SAMPLE- PAPER (2014-15)

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SUB: CHEMISTRY M.M 70

General Instructions:

1. All Questions are compulsory.
2. Marks for each question are indicated against it.
3. Question number 1 to 8 are very short answer questions and carry 1 mark each.
4. Question number 9 to 18 are short answer questions and carry 2 marks each
5. Question number 19 to 27 are also short answer questions and carry 3 marks each.
6. Question number 28 to 30 are long answer questions and carry 5 marks each.
7. There will be no overall option. Internal choice is given for all three 5 marks questions.
8. Use log table if necessary, use of calculator is not permitted.

Q1Define Pseudo first order reaction with example?

Q2What do you meant by state selective catalysis?

Q3Draw the shape of BrF_3 ?

Q4Write the IUPAC name of the compound $[Co(NH)_3(ONO)]^{2+}$

Q5 Write the formula and chemical name of DDT.

Q6Convert propene to acetone?

Q7Explain HVZ reaction?

Q8 Distinguish between Propanol and Propanone?

Q9 How would you account the following

(1)Frankel defect is not found in alkali metal halides.

(2)Schotkey defects lower density of the solid.

Q10 Analysis show that nickel oxide has formula $Ni_{0.98}O_{1.00}$. What fraction of Nickel exists as Ni^{2+} and Ni^{3+} .

Q11 a)The molar conductivity of acetic acid solution at infinite dilution is 390.7 $\Omega^{-1}cm^2mol^{-1}$. Calculate the molar conductivity of 0.01M acetic acid solution given that the dissociation constant of acetic acid is $1.8x10^{-5}$

Q12Write difference between molecularity and order of reaction?

Q13Derive the relationship between half life of first order reaction and its rate constt?

Q14. Complete the following:

(1)NH_3 +Cl_2 (execess)---→

(2) XeF_4+O_2F_2-------→

Q15 Draw the structure of following:

1. $XeOF_4$ 2. H_3PO_3

Q16 Explain on the basis of Valance bond theory that $[Ni(CN)_4]^{2-}$ ion with squareplanar structure is diamagnetic and the $[NiCl_4]^{2-}$ ion with tetrahedral geometry is paramagnetic

Q17 Arrange the following order of properties mentioned

$C_2H_5NH_2$, $C_6H_5NH_2$, NH_3, $(C_2H_5)_2NH$ (Basic Strength

$C_2H_5NH_2$, $(C_2H_5)_3N$, NH_3, $(C_2H_5)_2NH$ (Basic Strength in gases phase

Q18 (1)Give one test to distinguish between Methylamine and dimethylamine?

(2)Primary amine have high boiling point than comparable tertiary amine?

Q19 (1)What happened when Dglucose is treated with (1).HI, (2) HNO_3 2

(2) What is the difference between a nucleotide and nucleoside?1

OR

1. What do means by essential and non essential amino acid Give an example?2

2. Explain Zwitter ion structure of amino acid? 1

Q20(1) Write the mechanism of free radical for the polymerization of ethane?2

(2) Write monomer of following

(1).Teflon (2) bakelite (3) PVC (4) N-66

Q21 Discuss with example biodegradable and non biodegradable detergents with example? 3

OR

Explain:

(a) Why is the use of aspartame limited to cold food and drinks?

(b)What problem arises in using Alitame as artificial sweetener?

(C) Explain anti fertility drugs? 3

Q22 (1)Write the name of the electrolyte used in (i) fuel cell (ii) mercury cell.

(2)Predict, if the reaction between Fe^{3+}(aq) and I^-(aq). It is given that

$E^0_{Fe^{3+}/Fe^{2+}} = +0.77v$ $E^0_{I2/I^-} = 0.54v$

Q23(1)What is adsorption isotherm .Describe Freundlich adorption isotherm?

(2)Which of the following electrolyte is most effective for the cogulation of $Fe(OH)_3$ sol and why NaCl,Na_2SO_4 Na_3PO_4 .

Q24Describe the principle of the following:

Van Arkel method,Zone process, electrolytic refining

Q25. 1. Why does PCl_3 fumes in the air?

2 . What is the basicity of H_3PO_4?

3. How is O_3 estimated quantitatively

OR

Prepare the nitric acid and sulphuric acid by Ostwald and CONTACT PROCESS ?

Q26 (a) Explain why

(1) Vinyl chloride is unreactive in nucleophilic substitution reactions.

(2) The dipolemoment of chlorobenzene is lower than cyclohexyl chloride

(3)What happened when propene is treated with HBr in the presence of Peroxide?

Q27(1)Write chemical reaction for Riemer –Tieman reaction, Sandymer reaction

(2)Give distinguish between primar ,sec,tertury alcohol by Victor Meyer test?

Or

(1)Convert Ethano to methanol

(2)Write the mechanism of hydration of ethane to yield ethanol

Q28 (1)2g benzoic acid dissolve in 25g of benzene show a depression in freezing point equal to 1.62K.Molar depression constant for benzene is 4.9Kkgmol^{-1}.What is the percentage associated of acid if it form double molecule in solution?3

(2) Define the following : 1 Molarity 2 Molality and which one is better and why?

OR (1)Two element A and B form compound having molecular formula$AB_2$and AB_4.When dissolve in 20g of benzene ,1g of AB_2 lower the freezing point by 2.3K ,whereas 1.0g of AB_4lower it by 1.3k .The molar depression constant for benzene is 5.1Kkgmol^{-1}.Cal atomoc mass of A and B? 3

(2)Define Hanery Law and explain its two application?

Q29**. (1)** What is the effect of pH on the color of the solution of potassium dichromate ?

2 Why the compounds of transitions elements are coloured ?

3 Why the transition elements act as catalyst ? Give two examples.

4. Why transition elements form (*a*) interstitial compounds and (*b*) Alloys ?

5Why are Ni^{2+} compounds thermodynamically more stable than Pt^{2+} compounds, whilst Pt^{4+} compounds are rerlatively more stable than Ni4+ compounds ?

OR

Name a transition metal which does not exhibit variation in oxidation state in its compounds.

or

Assign reason for each of the following:

(*1*) Ce3+ can be easily oxidised to Ce4+.

(*2*) *E*° for Mn3+/Mn2+ couple is more positive than for Fe3+/Fe2+.

(*3*) Transition metals exhibit higher enthalpies of atomization.

(4)Defferentiate the properties of Lanthanoids and actinoids?

(5) Describe with chemical reaction for the preparation of potassium permanganate from pyrolusite ore.

Q30 (1)An organic compound (A)with molecular formula C_8H_8O form an orange –red precipated with 2,4-DNP reagent and give yellow precipate on heating with iodine in the presence of sodium hydroxide .It neither reduce Tollens reagent or Fehling reagent,nor does it decolorize bromine water or Bayers reagent. On drastic oxidation with a chromic acid it give a carboxylic acid (B) having molecular formula $C_7H_6O_2$. identify (A) and (B) and explain the reaction involved?

(2) (ii) Cannizzaro's reaction

(iii) Aldol condensation

(b) Of aldehydes and ketones which would reduce Tollen's reagent ? Why

OR

(I) How will you distinguish between the following pairs of compounds by chemical

tests?
i) Propanal and Propanone
ii) Acetophenone and benzophenone
iii) Phenol and benzoic acid
(II) How will you convertin not more than two steps-
(i) Propanone to propene
(ii) benzoicacid to benzaldehyde

ALL THE BEST

ANIL KR SHARMA

Lect (CHEMISTRY)

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