



Uva Wellassa University, Sri Lanka
Faculty of Science and Technology
Science and Technology Degree Program
100 Level 2nd Semester Examination December/January 2017
SCT 132-2 Inorganic Chemistry



6



Part B

Please write your answers for these questions in a separate booklet

2. Fe^{3+} mostly forms octahedral complexes.

- i. Suggest the energy diagram of $[\text{Fe}(\text{CNS})_6]^{3-}$ and $[\text{Fe}(\text{CN})_6]^{3-}$ using crystal field theory.
- ii. Calculate the total spin number and crystal field stabilizing energy for each case.
- iii. Calculate the total spin number and crystal field stabilizing energy of the compounds, once irradiated from visible light.

(25 marks)

3. i. Derive the following equation starting from total magnetic momentum of coordination compound metal ion, $\mu_{spin} = \sqrt{n(n+2)}$ where n is number of unpaired electrons.

ii. Calculate the μ_{spin} for the high spin compound composed from Mn^{2+} ions.

(25 marks)

4. Explain why Au(II) forms Au(I) and Au(III) in aqueous solution using Jahn-Teller effect.

(25 marks)