Isomerism in transition compos - same mol formula but diff orent properties 3 Phenomeron is isomerism Shuchral 1) lonisation igomerism Sterolsomerism a) Hydrote isomerican 1) Cremeto Cel 2) Ophical isomerism 3) (coordination womensm 4) Linkage usomerism Structural Isomerism: same formule, different chauchrel arrangement of atom / gipe around the carinel atom. 1. Tonisation bomerism: -> same mol famule atyperent ions in sel In this type of isomorism, the difference arises from the unterchange of groups within poulsede the coord" Sphered so these isomers give different ion in sol. for eg', there one 2 isomers of the compd Co CN13), Broom is one agented-violet and forme a plat To Back, which indicates coy ion is outside the coord before as Second one is hed & does not from ppt & Bacl, but from ppt of AgBr & AgNO3 indicating boromide ion outside the sphere. [Co(NH3) Br] say (Co(NH2) Br) + say 2-Se anni ham ship Throughole gives test g sai Penta ammine bromo cobalto III (ulphale (Red-violes)

2 [Co(NH3) = San] er _____ [Co(NH3) = San] + Br-

Pentaramine sulphato cobald (III) bromide

give kot & Brion

Other compose showing ionisation isomerism are:

(i) [co(NH2), CI,] NO2

(ii) [pt (NH2), CI,] Bo,

(iii) [co (NH2), CI,] CI,

Alydrate Komerism: compol à same mol famule but differ in no q H2D molecules pusers as ligards | as molecules q hypotrelion are Hol Hypotrate isomers.

Similar to iconisation isomerism, in which water molecules may occur inside & outside the coord sphere as a con Coordinate gp of or a water of hypotration.

For example: Cr Cl3: 6H2D: Lave 3 isomers

[Cr(H2D)6]Cl3, [Cr(H2D)5 Ce]Cl2 H2D & [Ca(H2D)4 Cl3] Ce2H2D

(i) [Cr (H2D)6]Cl3 & H does not lose H2D when treated à Conc H2SO4 & 3 Cl-ions are ppt à AgNO3

(i) [Cr(H20)5 (2) (1, H20 => It doesendt loses one water
molecule when treated to conchison & 2 (1ion are ppt to Ag NO3

(iii) [Cr(H20), (1)] (1 white) It loses a well moteorlewlen heated is cone H180, & one Co uon in pptol & Agras.

Similarly, the following a isomers are hyphrete iroment:

[Co(HH3), (H20) (4) (2) & [Co(HH2), (2)] (1:H20)

[Co(Py), (H20), (2)] (1 & [Co(Py), H20, (2)] · H20

[Co(en), 2 H20, (2)] (2) & [Co(en), (1), (2), (2)] · H20

2

3) Coordination ladege komerism: This type of isomersm and the isomer differ in the distribution of liquids and the consolination of there of carronic 2 anionic part. Eg [co(NH3)6][Cr(N)6] and [Cr(NH3)6][Cr(NH3)6] [C1 (NH3)4)[P6C4) and [PC (NH3)4][Cully] which the metal ion is the same in both carron & anion carfle 5. ii) [(x (NH3) 6] [Cran)6] 2 [(x (NH3)4(CN)2) [(x (NH3)(CN))] (ii) [Pt(NH3)4](P+C4) L (Pt(NH3)C4)-[Pt(NH3) C43] 4) Linkage Isomerism: compals à same mel for but differ un the mode of linkage/attachment of a ligare to the metal atom or ion are Gold lingage ésoners. for of No. (Niho) ion, N- as well as O- atom can donate their lone pairs. This give rise to isometism. I NOS -> Alito
Eg Penkammine cobelt ett schlonide containing NOS-90 in comple [G(NH3)5(NO2)] Cl2 [CO(NH3)5(ONO)] Cl2
Yellaw brown Red
Red Perkamminenitro cebalt (III) Monde Penfamminenitrilo cobalt , Se The unidentite ligards which can bind to the central atom of then a donor atom que also colled ambidentate ligendo: the some of ambidentile ligands are -CN > Cyano (then() - NC + isocyano (thruN) - SCN > thiocyanato (thrus) - MCS - isothiocycleto (than) [C

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and posticina à tereoisomers: Isomers à same moi jamula doiet Special arrangements around central atom.

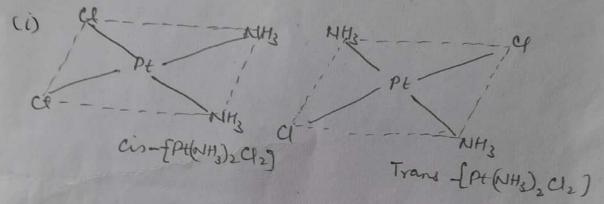
The types — Geometrical Isomerism

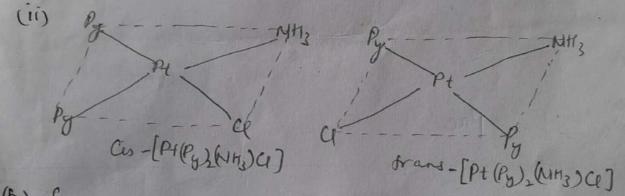
Ophical Isomerism 1) Guometrical isomerism: It is due to ligards occupying different positions around the centrel ion. Positions can be either adjectent to one another or Opposite to one another, which are referred as as form I trans form respectively. > Algo k/d as cis-trans usomers -> very common in cord" confor; due to diff out Cord nois varying from 2-9. 3 Guometrical isomerism of compos with CN 426 is very ump & discussed is Geometrical isomericas cin compleses è CN-4 Complenes è CN 4 adopt tetrahedral / square plemen geometry. In tetrahedral, geometrical insomerism is not Possible boos all the positions are adjacent in tetrahedral. Square plean positions octalected ex post diony -3 / cis 2-4 / trans 2-4 - trans [Co(en)2 H20. Q] Cl, Llo(en), Uzjy.

wra

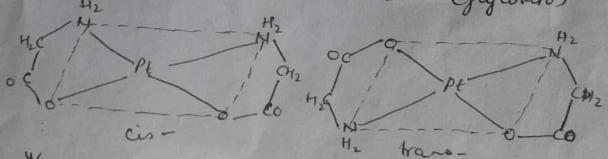
of [colen] y to oralode (00) etc. 8 AA > 8 grannetucal brolestate segand secol so estylendiganiaire Conplued of the MAAS & WARTX & WARTXY हम हिने तह रामाड BB [COLHALUS] GI Mospetasete entibit beamenred wonevien a) octahodral complemes of type MAXX, MAXX, MBX3 · cuerten odept ortehodred complians. Geometrical isomerism 3 CN. 6

(a) Square planer complemes of the type MAXX, MA, XY, MABX, MABX, MABX, MADON can oniest as geometrical iso mers (where A & B one newtral digenels such as 420, NH3, CO, NO, Co Hone os X & Y are anionic ligands each as Co, No, Co, No, CN, SCN etc.)





(b) Square plenar complenes containing unsymmetrical biolendate ligard such as [M(AB),) also show geometrical is omerism for eq. [P1(g/y),] where gly = H2NCH2 (00 - Cgly cirato)



* Squrare planar Complines of type MA4; MA3 X, MAX3 avill not show geometrical examerism boos un each case special arrangement of complexes are same.