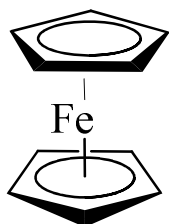
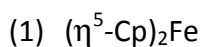


For all complexes listed below, determine

- metal oxidation state
- total number of electrons contributed from metal
- total number of electrons contributed from the ligand set
- total electron count of the complex

Please note: use the ionic model unless asked otherwise.

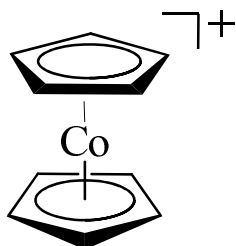
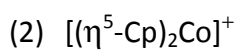


Ionic Model

Metal oxidation state: 2+
 Metal electron count: 6
 Ligand electron count: 6 + 6
 Total electron count: 18

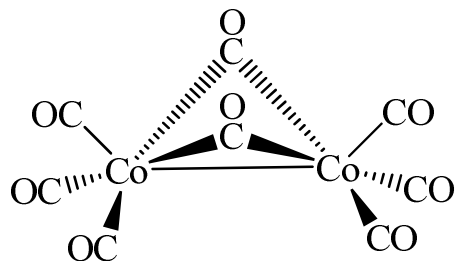
Covalent Model

Metal oxidation state: 0
 Metal electron count: 8
 Ligand electron count: 5 + 5
 Total electron count: 18



Ionic Model

Metal oxidation state: 3+
 Metal electron count: 6
 Ligand electron count: 6 + 6
 Total electron count: 18

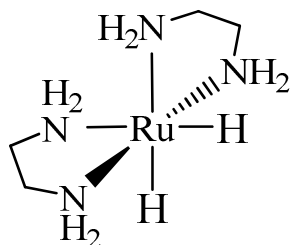
(3) $\text{Co}_2(\text{CO})_8$ Ionic Model

Metal oxidation state: 0

Metal electron count: 9

Ligand electron count: 2 + 2 + 2 + 1 + 1 + 1 (inc Co-Co)

Total electron count: 18

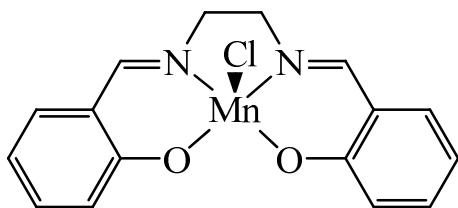
(4) $\text{Ru}(\eta^2\text{-en})_2\text{H}_2$ Ionic Model

Metal oxidation state: 2+

Metal electron count: 6

Ligand electron count: 2 + 2 + 2 + 2 + 2 + 2

Total electron count: 18

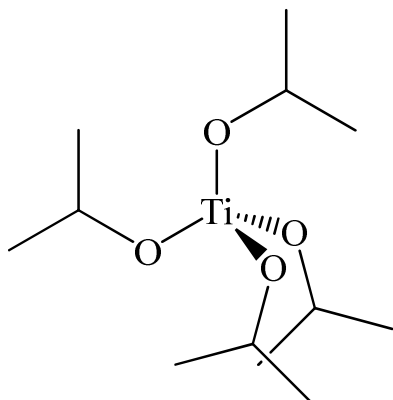
(5) $\text{Mn}(\eta^4\text{-salen})\text{Cl}$ Ionic Model

Metal oxidation state: 3+

Metal electron count: 4

Ligand electron count: 2 + 2 + 2 + 2 + 2

Total electron count: 14

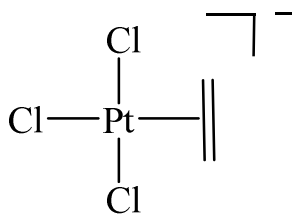
(6) $\text{Ti}(\text{iso-propoxide})_4$ Ionic Model

Metal oxidation state: 4+

Metal electron count: 0

Ligand electron count: 2 + 2 + 2 + 2

Total electron count: 8

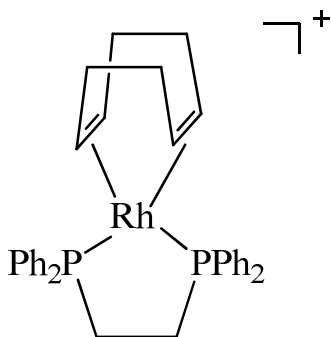
(7) $[\text{PtCl}_3(\eta^2\text{-ethene})]^-$ Ionic Model

Metal oxidation state: 2+

Metal electron count: 8

Ligand electron count: 2 + 2 + 2 + 2

Total electron count: 16

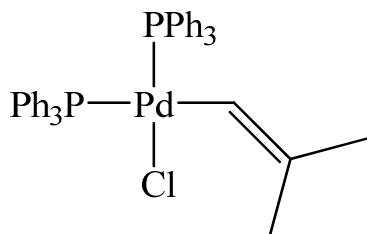
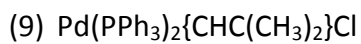
(8) $[\text{Rh}(\eta^4\text{-cod})(\eta^2\text{-dppe})]^+$ Ionic Model

Metal oxidation state: +1

Metal electron count: 8

Ligand electron count: 8

Total electron count: 16

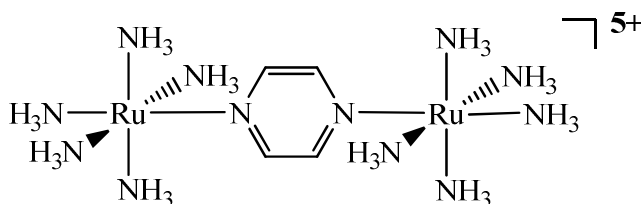
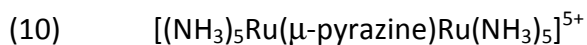
Ionic Model

Metal oxidation state: 2+

Metal electron count: 8

Ligand electron count: 2 + 2 + 2 + 2

Total electron count: 16

Ionic Model

1st Metal oxidation state: 2+

Metal electron count: 6

Ligand electron count: 2 + 2 + 2 + 2 + 2 + 2

Total electron count: 18

Ionic Model

2nd Metal oxidation state: 3+

Metal electron count: 5

Ligand electron count: 2 + 2 + 2 + 2 + 2 + 2

Total electron count: 17