

Day : Wednesday
Date : 25/10/2017

W-2017-0648

Time : 3:00 P.M. TO 5:00 P.M.
Max. Marks : 40

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labelled diagrams **WHEREVER** necessary.

Q.1 Attempt any **TWO** of the following: (10)

- a) Write the postulates of Werners coordination theory.
- b) Write IUPAC Nomenclature of following complexes:
i) $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ ii) $[\text{Pb}(\text{OH})_4]^{-2}$ iii) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_4]$
iv) $[\text{Ni}(\text{DMG})_2]$ v) $\text{K}_4[\text{Ni}(\text{CN})_4]$
- c) What is corrosion? Write a note on Atmospheric corrosion.

Q.2 Attempt any **TWO** of the following: (10)

- a) Write assumptions of Valence Bond theory (V.B.T.)
- b) Explain bonding in following complexes on the basis of VBT.
i) $[\text{NiCl}_4]^{-2}$ ii) $[\text{Co}(\text{NH}_3)_6]^{+3}$
- c) Explain the following types of isomerisms with suitable examples:
i) Ionization isomerism ii) Hydrated isomerism

Q.3 Attempt any **TWO** of the following: (10)

- a) Explain the application of CFT to Octahedral Complex.
- b) State and explain Sidwick's EAN rule with suitable examples.
- c) Write limitations of CFT.

Q.4 Attempt any **TWO** of the following: (10)

- a) Write cis and trans isomers for following complexes :
i) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ ii) $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$
- b) What do you mean by CFSE? Find CFSE for a d^4 system in a strong field octahedral complex.
- c) Explain different methods for preventing corrosion.