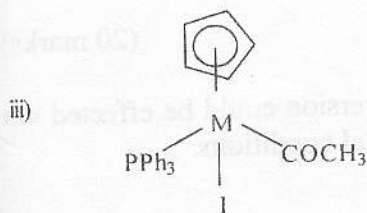
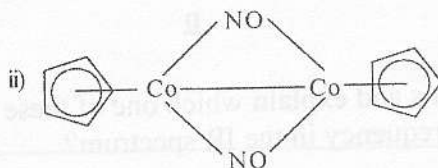
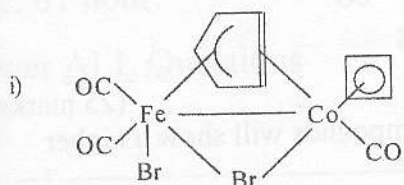


EASTERN UNIVERSITY, SRI LANKA
THIRD EXAMINATION IN SCIENCE 2005/2006
SECOND SEMESTER (March/April 2008) -PROPER
CH 305 ORGANOMETALLIC CHEMISTRY AND NON AQUEOUS SOLVENTS

Time allowed: **ONE Hour**

Answer all questions

1) a) Indicate the monohapto, dihapto, trihapto, tetrahapto, pentahapto and bridging ligands present in the following compounds.



(30 marks)

b) Draw the structure and explain the nature of bonding in $K[PtCl_3(C_2H_4)]$.

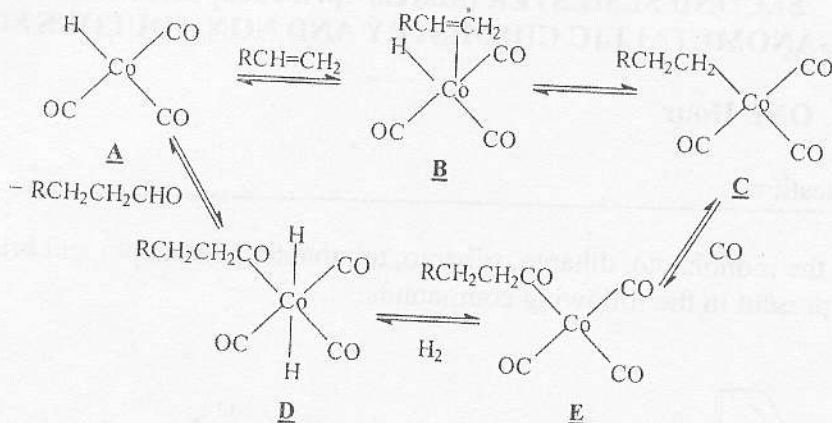
(30 marks)

c) Explain why the $C=C$ stretching frequency is at 1623 cm^{-1} in free ethylene and about 1580 cm^{-1} in $K[PtCl_3(C_2H_4)]$

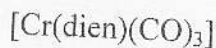
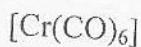
(15 marks)

Cont.

d) Apply the Effective Atomic Number (EAN) rule for compounds **A**, **B**, **C**, and **E** in the reaction sequence given below (atomic No. Co- 27)

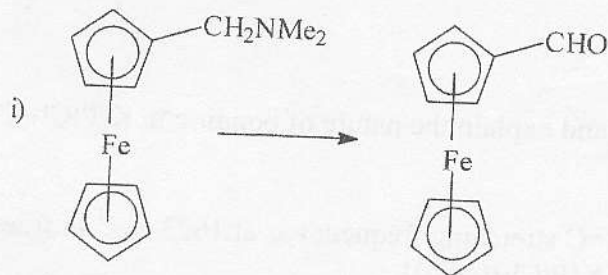


2) a) Give reasons and explain which one of these two compounds will show a higher carbonyl frequency in the IR spectrum? (25 marks)



(20 marks)

b) Indicate by means of equations how the following conversion could be effected via organometallic intermediates. Give essential experimental conditions.



c) Explain the following observations. (20 marks)

- i) Metal-liquid NH_3 solutions can be considered as a source of free electrons.
- ii) Water act as a 'leveling solvent' for strong acids.

(30 marks)

d) Explain whether each of the following would act as an acid or a base.

- i) Urea in liq. NH_3
- ii) Urea in water.
- iii) Sulfuric acid in acetic acid

End

(30 marks)