Class 11
12-5-2016   First Unit Test in CHEMISTRY   Time : 1 hr.
M. Marks : 20

1. State the law of constant composition. (1)

2. Define molality. Why is it preferred over molarity? (1)

3. What is meant by 'limiting reagent'? (1)

4. Balance the following chemical equation: (1)
$$Ca_3P_2 + H_2O \rightarrow Ca(OH)_2 + PH_3$$

5. What mass of $AgNO_3$ will react with 5.85g of NaCl to give 14.35g of AgCl and 8.5g of $NaNO_3$, according to the equation:
$$AgNO_3 + NaCl \rightarrow AgCl + NaNO_3?$$ (1)

6. Calculate the percentage composition of each element in $C_2H_4Cl_2$.
(atomic masses of H = 1, C = 12, Cl = 35.5) (2)

7. 3g of H_2 reacts with 29g of O_2 to form H_2O. Calculate the maximum amount of water that can be formed and also calculate the amount of the reactant left unreacted.
(atomic masses of H=1, O=16) (2)

8. What mass of slaked lime would be required to decompose completely 4g of NH_4Cl? (2)
$$Ca(OH)_2 + 2NH_4Cl \rightarrow CaCl_2 + 2NH_3 + 2H_2O$$
(atomic masses: N = 14, Ca = 40, O = 16, H = 1, Cl = 35.5)

9. a) How many molecules are present in one drop of water having mass 0.05g?
   b) Calculate the volume occupied by 1.5moles of CO_2?
   c) Calculate the mole fraction of 2.5g of ethanoic acid (CH_3COOH) in 75g of benzene (C_6H_6). (atomic masses: H = 1, O = 16, C = 12) (1+1+1)

10. a) How many grams of $BaCl_2$ are needed to prepare $100cm^3$ of 0.25M $BaCl_2$ solution?
    b) Commercially available conc. HCl contains 38% HCl by mass. What is the molarity of this solution if its density is $1.19g/cm^3$?
    (atomic masses: Ba = 137, Cl = 35.5, H = 1) (1+2)

11. An organic compound containing C, H, O gave the percentage composition as C= 40.68%, H = 5.085%, O = 54.228%. The molecular mass of the compound is 118.
Calculate the molecular formula. (3)

-x-x-x-x-x-x