WEEKLY EXAM 2080/05/10

Subject: Chemistry | **GRADE XII (SCIENCE)** | **F.M.: 40**

Time : 1:30 hrs. | **SET A** | **P.M.: 20**

Group A

Attempt all the questions: **[10×1 = 10]**

1. Volume of water necessary to add to N/2 HCl to prepare 500 cc of N/10 solution is:
   a) 400 cc b) 300 cc c) 200 cc d) 100 cc
2. When $KMnO_4$ solution is titrated with $(COOH)_2$ solution, indicator used is
   a) Phenolphthalein b) Methyl orange
   c) Methyl red d) KMnO4 itself
3. Which of the following isomer has highest boiling point?
   a) n-butyl alcohol c) isobutyl alcohol
   b) secondary butyl alcohol d) tertiary butyl alcohol
4. The major product obtained when neopentyl alcohol is treated with HCl is
   a) Neopentyl chloride c) tert-pentyl chloride
   b) Iso-pentyl chloride d) sec-pentyl chloride
5. Which of the following is highly soluble in water?
   a) Ethane b) diethyl ether
   c) ethyl iodide d) ethyl alcohol
6. Which of the following metal shows +8 oxidation number?
   a) Au b) Pt c) Os d) Mn
7. Which of the following is neutral compound?
   a) CH_3COOH b) C_6H_5OH
   c) C_2H_5OH d) CH_3NH_2
8. Chlorine reacts with ethanol to give
   a) ethyl chloride b) chloroform
   c) acetaldehyde d) chloral
9. What is the normality of 0.3 M phosphorous acid (H_3PO_3)?
   a) 0.1 b) 0.3 c) 0.6 d) 0.9
10. 10 cc 0.5 N HCl, 30 cc 0.1 N HNO_3 and 60 cc of 0.2 N H_2SO_4 are mixed together. What is the normally of the mixture?
    a) 0.2 N b) 0.1 N c) 0.5 N d) 0.05 N

Group B

Attempt all the questions:

1. During titration, the concentration of $KMnO_4$ solution can be determined using standard oxalic acid solution.
   a. What is meant by standard solution?
   b. Calculated the equivalent weight of $KMnO_4$ is acidic medium (Molar mass of $KMnO_4$ = 158). [1]
   c. Why is above titration called redox titration? [1]
   d. Name the indicator used in this titration? [1]
   e. Define titration error? [1]
2. Distinguish between end point and equivalent point. 4 g of a divalent metal was dissolved in 100 cc of 2 M H_2SO_4 (f = 1.01). The excess acid required 30 cc of 1 N NaOH for complete neutralization. Find the atomic mass of the metal. [2+3]
3. Consider the reaction;

$$A \xrightarrow{\text{aq. KOH}} B \xrightarrow{\text{Conc } H_2SO_4} C \xrightarrow{HBr} D \xrightarrow[\Delta]{Na} E$$

   Compound A is the halo alkane having molecular formula C_3H_7Cl.
   Identify A, B, C, D and E with proper reactions and IUPAC name.
4. Write any six important features of transition metal, Cu^+ ion is transition metal but can't give colour why? [3+2]
5. You are given an organic compound having molecular formula C_3H_7X.
   i. Write down the primary and a secondary haloalkane giving their IUPAC name [2]
   ii. Give proper reaction sequence to convert the primary halolkane into the secondary halolkane. [2]
   iii. What product is obtained when the secondary halolkane is subjected to Wurtz reaction? [1]
6. Write a structural formula of secondary alcohol of C_3H_8O and give its method of preparation using Grignard reagent. [2]
   ii. How would you apply Victor Meyer's method for the distinction of propan-1-ol from propan-2-ol? [3]

All the best