# Karanjia Auto College Karanjia,Mayurbhanj

**CC 8, CHEMISTRY HONS.**

1. Answer all the questions [1×8=8]

i. Which metal present in vitamin $B_{12}$ co-enzyme.

ii. Which organometallic complex used in treatment of cancer. iii. In biological system which metal ions mostly involved in electron transport.

iv. Which Lanthanide is stable in +4 oxidation state.

v. Give example of ligand which show back bonding in co-ordination complexes.

vi. Write IUPAC name of $[Co(NH3)_4Cl_2]^+$ complex. vii. Give an example of hexadentate ligand.

Viii. Give an example of homoleptic complex.

2. Answer any **Eight** the questions [1.5×8=12]

i. Why oxyhemoglobin is red in colour?

ii. Why Cr and Cu shows unusual electronic configuration? iii. What are the reason behind color of transition metal complexes. iv. Co-ordination isomerism shown in which type of complexes.

v. Iron(III) hexacyanoferrate(II) write chemical formula of this compound. vi. Why 10Dq is more in octahedral complexes than tetrahedral complexes. vii. Predict whether $[Co(NH_3)_6]^{3+}$ is a spin free or spin paired complex. viii. What is facial isomerism.

ix. Between $Fe^{2+}$ and $Cr^{3+}$ which is more stable in octahedral crystal field limit. x. Write condition for pairing of an electron in a crystal field limit.

3. Answer any **Eight** the questions [2×8=16]

i. What are essential and beneficial metals?

ii. Comment on selectivity of $Na^+$-$K^+$ pump in transporting the $Na^+$ and $K^+$ ions. iii. Write toxicity of Mg metal.

iv. What is the consequence of Hg toxicity.

v. Comment on possibility of spin pairing of Fe(II) in hemoglobin during oxygenation, considering fact that $O_2$ is not a strong ligand. vi. What is lanthanide contraction. Write its consequence. vii. Why transition elements and their compound exhibit good catalytic property.

viii. What is chelate effect. ix. What are inner and outer orbital complexes.

x. What is linkage isomerism. Give an example.

4. Answer any **Four** questions [4×6=24]

i. Discuss the structural features of Hemoglobin. Compare the fate of $O_2$ during oxygenation of hemoglobin and myoglobin. ii. (a) Discuss and activity of carboxypeptidase.

(b) Write a short note on Na/K-pump. iii. Discuss in brief about compounds of V at various oxidation state.

iv. Why it is difficult to separate compounds of lanthanide elements? Discuss the ion exchange method for separation of lanthanides.

v. (a) Write the difference between first, second and third row transition series.

(b) Write a short note on Latimer diagram.

Vi. Discuss group trends of transition metal in color, variable valency, magnetic and catalytic property.