Southwestern State College

First Terminal Examination-2081

Grade: XII **Faculty: Science** **FM: 75**

Subject: Chemistry **SET B** **Time: 3 Hrs.**

Shift: Day **Name: _____**

Candidates are required to answer in their own words as far as practicable. Credit shall be given to clarity and originality, not to rot learning.

Group A

Circle the correct answer **[1x11=11]**

1. Chloroform is always kept in dark brown bottle. Why?
   a. To protect from air b. To protect from sun light
   c. To protect from phosgene d. To protect from explosion
2. When 2-chloro-2-methyl propane reacts with alc.KOH, what will form?
   a. 2-methyl propene b. 2-methyl propane
   c. 2-methyl butane d. 2-methyl butene
3. What type of isomers are 2-bromopropane and 1-bromopropane?
   a. Chain isomers b. Functional isomers
   c. Metamers d. positional isomers
4. Nucleophilic substitution in 2-chloro-2-methyl butane is
   a. SN^1 reaction b. SN^2 reaction
   c. Both a and b d. Redox reaction
5. Which compound is prepared from Wurtz-Fitting reaction?
   a. Bromobenzene b. Chlorobenzene
   c. Iodobenzene d. Alkyl benzene
6. What is equivalent weight of oxalic acid crystal?
   a. 45 b. 63 c. 90 d. 126
7. 0.315 gram of a dibasic acid required 50 mL of deci-normal sodium hydroxide solution for complete neutralization. What is molecular mass of the acid?
   a. 6.3 b. 63 c. 126 d. 163
8. Equivalent point of weak acid and strong base titration is found at the pH
   a. 7 b. Below 7 c. Above 7 d. 14
9. What is the nature of aqueous solution of CH_3COONa?
   a. Acidic b. Basic c. Neutral d. Amphoteric
10. Rate of chemical reaction is increased by 4 times if concentration of reactant is doubled. What is order of that reaction?
    a. zero b. One c. Two d. Three

11. The residue left after the decomposition of white vitriol is reduced with coke, what will form

    a. Zn b. ZnO c. Cu d. CuO

Group 'B'

Attempt all questions. **[5 x 8 = 40]**

12. Write any two methods of preparation of chlorobenzene. How will you convert chlorobenzene into (i) Benzene, (ii) DDT (iii) Toluene [2+3]

OR

Write an example of each:

a. Dehydrogenation of alcohol
b. Anti-Markovnikov's rule
c. Wurtz-fitting reaction
d. Esterification
e. Reimer-Tieman reaction

13. Write laboratory methods of preparation of chloroform from acetone. How will you convert chloroform into chloretone and chloropicrine? [2+3]
14. Define Oxo-process. How will you distinguished ethanol from 2-propanol using Victor Mayer's method? [2+3]
15. Define: (i) Buffer solution (ii) Deci-normal solution
    Calculate dissociation constant [Ka] of 0.1 M acetic acid having P^H 5.2. [2+3]
16. Define: (i) Half life time (ii) Rate constant [2+3]
    Only 20% reactants of a first order reaction are converted into products in 10 minutes. How long will it take to convert 90% reactants into products?
17. Define primary and secondary standard solution. What mass of KOH is required to prepare 100 ml solution having p^H 11. [2+3]
18. Describe the purification of impure zinc by electrolysis. Write suitable reaction to obtain zinc from white vitriol. [2+3]
19. How is impure mercury extracted from its concentrated ore? Show that mercury is used prepare both calomel as well as corrosive sublimate. [2+3]

Group 'C'

Attempt any all questions **[8x3=24]**

20. a) What are SN^1 and SN^2 reaction mechanism. Give an example each. [3]
    b) Consider a reaction:

$$[A] \xrightarrow{SOCl_2} [B] \xrightarrow{alc.KCN} [C] \xrightarrow{H_2O/H} [D] \xrightarrow{NaOH/CaO} [E]$$

    The compound B is secondary haloalkane that gives propene with alc.KOH. Identify A, B, C, D and E giving complete reaction. [5]

21. a) Define: (i) End point (ii) Equivalent point (iii) Titration error [3]
    b) What is the effect of temperature on ionic product of water? The P^H value of a saturated solution of $Mg(OH)_2$ is found to be 11.5 at a certain temperature. Find its molarity. [2+3]
22. a) Define: (i) Salt bridge (ii) Galvanic cell (iii) EMF of cell [3]
    b) Design a galvanic cell indicating anode and cathode using $E^{\circ}_{Al^{+3}/Al} = -1.66V$ and $E^{\circ}_{Ag^{+}/Ag} = 0.8V$ respectively.
    Write the cell reaction and cell notation. Also calculate its EMF. [2+3]

The End