B.Sc. (Honours)Examination, 2018

Semester-III

Chemistry (Honours)

Course: BCHC-31

(Inorganic Chemistry)

Time: Three Hours **Full Marks: 30**

Questions are of value as indicated in the margin.

Answer***any three***questions.

1. a) In the light of Werner's theory arrive the geometry of $CoCl_3.6NH_3$ and CoCl3.5NH3. 4
   b) Employing VBT establish the geometry, chemical and magnetic properties of $CoCl_3.6NH_3$ and $(NH_4)_3[CoF_6]$ complexes. 6

2. a) Write down the shortcomings of VBT in explaining the geometry and magnetic properties of O_2 molecule. 4
   b) Give the MO diagram for O_2 and justify the bond order in O_2, O_2^+, O_2^-. 6

3. a) Give the Mo diagram of CO and explain the ligand behaviour of CO in explaining the stability of low oxidation state of metal carbonyls. 6
   b) Differentiate the ligand behaviour of N_2 and CO. 4

4. a) What are Lewis acids? Give the utility of $AlCl_3$ in organic synthesis. 2+2
   b) $H_3BO_3$is an acid – explain its behaviour in aqueous solution and in presence of glycerol. 3
   c) Give the basicity order of NH_3, NH_2OH and $NH_2–NH_2$. 3

5. a) What is pH? Give its importance in complexometric titration. 4
   b) Predict the melting point sequence of Me_3SnF and $MeSnF_3$. 3
   c) Illustrate B and F- Strain with examples. 3

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