

Eastern University, Sri Lanka

Second Year First Semester Examination in Science

2008/2009 (April/May 2010)

External Degree (2004/2005)

EXTCH201: Coordination Chemistry and Main Group Chemistry

(Proper & Repeat)

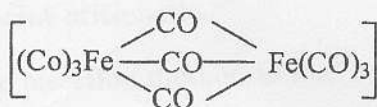
Answer all questions

Time: 01 hour

[1]

(a) Write the IUPAC name of the following compounds..

- i) $[\text{Al}(\text{OH})(\text{H}_2\text{O})_5]^+$
- ii) $\text{NH}_4[\text{Cr}(\text{NCS})_4(\text{NH}_3)_2]$
- iii) $\text{Na}[\text{CoCl}_4(\text{NH}_3)_2]$
- iv)



(40 marks)

(b) Give an example of each of the following:

- i) Binuclear Complex
- ii) Low spin complex
- iii) High spin complex

(30 marks)

(c) i). Calculate the spin only magnetic moment for a d^8 ion in octahedral and tetrahedral ligands fields.

(20 marks)

ii) Explain why the $\text{Co}(\text{NH}_3)_6^{3+}$ ion is a diamagnetic, low spin complex, where as the CoF_6^{3-} ion is a paramagnetic, high spin complex.

(10 marks)

Cont..



[2]

- a). Hydrogen can be placed with alkali metals or with halogens. Give four reasons for each and explain why it is placed in period I. (40 marks)
- b). Draw the structure of IF_5 . Give reason/s. (20 marks)
- c). List out four similarities and dissimilarities between elements of sub group I^A and II^A . (40 marks)

End of Paper