

Date Planned : __ / __ / __	Daily Tutorial Sheet - 10	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 2	Exact Duration : _____

116. HCl gas is passed into water, yielding a solution of density 1.095 g mL^{-1} and containing 30% HCl by weight. Calculate the molarity of the solution.
 (A) 6 (B) 7 (C) 8 (D) 9
117. A solution contains 75 mg NaCl per mL. To what extent must it be diluted to give a solution of concentration 15 mg NaCl per mL of solution.
 (A) 3 times (B) 4 times (C) 5 times (D) 6 times
118. To prepare 100g of a 92% by weight solution of NaOH, how many g of H_2O is needed?
 (A) 9 g (B) 8 g (C) 10 g (D) 11 g
119. When a mixture of 20 moles of SO_2 and 15 moles of O_2 was passed over catalyst, 10 moles of SO_3 was formed. How many moles of SO_2 and O_2 did not enter into combination?
 (A) $n_{\text{SO}_2} = 10, n_{\text{O}_2} = 10$ (B) $n_{\text{SO}_2} = 10, n_{\text{O}_2} = 7.5$
 (C) $n_{\text{SO}_2} = 2, n_{\text{O}_2} = 7.5$ (D) $n_{\text{SO}_2} = 4, n_{\text{O}_2} = 11$
120. 20 mL of x M HCl neutralises completely 10 mL of 0.1 M NaHCO_3 and 5 mL of 0.2 M Na_2CO_3 solution to methyl orange end point. The value of x is 
 (A) 0.167 M (B) 0.133 M (C) 0.150 M (D) 0.200 M
121. A sample of clay contains 50% silica and 10% water. The sample is partially dried by which it loses 8 g water. If the percentage of silica in the partially dried clay is 52, what is the percentage of water in the partially dried clay? 
 (A) 2.0 % (B) 6.4% (C) 10.4% (D) 2.4%
122. In the atomic weight determination, Dalton suggested the formula of water as HO and the composition of water as hydrogen = 12% and oxygen = 87.5%, by weight. What should be the atomic weight of oxygen on H-scale, on the basis of this information? 
 (A) 16 (B) 8 (C) 14 (D) 7
123. The mercury content of a stream was believed to be above the minimum considered safe limit (1 part per billion, by mass). An analysis indicated that the concentration was 1.68 parts per billion. How many Hg atoms are present in 15 L of water, the density of which is 0.998 g/ml. (Hg = 200) 
 (A) 7.57×10^{13} (B) 7.57×10^{19} (C) 7.57×10^{16} (D) 5.37×10^{16}
124. Assume that sodium atoms are spheres of radius 0.2 nm and that they are lined up side by side. How many miles, in length, is the line of atoms present in a 1.15 mg sample of sodium? ($N_A = 6 \times 10^{23}$) 
 (A) 1.2×10^{10} (B) 1.2×10^8 (C) 7.5×10^8 (D) 7.5×10^6
125. The density of gold is 19.7 g/m^3 . The radius of gold atom is [Au = 197, $N_A = 6 \times 10^{23}$, $(10\pi)^{1/3} = 3.15$]
 (A) $1.587 \times 10^{-8} \text{ m}$ (B) $1.587 \times 10^{-9} \text{ m}$ (C) $1.587 \times 10^{-10} \text{ m}$ (D) $1.587 \times 10^{-12} \text{ m}$