SAMPLE PAPER

CHEMISTRY -12$^{TH}$

TOTAL QUESTION -26                                      TIME:3HRS

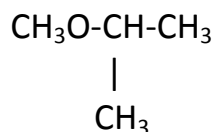=================================================================

(1 MARKS)

Q1 What makes a glass different from a solid such as quartz? Under what condition could quartz be converted into glass?

Q2Why does the tetrahedral complexes of type [$MA_2B_2$]not show geometrical isomerism?

Q3Perdict the order of reactivity of the compound i.e four isomeric bromobutane in SN1 and SN2 reaction?

Q4Write the IUPAC name of

$$CH_3O-CH-CH_3$$
$$|$$
$$CH_3$$

Q5Why cellulose in our diet not nourishing?

(2 MARKS)

Q6The osmotic pressure of 0.0103 molar solution of an electrolyte is found to be 0.70atm at 27$^0$c.Cal Vant hoff factor R=0.082Lt mol$^{-1}$K$^{-1}$ .

Q7Mention the reaction occurring at cathode and anode in mercury cell/Why does the voltage of this cell remain contt during its operation?

Q8(1)Why is hydrochloric acid not used to acidify a permanganate solution in volumetric estimation of $Fe^{2+}$ or $C_2O_4^{2-}$ .(1)

(2)Explain enthalpy of atomisation of transition element are high? 1

Q9Explain: (1)Ambident ligand (ii)crystal field splitting in an octahedral field?2

Q10Explain : (1)Amine does not undergo friedal craft reaction?

(2)convert Aniline to benzonitrile?

(THREE MARKS QUESTIONS)

Q11(1)Name the type of point defect that occur in a crystal of Zinc sulphide?

(2)An element X with atomic no.60g/cm$^{-3}$ If edge length of its cubic unit cell is 400pm .Identify the type of cubic unit cell. Calculate the radius of an atom of this element?

Q12(1)Among 0.1 molal solution of glucose and sodium chloride respectively, which one will have high boiling point?

(2)Why solution of chloroform and acetone show negative deviation from Roults law?

(3)What expected value of Van,t Hoff factor$K_3[Fe(CN)_6]$ Iin dilute solution?

Q13A copper –silver cellis set up.The copper ion concentration in it is 0.10M.The concentration of silver ion is not known .The cell potential is 0.422V.Determine the concentration of silver ion in the cell.

GivenE$^0$$_{Ag}$$^+$/$_{Ag}$=0.80V and Cu$^{2+}$/Cu=0.34V

OR

(1)A type of cell is lead storage battery.Write the anode and cathode reaction and over all cel reaction also write the importance of this cell?

(2)Define Kohlrausch,s law?

Q14(1)Explain the role of Cryolite in the electrolytic reduction of alumina?

(2)Describe the principle of the metal reefing method by Vapour phase refining?

(3)Name three chef ore of Zinc?

Q15(1)Fill the reaction PCl$_5$ +H$_2$O(EXCESS)-----------$\rightarrow$

(2)Structure of XeF$_2$ ?

(3) Write reaction conditions for the manufacturing of sulphuric acid by contact process?

Q16(1) preparation of $K_2Cr_2O_7$ from chromite ore?2

(2)Explain $d^4$ configuration in $Cr^{2+}$ is reducing whereas in $Mn^{3+}$ is oxidising?1

Q17(1)Write difference between SN1 and SN2 reaction?

(2)Explain Carbylamine reaction and Riemer Tieman reaction?

Or

(1)Explain that Haloalkane react with KCN give alkyle cynide as a main product While with AgCN they form isocynide Give reason?

(2Write mechanism of

n-BuBr+KCN----------------→nBuCN in the presence of ethanol and water?
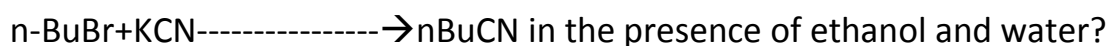
Q18(1)convert phenol to picric acid?

(2)Write distinguish test between 1-propanol and 2 propanol

(3)Explin phenol is more acidic than alcohol?

Q19(1)arrange the compound in increasing order of basic strength in aquas solution $NH_3$,$NH_2CH_3$,$(CH_3)_2NH$,$(CH_3)_3N$

(2)Write one distinguish test between $CH_3CH_2NH_2$ and $C_6H_5NH_2$

(3)Diazonium salt of aromatic amine are more stable than those of aliphatic amine?

Q20(1)Write difference between condensation and addition polymer give example of each?

(2)Explain Biodegradable polymer by giving example?

Q21(1)Name the substance that act as antiseptic as well as disinfectant?

(2)Explain the tranquilizer with example?

(3)Give an importance of Chloramphenical?

Q22(1)What are essential and non essential acid Give example of each?

(2)What are reducing sugar?

(3)What changes occur in the nature of protein on boiling?

Q23. Kalavati wanted to give her baby a medicine for fever. She added boiled and cooled water as per the instruction, to the contents of the bottle,

upto the mark. She shook the bottle. Then gave a spoonful of the medicine to the baby. As a student of chemistry answer the following
questions:
a. Why did she shake up the contents? What is the process called?
b. What is the value associated with selling medicine in this form?

Q24. a) Draw the structures of the following :
   (i).    $H_3PO_3$        (ii).    $XeO_3$
   b) How would you account the following :
   (i).  $O_3$ act as powerful oxidizing agent.
   (ii).  $H_3PO_2$ is monoprotic.
   (iii). Why is bond dissociation energy of fluorine molecule is less than that of
      chlorine molecule.
                     OR
     a) Draw the structures of the following :
        i) $XeOF_2$              ii)$BrF_3$
     b) Explain the following obervations:
        i) ICl is more reactive than $I_2$.
        ii) All the P-Cl bond in $PCl_5$ are not equivalent.
        iii)$SF_4$ can be hydrolyze but $SF_6$ can not.

Q25. An unknown Aldehyde 'A' on reacting with alkali gives $\beta$-hydroxyaldehyde, which
   losses water to form an unsaturated aldehyde 2- butenal. Another aldehyde 'B' undergoes
   disproportionation reaction in the presence of  conc. alkali to form products C and D. C is
   an arylalcohol with the formula $C_7H_8O$.
   (i) Identify A ,B C and D.

(ii) Write the sequence of reactions involved.

(iii) Name the product, when 'B' reacts with Zinc amalgum and hydrochloric acid.

**OR**

A compound 'X' ($C_2H_4O$) on oxidation gives 'Y' ($C_2H_4O_2$). 'X' undergoes haloform

reaction. On treatment with HCN 'X' forms a product 'Z' which on hydrolysis gives 2-

hydroxy propanoic acid.

(i) Write down structures of 'X' ,'Y'and'Z'.

(ii) Name the product when 'X' reacts with dil NaOH.

(iii) Write down the equations for the reactions involved

Q-26.(1)At 300 K a certain reaction is 50% completed in 20 minutes. At 350 K, the same reaction is 50% completed in 5 minutes. Calculate the activation energy for the reaction.

(2) What is the difference between average rate and instantaneous rate of a chemical reaction?
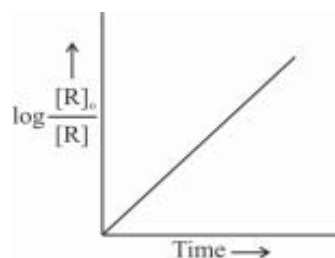
(3)Define activation energy of a reaction

or

(1)Derive an expression for Zero order reaction.( Integrated rate equation )

OR                                                                         2

Derive an expression for first order reaction .( Integrated rate equation)

(2) Answer the following questions on the basis of the above curve:-



(i)(a) What is the order of the reaction ?

(b) Calculate the rate constant of the above reaction if the slope is $2 \times 10^{-4}$ $S^{-1}$

(ii) Derive the relationship between half life of a first order reaction and its rate constant.  3