

Date Planned : __ / __ / __	Daily Tutorial Sheet - 3	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 1	Exact Duration : _____

31. The average density of the universe as a whole is estimated as $3 \times 10^{-29} \text{ g/ml}$. If we assume that the entire mass is only H atoms, what is the average volume of space that contains one H atom? ▶
(A) 15.998 **(B)** $1.8 \times 10^{-5} \text{ l}$ **(C)** 55.561 **(D)** $3.6 \times 10^{-5} \text{ l}$
32. 100 mL of 20.8% BaCl_2 solution and 50 mL of 9.8% H_2SO_4 solution will form BaSO_4 (Ba = 137, Cl = 35.5, S = 32, H = 1, O = 16) Calculate the weight of BaSO_4 formed. ▶
 $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{BaSO}_4 + 2\text{HCl}$
(A) 23.3 g **(B)** 11.65 g **(C)** 30.6 g **(D)** None of these
33. $2\text{H}_2\text{O}_2(\text{l}) \longrightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$ ▶
 100 mL of 2.5 molar H_2O_2 gives O_2 gas under the condition when 1 mol occupies 24 L. The volume of O_2 evolved in liters is:
(A) 2.5 **(B)** 1.0 **(C)** 3 **(D)** 0.25
34. The percentage of an element M is 53 in its oxide of molecular formula M_2O_3 . The atomic mass of M is: ▶
(A) 45 **(B)** 9 **(C)** 18 **(D)** 27
35. $\text{A} + \text{B} \longrightarrow \text{C} + \text{D}$ ▶
 For this reaction 13 gm eq of B is taken which is the reagent in excess. The left over 'B' after this reaction required 5 gm eq of a reagent to react completely. Calculate the number of gram equivalents of A in reaction.
(A) 13 **(B)** 8 **(C)** 5 **(D)** 18
36. If 0.5 mol of BaCl_2 is mixed with 0.2 mol of Na_3PO_4 , the maximum number of moles of $\text{Ba}_3(\text{PO}_4)_2$ that can be formed is ▶
(A) 0.7 **(B)** 0.5 **(C)** 0.3 **(D)** 0.1
37. Calculate the residue obtained on strongly heating 2.76 g Ag_2CO_3 . [Atomic mass of Ag is 108 amu] ▶
(A) 1.16 g **(B)** 2.16 g **(C)** 3.16 g **(D)** 4.16 g
38. By heating 10 g CaCO_3 , 5.6 g CaO is formed. What is the weight of CO_2 obtained in this reaction? ▶
(A) 3.16 g **(B)** 2.16 g **(C)** 4.4 g **(D)** 4.16 g
39. 0.5 mol of H_2SO_4 is mixed with 0.2 mol of $\text{Ca}(\text{OH})_2$. The maximum number of moles of CaSO_4 formed is ▶
(A) 0.2 **(B)** 0.5 **(C)** 0.4 **(D)** 0.1
40. 22.7 ml of N/10 Na_2CO_3 solution neutralizes 10.2 ml of a dilute H_2SO_4 . Then the volume of water that must be added to 400 ml of same H_2SO_4 to make it exactly N/10 is ▶
(A) 245 ml **(B)** 484.6 ml **(C)** 480 ml **(D)** 490.2 ml
41. An aqueous solution of 6.3 gm oxalic acid dihydrate $((\text{COOH})_2 \cdot 2\text{H}_2\text{O})$ is made upto 250 ml. The volume of 0.1 N NaOH required to completely neutralize 10 ml of this solution is ▶
(A) 40 ml **(B)** 20 ml **(C)** 10 ml **(D)** 4 ml

42. 100 mL of mixture of NaOH and Na_2SO_4 is neutralized by 10 mL of 0.5 M H_2SO_4 . Hence, NaOH in 100 mL solution is: ▶
- (A) 0.2 g (B) 0.4 g (C) 0.6 g (D) None of these
43. Calculate the number of moles in each of the following: ▶
- I. 11 g of CO_2 II. $N_A/4$ molecules of CO_2
- III. 1.12 L of CO_2 at STP
- (A) 0.25, 0.25, 0.25 (B) 0.25, 0.05, 0.05
- (C) 0.05, 0.25, 0.25 (D) 0.25, 0.25, 0.05
44. Calculate number of atoms in each of the following:
- I. 0.5 mol of nitrogen II. 0.2 mole molecules of hydrogen
- III. 32 g of sulphur
- (A) $N_A/2$, $2/5 N_A$, $N_A/2$ (B) $N_A/2$, $1/5 N_A$, $N_A/2$
- (C) $N_A/3$, $2/5 N_A$, $N_A/2$ (D) N_A , $2/5 N_A$, N_A
45. How many moles of O are present in 4.9g of H_3PO_4 ?
- (A) 0.1 (B) 0.2 (C) 0.3 (D) 0.4