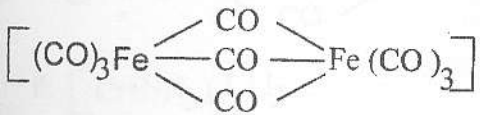
EASTERN UNIVERSITY, SRI LANKA
SECOND YEAR IN SCIENCE
FIRST SEMESTER-2003/2004 (repeat)
CH 201 CO-ORDINATION CHEMISTRY AND MAIN GROUP CHEMISTRY

Answer All Questions. **Time: 01 Hour**

1. a. Write the IUPAC names of the following compounds

i. 

ii. $[Cr(NH_3)_5I]I_2$

iii. $K[AgF_4]$

iv. $[Co(N_3)(NH_3)_5]SO_4$

b. Write the chemical formula of the following complexes

v. Potassium tetrahydroxoaurate(iii)
vi. Trioxalatoferrate(iii) ion
vii. Tetrakis(pyridine)platinum(ii) tetrachloroplatinate(ii)
viii. μ -hydroxo-bis[pentaamminechromium(iii)] chloride

c. How does the Valence Bond theory accounts for the following observation? $[Ni(CN)_4]^{2-}$ is diamagnetic and square planar while $[NiCl_4]^{2-}$ is paramagnetic and tetrahedral.

d. Draw all possible isomers of the following compounds.
i. $[Co(en)_2Cl_2]$ ii. $[Pt(NH_3)_2F_2]$

e. List out four uses of phosphorus.

2. a. i. Draw the shapes of all the *d* orbitals.

ii. Explain, using a suitable diagram why they are split into two groups t_{2g} and e in an octahedral ligand field.

iii. Calculate the Crystal Field Stabilization Energy (CFSE) for the ion $[Mn(CN)_6]^{4-}$.

b. Discuss the structures of the interhalogen compounds ClF_3 and IF_7.

c. Write the properties in which Li resembles Mg.