



EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR SECOND SEMESTER EXAMINATION IN SCIENCE

2008/ 2009 (Sept. / Nov. 2010)

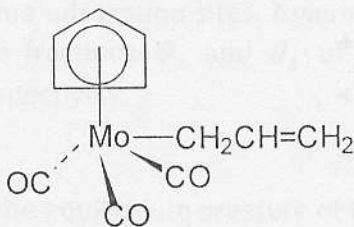
CH 305 ORGANOMETALLIC CHEMISTRY & NON – AQUEOUS SOLVENTS

Answer all questions

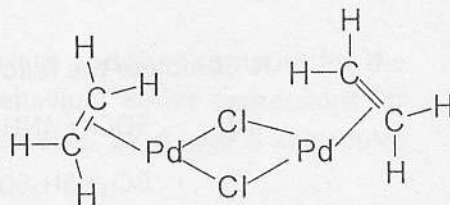
Time: 01 hour

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

(i)



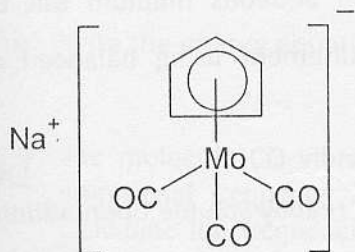
(ii)



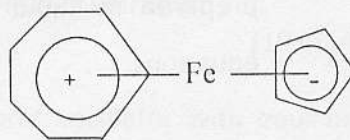
(40 Marks)

b) Give the systematic names of the following organometallic compounds.

(i)



(ii)



(20 Marks)

Turn over

c) The CO stretching frequencies of $(\text{CH}_3)_2\text{C}=\text{O}$ and $\text{M}-\text{COCH}_3$ are falls at 1720 cm^{-1} and 1600 cm^{-1} respectively . Explain the above observations.

(20 Marks)

d) Draw the structure and explain the nature of bonding in $\text{K}[\text{PtCl}_3(\text{C}_2\text{H}_4)]$.

(20 Marks)

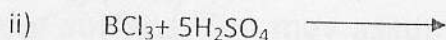
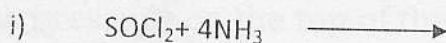
2. a) Manganese carbonyl D having empirical formula $\text{Mn}(\text{CO})_5$, is diamagnetic and shows strong absorption only at $\sim 2000\text{ cm}^{-1}$ where CO stretching frequencies are observed. Deduce the structure of manganese carbonyl D.

(20 Marks)

b) I. What is solvolysis reaction?

(10 Marks)

II. Complete the following solvolytic reaction



(30 Marks)

c) What is the difference between Ammoniation reaction and Ammolytic reaction? Explain with chemical equations.

(20 Marks)

d) i). $\text{Na}^+ (\text{H}_2\text{NCONH})^-$ cannot be prepared in aqueous medium but could be prepared in liquid NH_3 . Explain this statement using balanced chemical equations.

(10 Marks)

ii). Explain why AlF_3 is insoluble in liq. HF but readily soluble upon addition of an excess of NaF.

(10 Marks)

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