

Chemistry

Spectroscopy: Applications of UV-visible, IR, NMR and Mass spectrometry in the structural determination of organic molecules.

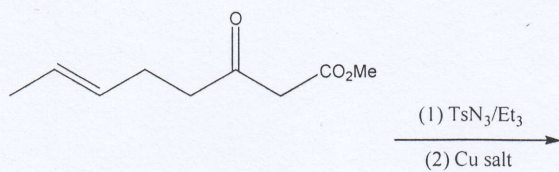
Sample Questions:

1. The number of metal-metal bonds in $[\text{Co}_2\text{Fe}_2(\text{CO})_{11}(\mu^4\text{-PPh})_2]$

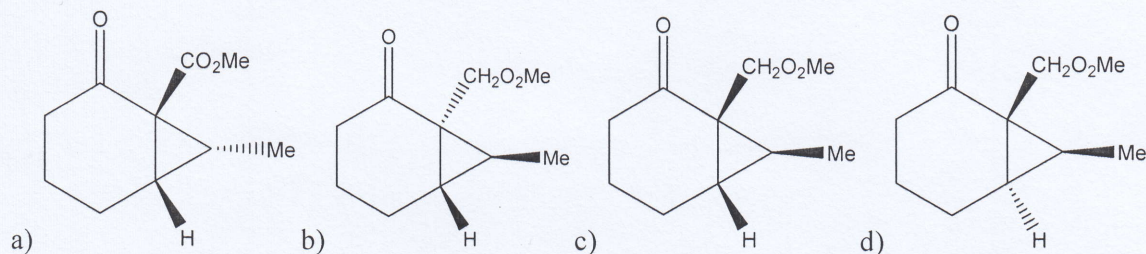
- a) 3 b) 4 c) 5 d) 6

2. The correct order of π -acceptor ability of the phosphorus ligands is

- a) $\text{PMe}_3 > \text{PPh}_3 > \text{P(OPh)}_3 > \text{PF}_3$ b) $\text{PF}_3 > \text{P(OPh)}_3 > \text{PPh}_3 > \text{PMe}_3$
c) $\text{PF}_3 > \text{PMe}_3 > \text{PPh}_3 > \text{P(OPh)}_3$ d) $\text{P(OPh)}_3 > \text{PF}_3 > \text{PMe}_3 > \text{PPh}_3$



3.



4. Conversion of cyclohexene to cyclohexanol can be achieved by ?

- a) $\text{NaOH} + \text{H}_2\text{O}$ b) $\text{Br}_2 + \text{H}_2\text{O}$ c) Hydroboration, oxidation d) Hydroboration, hydrolysis

5. The standard reduction potential of Cu^{2+}/Cu and $\text{Cu}^{2+}/\text{Cu}^+$ are 0.337 and 0.153 V respectively. The standard electrode potential of Cu^+/Cu half-cell is

- a) 0.521 V b) 0.184 V c) 0.827 V d) 0.490 V