

الباب الخامس عشر الكيمياء التأسيسية

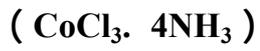
الباب الخامس عشر
الكيمياء التناسقية



(Metal amines)
(CN^-) :

(Cl^-)

(NO_2^-)



: - -

-

(Chain theory)

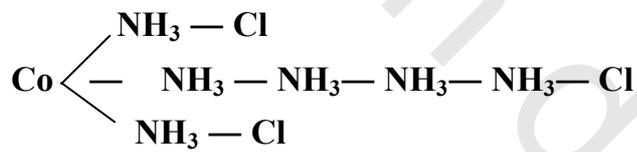
(Chain structure)

($\text{CoCl}_3 \cdot 6\text{NH}_3$)

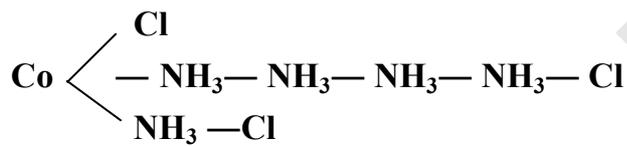
($\text{CoCl}_3 \cdot 5\text{NH}_3$)

(Ag^+)

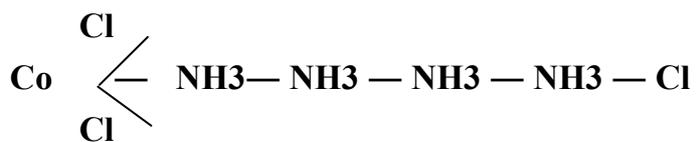
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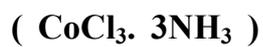
(1)



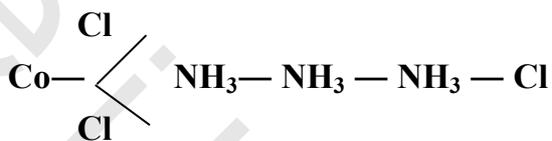
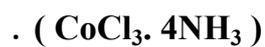
(2)



(3)



(4)

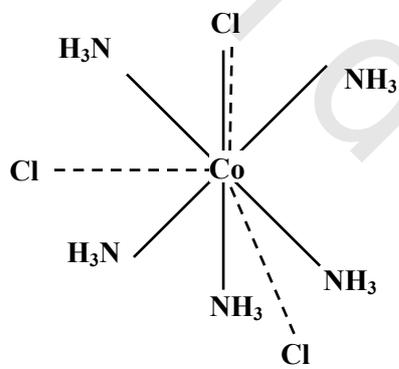
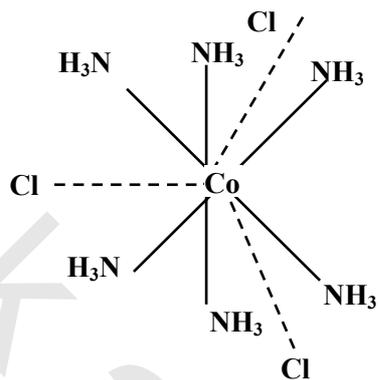
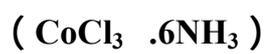


(4)



(Alfred Werner)

Primary valencies
Secondary valencies



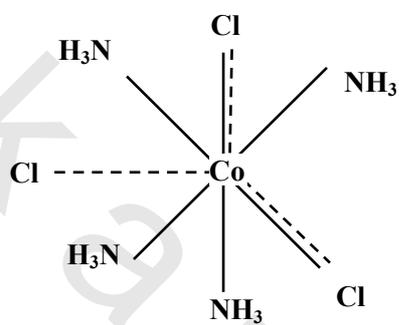
(Ligand)
 (Coordination sphere)
 (III)

Ag⁺

. CoCl₃ .5NH₃ 6

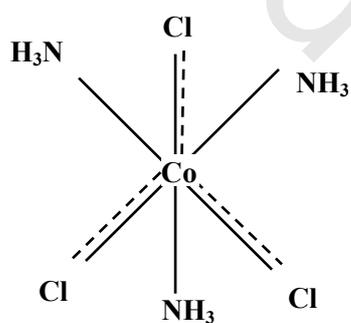
(CoCl₃ .5NH₃)

: (CoCl₃ .4NH₃)



(CoCl₃ .3NH₃)

: (CoCl₃ .3NH₃)



(Stereochemistry)

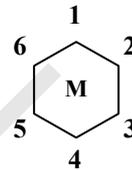
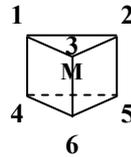
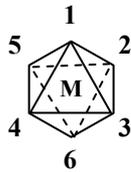
(Octahedral structure)

() () () :

(Direct Valence)

(Isomeric Compounds)

Isomers



تسمية المركبات التناسقية :

(IUPAC)

: (Order of listing ions)

-1

Sodium chloride

NaCl

[Cr (NH₃)₆] (NO₃)₃

Hexaammine Chromium (III) nitrae

(III)

Potassium hexa Chloro

[K₂ [Pt₄Cl₆]

Platinate (IV)

(IV)

: (Non ionic Complexes)

-2

[Co (NH₃)₃ (NO₂)₃]

Trinitro triammine Cobalt (III)

(III)



Bis (acetyl acetate) copper (II)

(II) ()



Acetyl acetone

: -3

: ()

()

:



Ethylene diamine



Triphenyl phosphine



Hydra zinium

:



Aquo



Ammine

-4

:

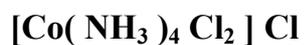
-3

-2

-1

:

Dichlorotetra ammino Cobalt (III)



Ammonium tetrathio cyanato diammine

Chromate (III) (III)



: (Numerical perflxes) -5

(tetra) (tri) (di)

...(tetrakis) (tris) (bis)

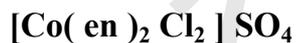
...

(III) Potassium trioxalato aluminate (III)



Dichloro bis ethylene diammine)

Cobalt (III) sulf (III) (



: (Termination of Names) -6

(ate) ()

(ic)

:

Calcium hexa cyano (II)



ferrate (II)

Bis (dimethyl glyoximato



nickel) (II) (II)

: (Oxidation States) -7

(-)

. (0)

Sodium tetra carbonyl

Na [Co (CO₄)]

Cobaltate (-1)

(1-)

Potassium tetra cyaon

K₄ [Ni (CN)₄]

Nickelate (0)

()

: (Miscellaneous Terminology)

-8

(en)

(Chelate ligands)

[Cu (en)₂] SO₄ :

: (Types of Ligands) أنواع الليجاندات

:

-2

-1

-3

:

-1

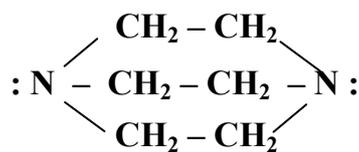
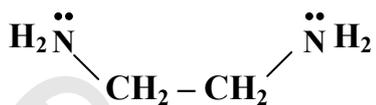
(Monodentate ligands)

. (Coordinate-Covalent)

(Chelating Ligand)

:

(Tri ethylene diamine)



:

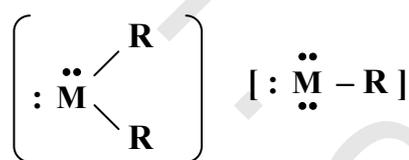
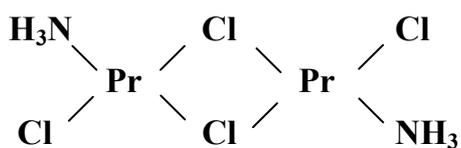
-2

(PtCl₂. 2NH₃)

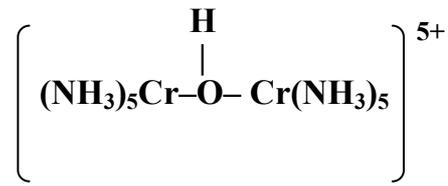
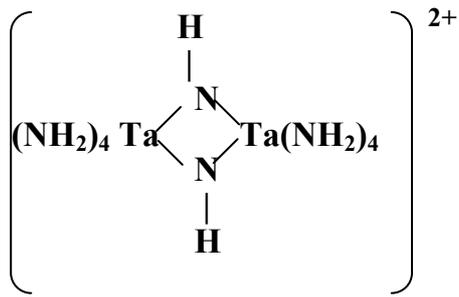
(P , N = M)

(S O = M)

(OH⁻)



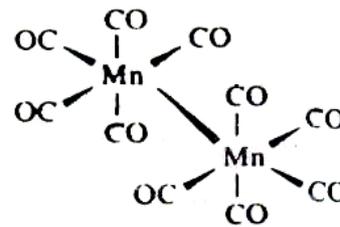
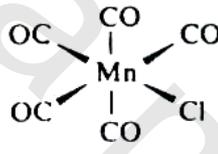
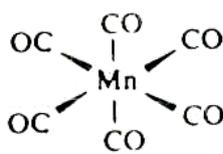
(NH₂)



: -3

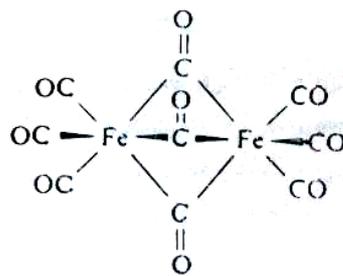
(Mn(CO)₅) (Cl⁻):

(Mn₂(CO)₁₀) (Mn(CO)₆)



(Mn₂(CO)₁₀)

[Fe₂(CO)₉]:



تحضير المركبات التناسقية وتفاعلاتها :

:

- . Werner complexes -1
- (Metal Carbonyls) -2



.(Crystallization)

:

-

-1

-2

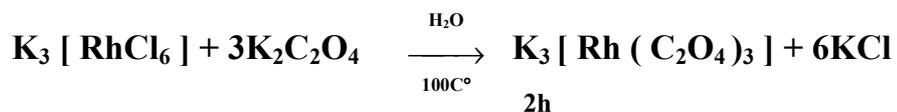
-3

تفاعلات الاستبدال في المذيبات المائية :

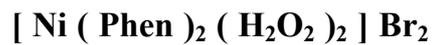
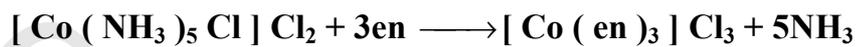




:



:



II

:



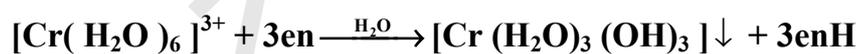
(II) ()

الاستبدال في المذيبات غير المائية :

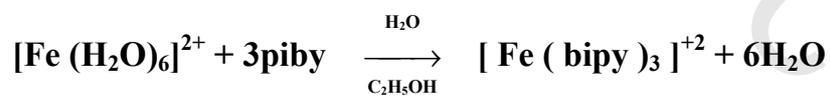
: : :

Al (III), Fe (III), Cr (III) .

(III)



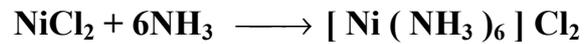
: [Fe (bipy)₃] Cl₂



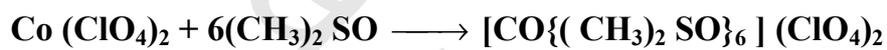
تفاعلات الاستبدال بغياب المذيب :



:



:

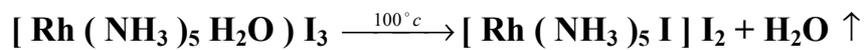


التفكك الحراري للمعقدات الصلبة :



:





تفاعلات الأكسدة والاختزال (Oxidation Reduction Reactions) :

(III)

(II)

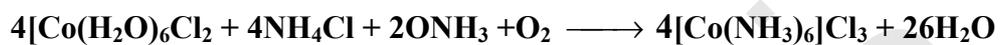
(III)

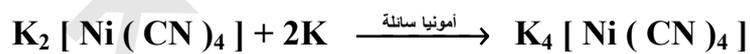
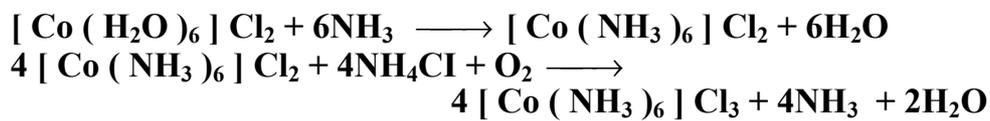
(II)

Co (III)

(II)

(II)





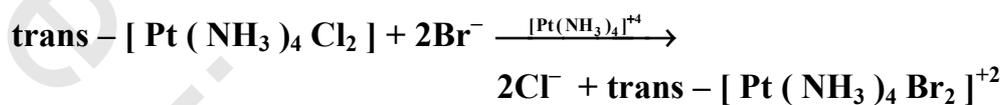
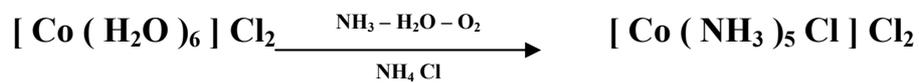
الحفز (Catalysis) :

(Catalysis)

-1

-2





تخليق الأيسومرات سيز-ترانس (Synthesis of cis-trans isomers) :

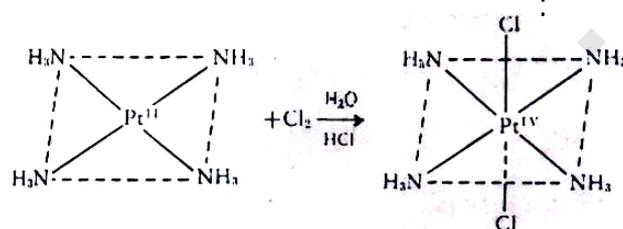
(II)

(IV)

(IV)

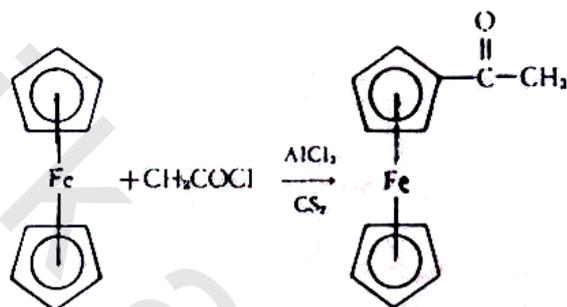
(II)

(IV)



تخليق المركبات السندويشية :

(Ferrocen)



* * *

"الأسئلة"

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-2

-3

-4

-5

-6

-7

-8

* * *