

GEITA ADVENTIST SEC. SCHOOL

HOME ASSIGNMENT - APRIL 2020

CHEMISTRY - FORM III

Answer all questions.

1. A hydrated salt has the following composition by mass: Iron 20.2%, Oxygen 23.0%, Sulphur 11.5%, water of crystallization 45.3% its relative molecular mass is 278.
 - (i) Find empirical formula
 - (ii) Determine the molecular formula of the hydrated salt.
 - (iii) 6.95 of the hydrated salt were dissolved to make 250cm^3 of solution. Calculate the concentration of the solution in mol/dm^3 .
2. (a) Compute and balance the following equations
 - (i) $\text{AgNO}_3(s) \xrightarrow{\text{Heat}}$
 - (ii) $\text{CuO}(s) + \text{H}_2\text{SO}_4(aq) \longrightarrow$
 - (iii) $\text{Na}_2\text{CO}_3(s) \xrightarrow{\text{heat}}$
 - (iv) $\text{KClO}_3(s) \xrightarrow{\text{heat}}$
- (b) Complete and write the ionic equation for the reaction between potassium hydroxide and Iron (II) chloride solution.
3. The equation below shows the dissociation of Sulphuric acid into ions
$$\text{H}_2\text{SO}_4(aq) \longrightarrow 2\text{H}^+(aq) + \text{SO}_4^{2-}(aq)$$

From the equation above how many hydrogen ions are there in 9.8g of sulphuric acid.

4. By using one example explain how hardness of water can be removed in:

- (i) Temporary hardness of water by boiling.
- (ii) Permanent hardness of water by chemical means

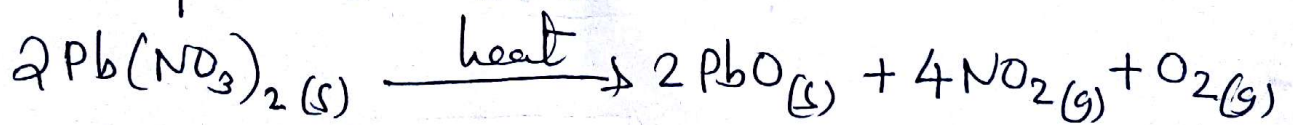
5.(a) If Magnesium nitride is readily decomposed by water give ammonia according to the unbalanced equations.



(i) Write a balanced equation for the reaction

(ii) What volume of ammonia, measured at STP - would be evolved from 2.5g of the magnesium nitride

(b) Lead nitrate decomposes on heating as shown in the equation below.



112 dm³ of oxygen were collected at STP when a sample of lead nitrate was completely decomposed on heating. Calculate the mass of lead-nitrate sample.

given: Fe = 56, O = 16, S = 32, H = 1, Mg = 24,
N = 14, Pb = 207, Cl = 35.5

END.