MODEL TEST PAPER

TIME ALLOWED :3HRS CHEMISTRY CLASS 12TH MM 70

NOTE : Q. No. 1 has 28 parts carrying 1 mark each.

Q. No. 2 to 11 carry 2 marks each.

Q. No. 12 to 15 carry 3 marks each.

Q. No. 16 to 17 carry 5 marks each.

Q1. MULTIPLE CHOICE QUESTIONS (each carry one mark)

(i) Which of the following is not correct for ideal solution :

(A) $\Delta S_{mixing} = 0$ (B) $\Delta V_{mixing} = 0$ (c) $\Delta H_{mixing} = 0$ (D) it obeys Raoults law

(ii) What will be the molalaity of a solution having 18 g of glucose dissolved in 500g of water :

(A) 1m (B) 0.5m (c) 2m (D) 0.2m

(iii) Which of the following will have highest boiling point :

(A) 0.1M NaCl (B) 0.1M $BaCl_2$ (c) 0.1M glucose (D) 0.1M sucrose

(iv) Resistance of 0.1 M KCl solution in a conductance cell is 300 ohm and conductivity is 0.013 Scm−1. The value of cellconstant is :

(A) 3.9 cm^{-1} (B) 39 m^{-1} (C) 3.9 m^{-1} (D) None of these

(v) Units of molar conductivity are :

(A) S cm mol^{-1} (B) S cm^2 mol^{-1} (c) S cm^3 mol^{-1} (D) S cm^2 mol^{-2}

(vi) Catalyst increases the rate of reaction by:

(A) lowering activation energy (B) by increasing activation energy (c) by increasing energy of the reactants (D) by decreasing energy of the reactants

(vii) Units of rate constant for third order reaction are :

(A) sec^{-1} (B) mol lit^{-1} sec^{-1} (C) mol^{-1} lit sec^{-1} (D) mol^{-2} lit sec^{-1}

(viii) Half life period of a zero order reaction is :

(A) directly proportional to initial conc of reactants (B) inversely proportional to initial conc of reactants

(c) independent of initial conc of reactants (D) none of these

(ix) The compound 3-Phenyl prop-2-enal is also known at

(a) Crotonaldehyde (b) Cinnaimaldehyde (c) Salicyladehyde (d) Vanillin

(x) Which of the following methods cannot produce aldehydes ?

(a) Oxidation of primary alcohols (b) Dehydration of secondary alcohols (c) Ozonolysis of alkenes (d) Hydration of ethyne with acid

(xi) Which of the followings required in Stephen reaction

(a) LiCl (b) $NiCl_2$ (c) Sncl2 (d) $Ticl_4$

(xii) Acetyl chloride reacts with 'X' to give butan-2-one

(a) Cadmium Chloride (b) methyl magnesium chloride (c) dimethyl Cadmium (d) diethyl Cadmium

(xiii) Ethers can be distinguished from alcohols by the following reagents

(a) reaction with PCl5 (b) reaction with hydrazine (c) reaction with Na (d) None of the above

(xiv) when benzene diazonium chloride is treated with copper powder and HCl , the product formed is

(a) chlorobenzene (b) toluene (c) phenol (d) aniline

(xv) .The most stable complex is

(a) $[Fe(NH_3)_6]^{3+}$ (b) $[Fe(H_20)_6]^{3+}$ (c)$[Fe(C_2O_4)3]^{3-}$ (d)$[FeF_6]$

(xvi).The co-ordination number of M in [M(en)2Cl2]Cl is

(a) 6 (b)9 (c) 8 (d)10

(xxvii).Which of the following is a hexadentate ligand

(a)diene (b)CN^- (c)en (d)EDTA

(xviii).The IUPAC name of $K_3[Fe(CN)_5NO]$ is

(a) potassium penta cyano nitrosylferrate(II) (b)potassium pentacyano nitroferrate(II)
(c)potassium pentacyanonitrossylferrate(III) (d)potassium pentacyanonitrosylferrate(II)

PARAGRAPH

Starch $(C_6H_{10}O_5)n$ is a polymer of a - glucose and major reserve food in plants, turns blue with iodine. It is a mixture of two components (i) amylose (20%), an unbranched polymer water soluble (ii) amylopectin (80%), a branched polymer water insoluble. Sources of starch are potatoes, wheat; rice, maize, bananas etc.
(ii) Cellulose $(C_6H_{10}O_5)n$. is the most abundant and structural polysaccharide of plants. It is important food sources of some animals. It is polymer of D(+) b– glucose.
The chief sources of cellulose are wood (contains 50% cellulose rest being lignin, resins etc.) and cotton (contains 90% cellulose rest being fats and waxes).
(xix) what are the components of starch ?
(xx) what are the chief sources of cellulose ?
(xxi) which component of starch turns blue with iodine ?
(xxii) name the component of starch whose %age is more in it ?
(xxiii) what are the sources of starch ?

TRUE / FALSE

(xxiv) In coordination compound metal shows only primary valency (T/F)
(xxv) carboxylic acids are weaker acids than alcohols (T/F)
(xxvi) aniline is more basic than methyl amine (T/F)
(xxvii) Hinsbergs reagent can be used to differentiate different amines (T/F)
(xxviii) Grid of lead packed with spongy lead is cathode in lead acid cell (T/F)

Section B (each carry two marks)

Q2.Write four diff between ideal and non ideal solutions
Q3.Calculate the boiling point of the solution containing 1.8 g of a non volatile solute dissolved in 90 g of benzene .The boiling point of pure benzene is 353.23K, K_b=2.53Kkgmol^{-1} , molar mass of solute 58 gmol^{-1}

OR

When 1.80 gm of non volatile compound is dissolved in 25 g of acetone, the solution boils at 56.86 C while pure acetone boils at 56.38 C under the same atmospheric pressure calculate the molar mass of the compound .K_b for acetone is 1.72 K kg mol^{-1}

Q4.Specific conductance of 0.12N solution of an electrolyte is 2.4 x 10^{-2}Scm^{-1}. Calculate equivalent conductance
Q5.A first order reaction takes 20 min for 25% decomposition . calculate the time when 75% of the reaction will be completed ?

Or

For first order reaction show that time required for 99% completion is twice the time required for completion of 90% of reaction .
Q6. Why d-block elements form no. of alloys ?
Q7.Write four diff between coordination compound and double salt
Q8.Why aldehydes are more reactive than ketones ?

Or

Write a note on Wolf Kishner reduction
Q9.Write a note on Gabriel Phthalimide synthesis
Q10.Why Phenols are more acidic than Alcohols ?
Q11.Write four diff between Globular and Fibrous proteins

Section C

Q12.The rate of reaction quadruples when temp changes from 293 to 313 k calculate the activation energy of the reaction .
Q13. Write the nernst equation . Calculate the emf of the following at 298 k

Cu (s) /Cu $^{+2}$(0.130M) ; Ag^+(0.0001M)/ Ag $E^0_{Cu^{2+}/Cu}$= +0.34V and $E^0_{Ag^+/Ag}$= +0.80V

Or

The molar conductance at infinite dilution for NaI ,CH_3COONa and $(CH_3COO)_2$ Mg are 10.59, 7.10 and 16.58 Scm^2 mol^{-1} respectively at 298 K. Calculate the molar conductance of MgI_2 at infinite dilution
Q14. How will you differentiate between primary , secondary and tertiary alcohols on the basis of Victor Meyer"s test

Or

How will you prepare t- butyl ethyl ether by using Williamson's synthesis
Q15.Compare the basic character of primary secondary and tertiary amines in solution phase

Section D

Q16.(i) Write a note on preparation of $KMnO_4$ from pyrolusite (3)

(ii) why D- block elements act as good catalysts ? (2)

Or

(i) Write four diff between Lanthanides and Actinides (2)

(ii) why d- block elements show variable oxidation states ? (2)

(iii) Draw the structure of $Cr_2O_7^{2-}$ ion (1)

Q17. Write a note on following reactions (1) Sandmeyer Reaction (2) wurtz reaction (3) Wurtz fittig reaction (4) Balz schiemann reaction (5) Finkelstein reaction

Or

(a) Why Alkyl halides are more reactive than Aryl halides towords nucleophilic substitution reactions (3)

(b) Why Alkyl haildes are insoluble in water ? (2)