# Monday Unit Test

Class - XII

Subject - Chemistry

Topic - Co-Ordination Compounds

Time :- 1:15 hr

M. Marks :- 36

## Section - A (1 Mark Questions) (1×5 = 5

1. Predict the number of ions produced per formula unit in an aqueous solution of $[Co(en)_3]Cl_3$ = 4

2. Find the co-ordination number and oxidation state of chromium in $Na_3[Cr(C_2O_4)_3]$ 3×2 = 6 Co.No. O.No. = 3

3. Write the IUPAC name of the given complex $[Co(NH_3)_5(ONO)]^{2+}$ pentaamminenitrito-O-cobalt(III)

4. What is the formula of complex dichloridobis(ethane-1,2-diamine) platinum(IV) nitrate. $[PtCl_2(en)_2](NO_3)_2$

5. Why only transition metals are known to form π-complexe Because of availability of vacant d-orbital.

## Section - B (2 Mark each) (2×5 = 10)

en Pt en Cl Cl Trans

6. Draw one of the geometrical isomer of $[Pt(en)_2Cl_2]$ which is optically inactive. Also write the name of this entity according to IUPAC nomenclature. trans dichlorido bis(ethane-1,2-platinum(IV) ion

7. (a) $[Cr(NH_3)_6]^{3+}$ is paramagnetic while $[Ni(CN)_4]^{2-}$ is diamagnetic. Explain why? (Atomic no. Cr = 24 ; Ni = 28) Three unpaired e's All paired

21 $d^3$

(b) Explain why $[Fe(CN)_6]^{3-}$ is an inner orbital complex whereas $[Fe(H_2O)_6]^{3+}$ is an outer orbital complex [Atomic no. Fe = 26] $d^2sp^3 \rightarrow sp^3d^2$

8. (a) Define ambidentate ligand with an example.

(b) What type of isomerism is shown by $[Co(NH_3)_5Cl$