? (Ag = 107.8, N = 14, O = 16, Na = 23, Cl = 35.5) **[CBSE AIPMT 2015]**

(a) 28 g (b) 3.5 g
(c) 7 g (d) 14 g

4. 10 g of hydrogen and 64 g of oxygen were filled in a steel vessel and exploded. Amount of water produced in this reaction will be **[CBSE AIPMT 2009]**

(a) 2 moles (b) 3 moles
(c) 4 moles (d) 1 mole

5. When 22.4 L of $H_2(g)$ is mixed with 11.2 L of $Cl_2(g)$, each at STP, the moles of $HCl(g)$ formed is equal to **[CBSE AIPMT 2014]**

(a) 1 mole of HCl (*g*)
(b) 2 moles of HCl (*g*)
(c) 0.5 mole of HCl (*g*)
(d) 1.5 moles of HCl (*g*)

6. 1.0 g of magnesium is burnt with 0.56 g of oxygen in a closed vessel. Which reactant is left in excess and how much? **[CBSE AIPMT 2014]**

(At. weight of Mg = 24, O = 16)
(a) Mg, 0.16 g
(b) O_2, 0.16 g
(c) Mg, 0.44 g
(d) O_2, 0.28 g

7. How many moles of lead (II) chloride will be formed from a reaction between 6.5 g of PbO and 3.2 g of HCl? **[CBSE AIPMT 2008]**

(a) 0.044 (b) 0.333 (c) 0.011 (d) 0.029

8. What volume of oxygen gas (O_2) measured at 0°C and 1 atm, is needed to burn completely 1L of propane gas (C_3H_8) measured under the same conditions? **[CBSE AIPMT 2008]**

(a) 7 L (b) 6 L
(c) 5 L (d) 10 L

9. Number of moles of MnO_4^- required to oxidise one mole of ferrous oxalate completely in acidic medium will be **[CBSE AIPMT 2008]**

(a) 0.6 mole (b) 0.4 mole
(c) 7.5 moles (d) 0.2 mole

10. The mass of carbon anode consumed (giving only carbon dioxide) in the production of 270 kg of aluminium metal from bauxite by the Hall process is
(at. mass of Al = 27)

$2Al_2O_3 + 4C \rightarrow 4Al + 2CO + 2CO_2$ **[CBSE AIPMT 2005]**

(a) 180 kg (b) 270 kg (c) 540 kg (d) 90 kg

11. In Haber process 30L of dihydrogen and 30L of dinitrogen were taken for reaction which yielded only 50% of the expected product. What will be the composition of gaseous mixture under the aforesaid condition in the end? **[CBSE AIPMT 2003]**

(a) 20 L ammonia, 10 L nitrogen, 30 L hydrogen
(b) 20 L ammonia, 25 L nitrogen, 15 L hydrogen
(c) 20 L ammonia, 20 L nitrogen, 20 L hydrogen
(d) 10 L ammonia, 25 L nitrogen, 15 L hydrogen

12. Assuming fully decomposed, the volume of CO_2 released at STP on heating 9.85 g of $BaCO_3$ (at. mass of Ba = 137) will be **[CBSE AIPMT 2000]**

(a) 1.12 L (b) 0.84 L
(c) 2.24 L (d) 4.96 L

13. In the reaction,

$$4NH_3(g) + 5O_2(g) \longrightarrow 4NO(g) + 6H_2O(l)$$

When 1 mole of ammonia and 1 mole of O_2 are made to react to completion, then **[CBSE AIPMT 1998]**

(a) 1.0 mole of H_2O is produced
(b) 1.0 mole of NO will be produced
(c) all the oxygen will be consumed
(d) all the ammonia will be consumed

14. Liquid benzene (C_6H_6) burns in oxygen according to the equation,

$$2C_6H_6(l) + 15O_2(g) \longrightarrow 12CO_2(g) + 6H_2O(g)$$

How many litres of O_2 at STP are needed to complete the combustion of 39 g of liquid benzene? (Mol. weight of O_2 = 32, C_6H_6 = 78) **[CBSE AIPMT 1996]**

(a) 74 L (b) 11.2 L (c) 22.4 L (d) 84 L

15. What is the weight of oxygen required for the complete combustion of 2.8 kg of ethylene? **[CBSE AIPMT 1989]**

(a) 2.8 kg (b) 6.4 kg
(c) 9.6 kg (d) 96 kg