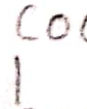
TDC-II
P-III
Co-ordination Compound

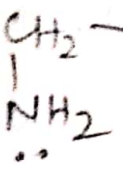
Denticity of ligand

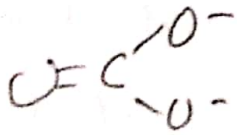
- It is defined as the number of atom of a ligand coordinated to central metal ion in the complex
- It is numerically equal to the no. of lone pair of atom of ligand used to coordinate with metal ion under coordination sphere.

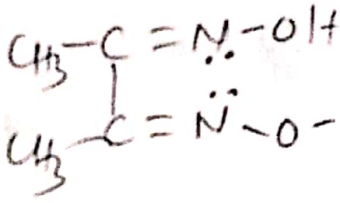
- Depending of denticity, ligand may be monodentate, bidentate tridentate etc.

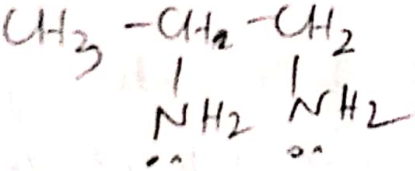
:CO	Carbonyl	neutral monodentate ligand
:NH_3	Ammine	
:PH_3	phosphine	
H_2O:	aquo	
:NO	Nitrosyl	
:CS	thio carbonyl	
CN^-	cyanido	-ve monodentate ligand.
F^-	fluorido	
Cl^-	chlorido	
I^-	iodido	

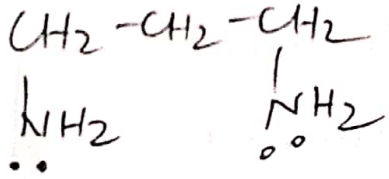
✓ $Ox^{-2} = C_2O_4^{-2}$  Oxalato
(bidentate) → Symmetrical

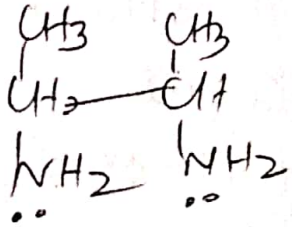
✓ gly =  glycinato
(bidentate)
Unsymmetrical

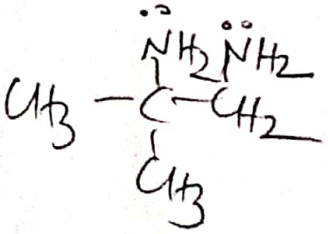
✓ CO_3^{-2}  Carbonato
(bidentate)

✓ dmg⁻ = (DMG)⁻  dimethylglyoximato
(bidentate)

✓ pn =  propylenediamine
(bidentate)

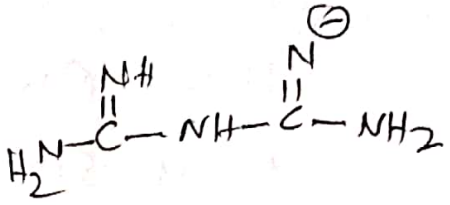
✓ tn =  trimethylenediamine
(bidentate)

✓ bn =  butylenediamine
(bidentate)

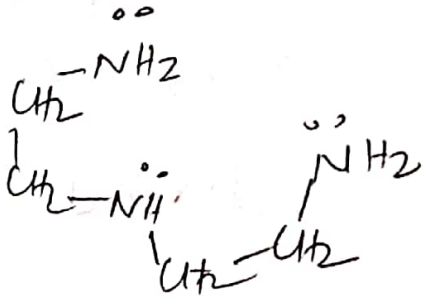
✓ i-bn = isobutylenediamine 

Polydentate ligands have flexidentate character

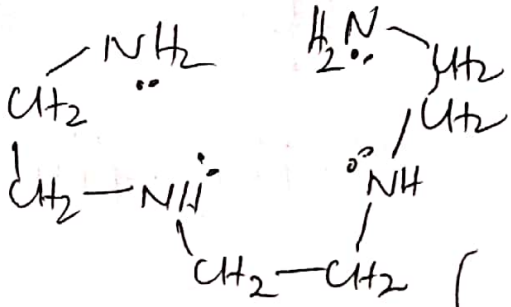
Big$^-$ = biguanido (bidentate)



dien = diethylene (Tridentate)

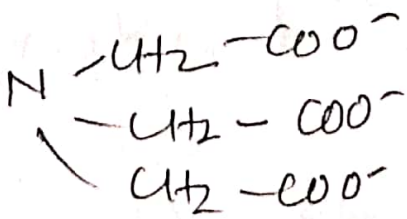


trien = triethylene tetramine



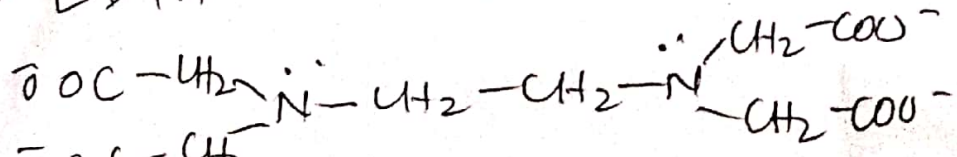
(tetradentate)

NTA^{-3} = Nitrilo triacetato



(Tetradentate)

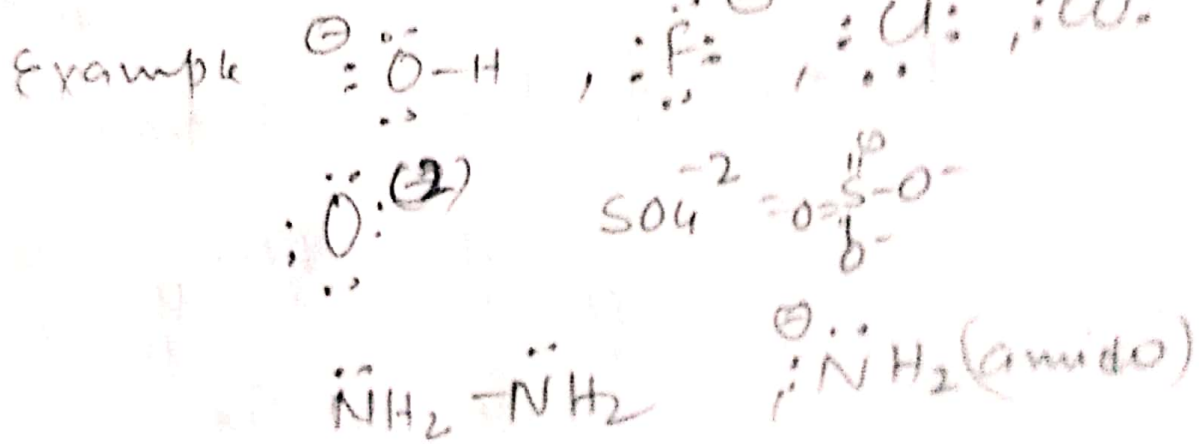
$EDTA^{-4}$ = ethylenediamine tetra acetato

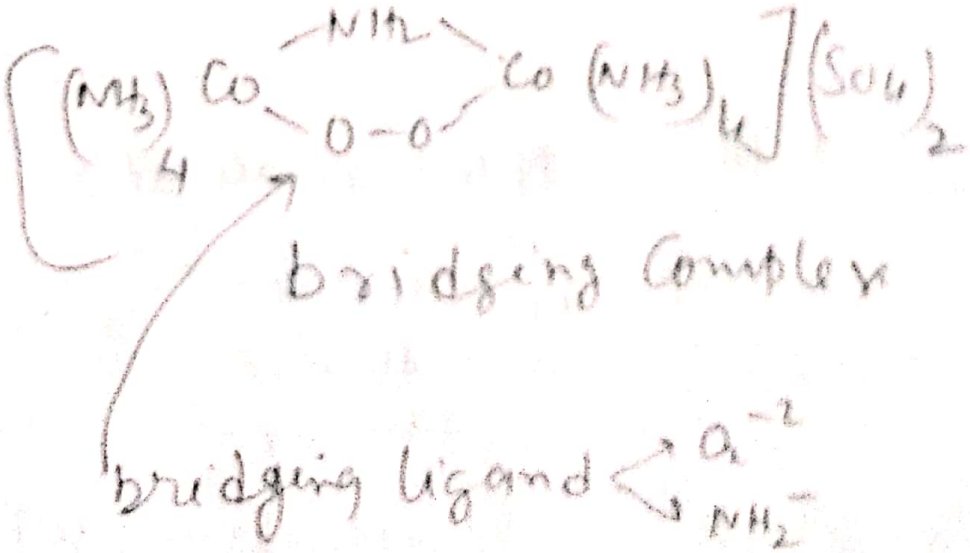


(Hexadentate)

Bridging ligand

If a mono dentate ligand has more than one free electron pair and may simultaneously coordinate with two or more central metal ion such ligand are regarded as bridging ligand

Example 



bridging Complex

bridging ligand