General Chemistry 109

9-12 Sunday

Quiz No. : 2

Date: 18/03/2012

Name (Arabic): [redacted]

No. : [redacted]

Q1) A 1.26 g of sample with the formula $MSO_4.xH_2O$ was heated to get 0.005 mol of anhydrous, if the percentage of water in the sample 50%, calculate the value of the X? (Atomic weight : H=1.008, O=16.00 g/mol); M is an unknown metal.

with water

n

$$X = \frac{\text{moles of } H_2O}{\text{moles of } MSO_4}$$

$$\text{Percentage of } H_2O = \frac{m_{H_2O}}{m_T}$$

$$\frac{50}{100} = \frac{m_{H_2O}}{1.26}$$

$$\text{mass of } H_2O = 0.63\ g.$$

$$m.m\ H_2O = 2\times1 + 1\times16$$

$$= 2 + 16$$

$$= 18\ g/mol$$

$$X = \frac{\text{moles of } H_2O}{\text{moles of } MSO_4}$$

$$n_{H_2O} = \frac{m}{m.m}$$

$$= \frac{0.63}{18}$$

$$n_{H_2O} = 0.035\ mol$$

$$X = \frac{0.035}{0.005}$$

$$X = 7$$

$$\therefore MSO_4.7H_2O$$

Q2) Write the net ionic equation for the following reaction:

$$2Na_3PO_{4(aq)} + 3BaCl_{2(aq)} \rightarrow Ba_3(PO_4)_{2(s)} + 6NaCl_{(aq)}$$

$$Na^+ + PO_4^{-3} + Ba^{+2} + Cl^- \longrightarrow Ba^{+2} + PO_4^{-3} + Na^+ + Cl^-$$

$$Ba^{+2} + PO_4^{-3} \longrightarrow Ba^{+2} + PO_4^{-3}$$

(-1) Balanced!!

Good luck