

Assignment

- Using 18e- rule as a guide find
 - number of M-M bond in $\text{Mn}_2(\text{CO})_{10}$
 - number of M-M bond in $\text{Fe}_2(\text{CO})_9$
 - number of M-M bond in $\text{Co}_4(\text{CO})_{12}$
 - value of x in $\text{Co}_2(\text{CO})_x$
 - value of x in $\text{Fe}_3(\text{CO})_x$
- Draw the structure of Ferrocene in eclipsed and staggered form.
- Define effective atomic number (EAN) rule. Which of the following species obey EAN?
 - $[\text{V}(\text{CO})_6]^-$
 - $[\text{Co}(\text{CO})_4]^{2-}$
- What do you mean by essential, non-essential, trace and toxic elements in biological system? Give suitable examples.
- Arrange the following complexes in increasing order of their C-O stretching frequency ($\nu_{\text{C-O}}$) values and explain the order of arrangement.
 $\text{Ni}(\text{CO})_4$, $[\text{Co}(\text{CO})_4]^-$, $[\text{Fe}(\text{CO})_4]^{2-}$
- In metal carbonyls CO act as a σ -donor and Π -acceptor. Justify.
- Explain the working of Na/K pump in our body along with a suitable diagram.
- Draw the structures of the following compounds:
 - $\text{Fe}_3(\text{CO})_{12}$
 - $\text{Co}_2(\text{CO})_8$ in hexane
 - $\text{Co}_4(\text{CO})_{12}$