Date Planned : __ / __ / __	Daily Tutorial Sheet - 9	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 2	Exact Duration :_____

106. A 10.0 g sample of a mixture of calcium chloride and sodium chloride is treated with Na_2CO_3 to precipitate the calcium as calcium carbonate. This $CaCO_3$ is heated to convert all the calcium to CaO and the final mass of CaO is 1.62 gms. The % by mass of $CaCl_2$ in the original mixture is

(A) 15.2% **(B)** 32.1% **(C)** 21.8% **(D)** 11.07%

107. At 100°C and 1 atm, if the density of the liquid water is 1.0g cm^{-3} and that of water vapour is 0.00006g cm^{-3}, then the volume occupied by water molecule in 1 L steam at this temperature is:

(A) 6 cm^3 **(B)** 60 cm^3 **(C)** 0.6 cm^3 **(D)** 0.06 cm^3

108. Mole fraction of a solute in an aqueous solution is 0.2. The molality of the solution will be:

(A) 13.88 **(B)** 1.388 **(C)** 0.138 **(D)** 0.0138

109. Two samples of HCl of 1.0M and 0.25 M are mixed. Calculate the volumes of these samples taken in order to prepare 0.75 M HCl solution. Assume no water is added.

I. 20mL, 10 mL **II.** 100 mL, 50 mL **III.** 40 mL, 20 mL **IV.** 50 mL, 25mL

(A) I, II, IV **(B)** I, II **(C)** II, III, IV **(D)** I, II, III, IV

110. If 100 mL of H_2SO_4 and 100 mL H_2O are mixed, the mass percent of H_2SO_4 in the resulting solution in ($d_{H_2SO_4}$ = 0.9 g mL^{-1}, d_{H_2O} = 1.0 g mL^{-1})

(A) 90 **(B)** 47.36 **(C)** 50 **(D)** 60

111. 50 ml of a solution containing 1 gm each of Na_2CO_3, $NaHCO_3$ and NaOH was titrated with 1N HCl. What will be the titre reading when only phenolphthalein is used as an indicator?

(A) 35 ml **(B)** 32.5 ml **(C)** 24.5 ml **(D)** 34.4 ml

112. What quantity of ammonium sulphate is necessary for the production of NH_3 gas sufficient to neutralize a solution containing 292g of HCl? [HCl = 36.5 $(NH_4)_2SO_4$ = 132, NH_3 = 17]

(A) 272g **(B)** 403g **(C)** 528g **(D)** 1056g

113. Calculate the volume of O_2 and volume of air needed (in L) for combustion of 1 kg carbon at STP.

(A) 1866.6, 8888.5 **(B)** 1866.6, 8433.35

(C) 1866.6, 7233.35 **(D)** 3666.6, 9433.35

114. The volume in ml of 0.1 N HCl required to react completely with 1.0 gm mixture of Na_2CO_3 and $NaHCO_3$ containing equimolar amounts of the two compounds is

(A) 157.9 ml **(B)** 152.6 ml **(C)** 200 ml **(D)** 98.5 ml

115. What volume of 90% alcohol by weight (d = 0.8 g ml^{-1}) must be used to prepare 80 mL of 10% alcohol by weight (d = 0.9g mL^{-1})?

(A) 10 **(B)** 20 **(C)** 30 **(D)** 40