

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 $(\text{COOH})_2$ solution, indicator used is
a) Phenolphthalein b) Methyl orange
c) Methyl red ☒ d) KMnO_4 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) $\text{C}_6\text{H}_5\text{OH}$
c) $\text{C}_2\text{H}_5\text{OH}$ ☒ 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 normality 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? [1]
 - b. Calculate the equivalent weight of KMnO_4 in acidic medium (Molar mass of $\text{KMnO}_4 = 158$). [1]
 - c. Why is above titration called redox titration? [1]
 - d. Name the indicator used in this titration? [1]
2. Define titration error? [1]
3. 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]
4. Consider the reaction;
$$\text{A} \xrightarrow{\text{aq. KOH}} \text{B} \xrightarrow{\text{Conc H}_2\text{SO}_4} \text{C} \xrightarrow{\text{HBr}} \text{D} \xrightarrow[\Delta]{\text{Na}} \text{E}$$

Compound A is the halo alkane having molecular formula $\text{C}_3\text{H}_7\text{Cl}$. Identify A, B, C, D and E with proper reactions and IUPAC name.
5. Write any six important features of transition metal, Cu^+ ion is transition metal but can't give colour why? [3+2]
6. You are given an organic compound having molecular formula $\text{C}_3\text{H}_7\text{X}$.
 - i. Write down the primary and a secondary haloalkane giving their IUPAC name [2]
 - ii. Give proper reaction sequence to convert the primary haloalkane into the secondary haloalkane. [2]
 - iii. What product is obtained when the secondary haloalkane is subjected to Wurtz reaction? [1]
7. Write a structural formula of secondary alcohol of $\text{C}_3\text{H}_8\text{O}$ and give its method of preparation using Grignard reagent. [2]
8. How would you apply Victor Meyer's method for the distinction of propan-1-ol from propan-2-ol? [3]

☺ All the best ☺