



**CK SCHOOL OF PRACTICAL KNOWLEDGE- CUDDALORE-1**

**Common Half Yearly Examination – 2022**

**Model Question Paper - 01**

**Std : XII**

**Marks : 70**

**Subject : Chemistry**

**Time : 3 hrs**

**PART - I**

**Choose the best answer :**

**15 × 1 = 15**

- The crystal with a metal deficiency defect is  
 a) NaCl                      b) FeO                      c) ZnO                      d) KCl
- The number of electrons that have a total charge of 965 coulomb is  
 a)  $6.022 \times 10^{-34}$       b)  $6.022 \times 10^{21}$       c)  $6.022 \times 10^{22}$       d)  $6.022 \times 10^{23}$
- Which of the following is a copolymer ?  
 a) Orlon                      b) PVC                      c) Teflon                      d) PHBV
- which one of the following is not feasible ?  
 a)  $\text{Zn (s)} + \text{Cu}^{2+} \text{ (aq)} \longrightarrow \text{Cu (s)} + \text{Zn}^{2+} \text{ (aq)}$   
 b)  $\text{Cu (s)} + \text{Zn}^{2+} \text{ (aq)} \longrightarrow \text{Zn (s)} + \text{Cu}^{2+} \text{ (aq)}$   
 c)  $\text{Cu (s)} + 2\text{Ag}^+ \text{ (aq)} \longrightarrow 2\text{Ag (s)} + \text{Cu}^{2+} \text{ (aq)}$   
 d)  $\text{Fe (s)} + \text{Cu}^{2+} \text{ (aq)} \longrightarrow \text{Cu (s)} + \text{Fe}^{2+} \text{ (aq)}$
- Among the following the correct order of acidity is  
 a)  $\text{HClO}_2 < \text{HClO} < \text{HClO}_3 < \text{HClO}_4$       b)  $\text{HClO}_4 < \text{HClO}_2 < \text{HClO} < \text{HClO}_3$   
 c)  $\text{HClO}_3 < \text{HClO}_4 < \text{HClO}_2 < \text{HClO}$       d)  $\text{HClO} > \text{HClO}_2 > \text{HClO}_3 > \text{HClO}_4$
- The transition element exhibit only +3 oxidation state is  
 a) Cr                              b) Mn                              c) Tc                              d) Sc
- Benzoic acid  $\xrightarrow{\text{PCl}_5}$  A  $\xrightarrow[\text{Anhy. AlCl}_3]{\text{Benzene}}$  B, then B is  
 a) Acetone      b) acetophenone      c) benzophenone      d) benzaldehyde
- The rate constant of a reaction is  $5.8 \times 10^{-2} \text{ S}^{-1}$  the order of the reaction is  
 a) First order      b) zero order      c) second order      d) third order
- The trialkyl borate on reaction with sodium hydride in tetrahydrofuran to form a co-ordination compound is \_\_\_\_\_  
 a)  $\text{Na [ BH (OR)}_3 \text{ ]}$       b)  $\text{Na [(OR)}_3 \text{ ]}$       c)  $\text{Na [B(OR)}_3 \text{ ]}$       d)  $\text{Na [BH(OR)}_3 \text{ ]}$
- Which one of the following is the strongest acid ?  
 a) 2 – nitrophenol      b) 4 - chlorophenol      c) 4 - nitrophenol      d) 3 - nitrophenol
- Which one of the following complex is not an anionic complex ?  
 a)  $\text{K}_4 [ \text{Fe (CN)}_6 \text{ ]}$                               b)  $\text{K}_3 [ \text{Fe (CN)}_6 \text{ ]}$   
 c)  $[\text{Co (NH}_3)_3 \text{Cl}_3 \text{ ]}$                               d)  $[\text{Ni (CN)}_4 \text{ ]}^{2-}$
- The  $\text{P}^{\text{H}}$  of an aqueous solution is zero. The solution is  
 a) slightly acidic      b) strongly acidic      c) neutral                      d) basic

- 13) The self condensation of two molecules of propanenitrile in the presence of sodium and ether to form 3 – imino – 2 – methyl pentanenitrile. This reaction is known as \_\_\_\_\_
- Levine and Hauser acetylation
  - Thorpe nitrile condensation
  - Sabatier- Mailhe method
  - Gomberg reaction
- 14) Which of the following characteristics are associated with adsorption ?
- $\Delta G$  and  $\Delta H$  are negative but  $\Delta S$  is positive
  - $\Delta G$  and  $\Delta S$  are negative but  $\Delta H$  is positive
  - $\Delta G$  is negative but  $\Delta H$  and  $\Delta S$  are positive
  - $\Delta G$ ,  $\Delta H$  and  $\Delta S$  all are negative
- 15) The IUPAC name of  $C_6H_5NC$  and  $C_6H_5CN$  are
- Benzenenitrile and phenyl carbylamine
  - phenyl carbylamine and benzonitrile
  - phenyl carbylamine and benzene carbonitrile
  - benzene carbonitrile and phenyl cyanide.

### PART – II

**Answer any 6 questions :**

**Q.No. 24 is compulsory**

**6 × 2 = 12**

- What is auto reduction ?
- Give the uses of neon.
- Transition elements exhibit variable oxidation state. Why ?
- If the radius ratio of the compound is b/w 0.414 – 0.732, find out the co-ordination number and structure of a compound.
- Give two examples for zero order reaction.
- Calculate the  $P^H$  of 0.1 M  $CH_3COONa$  solution. ( $P^K_a$  for  $CH_3COOH$  is 4.74)
- Convert glycol into 1,4-dioxane.
- Write a note on denaturation of proteins.
- Identify A and B



### PART - III

**Answer any 6 questions :** **Q.NO. 33 is compulsory**

**6 × 3 = 18**

- Write a note on anomalous properties of the first element of p-block.
- Mention the consequences of lanthanoid contraction.
- In an tetrahedral field, draw the figure to show splitting of d-orbitals.
- The dissociation of water is an endothermic reaction. Why ?
- What is intercalation ?
- Write Tollen's reagent test.
- Name the vitamins whose deficiency cause i) cheilosis ii) ber-beri

- 32) What are bio – degradable polymers? Give an example.
- 33) Identify the enzyme catalyst in the following reactions.
- Oxidation of ethanol into acetic acid
  - Hydrolysis of starch into maltose
  - Hydrolysis of urea.

**PART – IV****Answer the following :****5 × 5 = 25**

- 34) a) i) Describe a method for refining nickel.  
ii) Draw the structure of orthophosphoric acid and mention its basicity.  
(or)
- b) i) Write a note on Fischer – Tropsch synthesis.  
ii) Write a note on Holme’s signal.
- 35) a) Write the main assumption of VBT.  
(or)
- (b) i) Explain Frenkel defect.  
ii) Identify the autocatalyst in the following
- a)  $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O} \longrightarrow \text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH}$   
b)  $2\text{AsH}_3 \longrightarrow 2\text{As} + 3\text{H}_2$
- 36) a) i) Explain the effect of surface area of the reactant.  
ii) Derive Henderson – Hasselbalch equation.  
(or)
- b) Explain lead storage battery.
- 37) a) i) Name the factors affecting adsorption.  
ii) Write swern oxidation of 1<sup>o</sup> alcohol.  
(or)
- b) i) How is phenol prepared from isopropyl benzene ?  
ii) Write a note on vulcanization of rubber.
- 38) a) Write the mechanism of esterification.  
(or)
- b) i) Write Gabriel phthalimide synthesis.  
ii) Write retention reaction of diazo group.

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