**I.P.S.Sr.Sec.School**

**Max Time : 2 hr** **Class : 12th Max Marks : 40**

**Chemistry Pre-Board**

**Section-A**

* **All Questions carry one mark. Attempt any five [ 1 x 5 = 5 ]**

1. Why does the conductivity of a solution decrease with dilution ?
2. What is the drawbacks of Freundlich adsorption isotherm ?
3. True solution does not show Tyndall effect. Explain ?
4. Write IUPAC name of K3[Fe(C2O4)3].
5. Write one chemical equation, to illustrate the rosenmund reaction.
6. Time required to decompose SO2Cl2 to half of its initial amount is 60 minutes. If the decomposition is a first order reaction, calculate the rate constant of the reaction.

**Section-B**

* **All Questions carry two marks. Attempt any five [ 2 x 5 = 10 ]**

1. What is the characteristic of the following colloids? Give example of each :

(i) Multimolecular colloids (ii) Lyophobic sol

1. Write down the electronic configuration of : (i) Cr3+ (ii) Pm3+
2. Show how acetophenone can be converted into benzoic acid.
3. (i) On the basis of crystal field theory, write the electronic configuration of d4 ion if o < P.

(ii) Write the hybridisation and magnetic behaviour of the complex [Ni(CO)4].

1. For a first order reaction, show that time required for 99% completion is twice the time required for the completion of 90% of the reaction.
2. Write the structure of the following compounds :

(i) 4 – oxopentanal (ii) 4 – Fluoroacetophenone

**Section-C**

* **All Questions carry three marks. Attempt any five [ 3 x 5 = 15 ]**

1. Write the name, the structure and the magnetic behaviour of each one of the following complexes :

|  |  |  |
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| (i) [Pt(NH3)2 Cl NO2] | (ii) [Co(NH3)4 Cl2] Cl | (iii) [Ni(CO)4] |

1. What is the difference between a colloidal solution and true solution? What is the role of protective colloid in lyophobic sol ?
2. Calculate Go and log Kc for the following reaction :

Cd2+ (aq) + Zn (s) → Zn2+ (aq) + Cd (s) , Given : = - 0.403 V , = - 0.763 V

1. Define conductivity and molar conductivity and molar conductivity for the solution of an electrolyte. Discuss their variation with concentration.
2. Illustrate the following reaction :

(i) Wolff – Kishner (ii) Aldol condensation

**Section-D**

* **All Questions carry five marks. [ 5 x 2 = 10 ]**

1. (i) What is lanthanoids contraction? What are the consequences of lanthanoid contraction ?

(ii) Differentiate between weak field ligand and strong field ligand.

1. (i) What modification can you suggest in the hardy-schulze law?

(ii) Write two difference between ‘order of reaction’ and ‘molecularity of reaction’.