

Stoichiometry

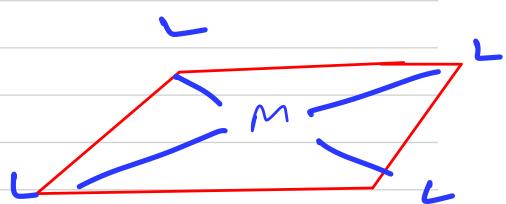


$$CN = 4.$$

Tetrahedral (SP^3)

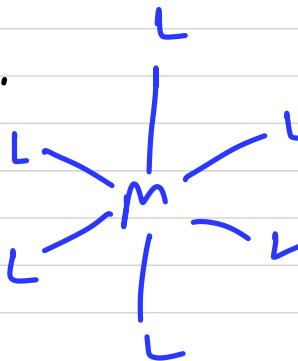


Square planar (d^2sp^2)



$$CN = 6$$

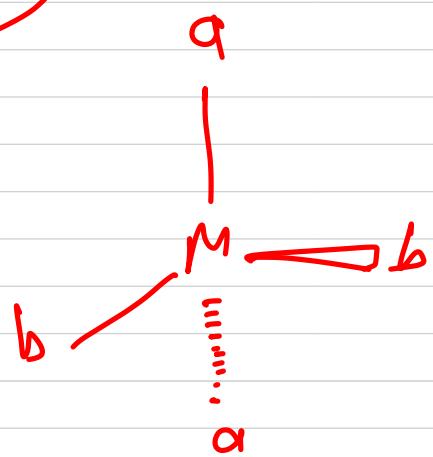
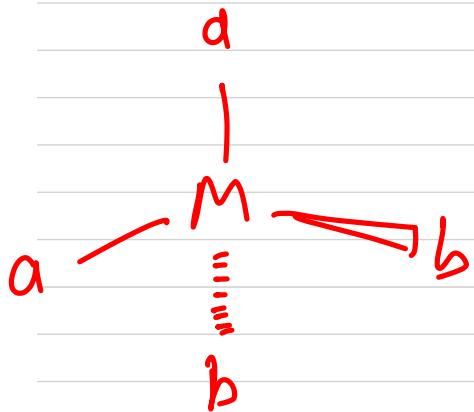
Octahedral.
 SP^3D^2



Octahedral,
 D^2SP^3

Geometrical Isom.: -

(C.N.=4. Tetrahedral)



No scope for G.I. by all rotation permutations are identical

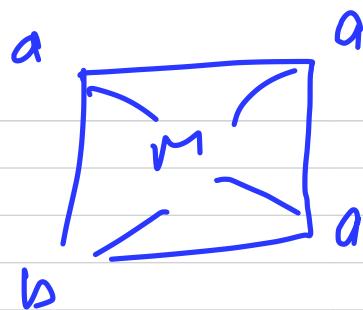
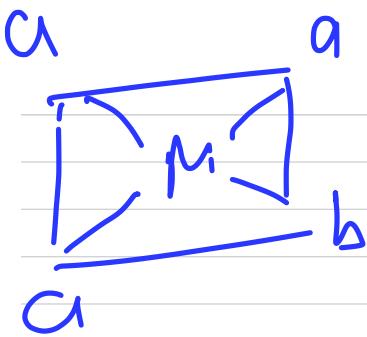
$\text{O}_\text{M}[\text{a}_3\text{b}]$ does not show G.I.
shape

~~After Td~~

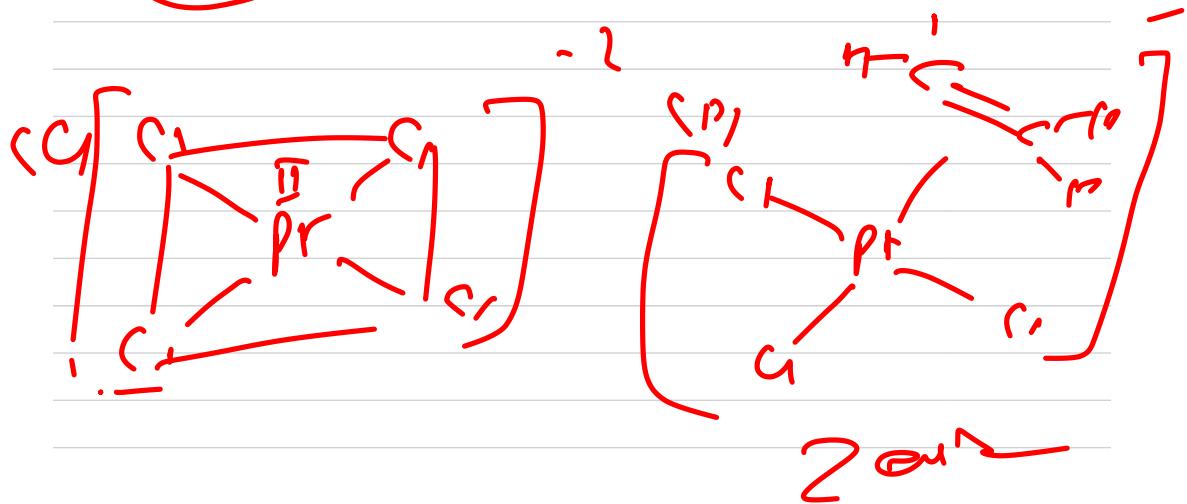
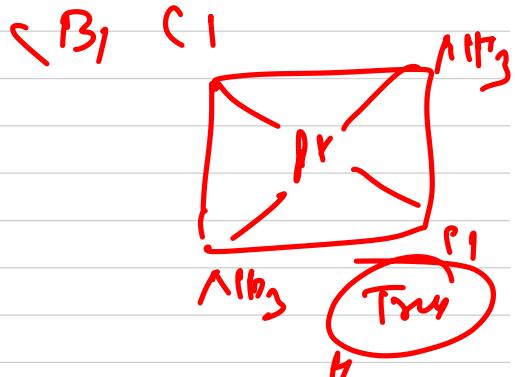
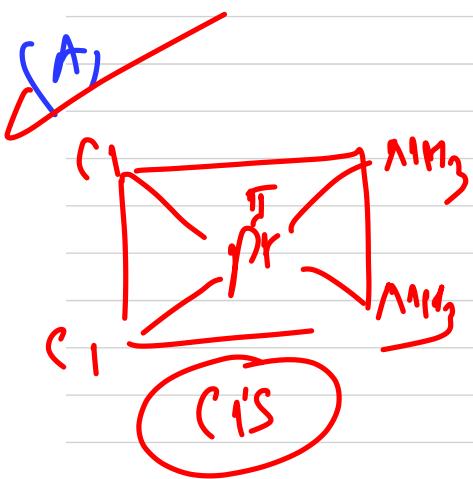
~~S_B~~ S_A P₁ca

C₁ OCTA

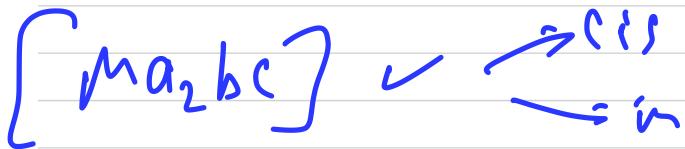
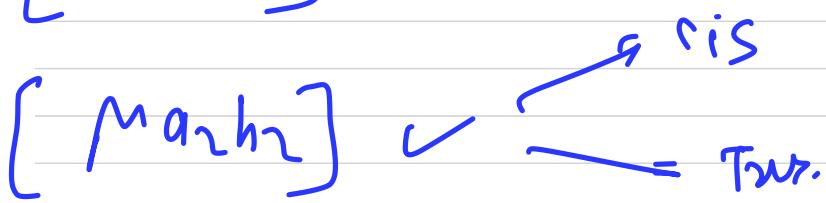
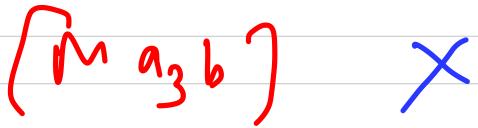
C_D T.B.P.

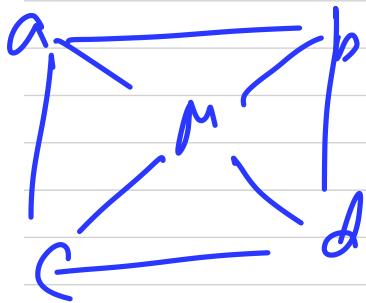
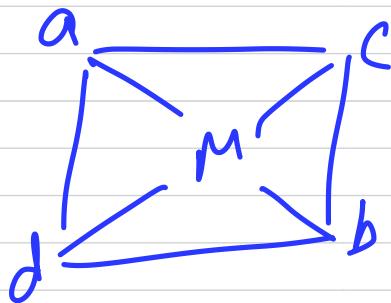
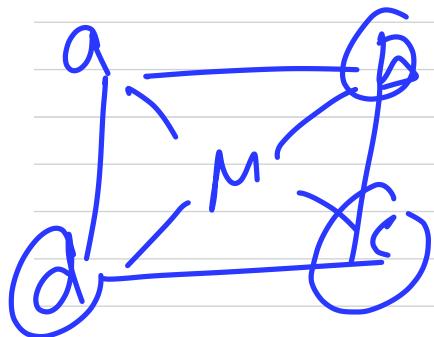
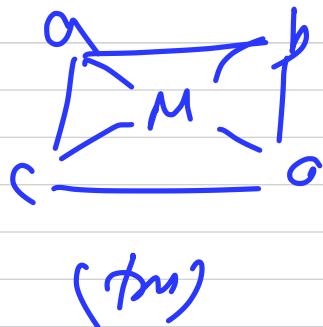
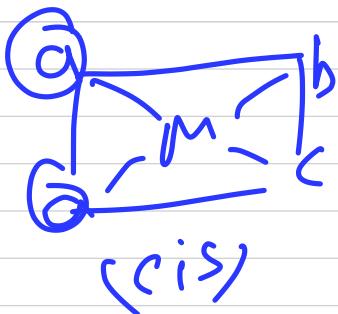


Q Anticancer drug / Antitumor

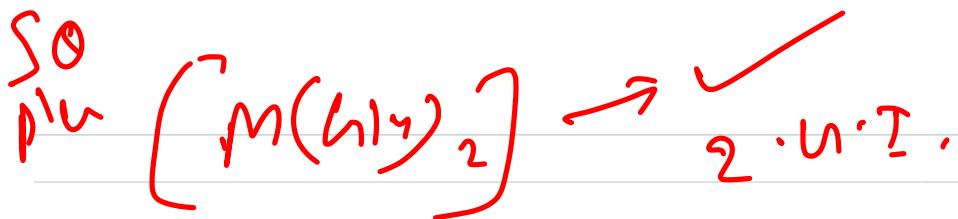


SQ Planar -





(3 h.I)
2ris 1 trans.

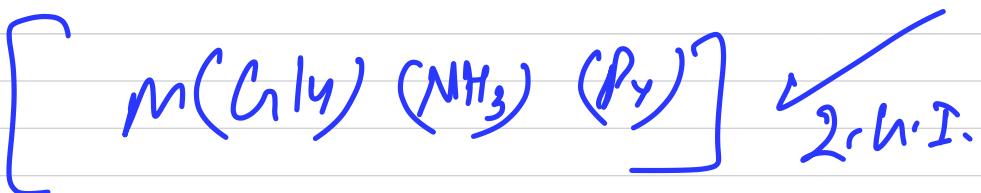
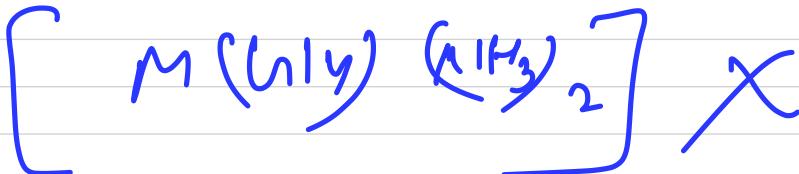
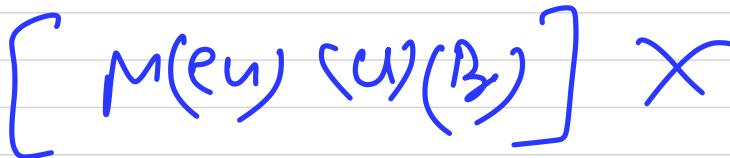
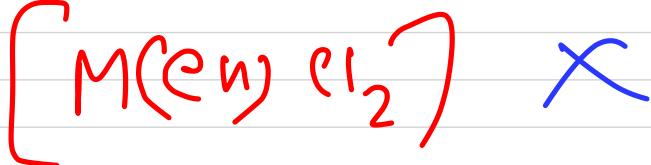


cis



trans

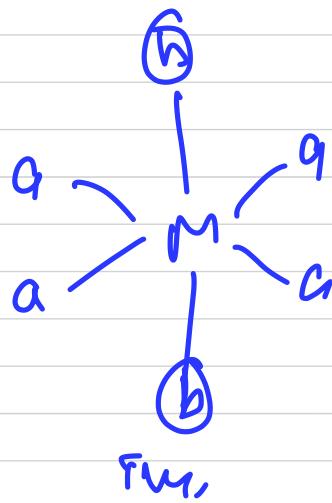
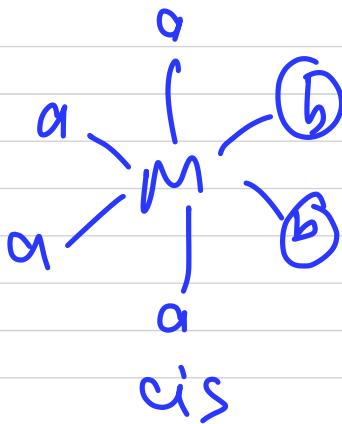
SO_4^{2-}



CN = 6-

$[Ma_5b]$ X

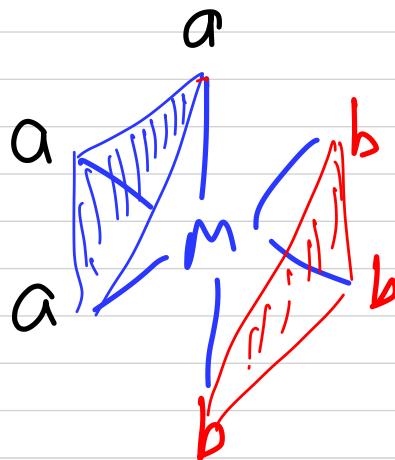
$[Ma_4b_2]$ ✓ 2.u.I.



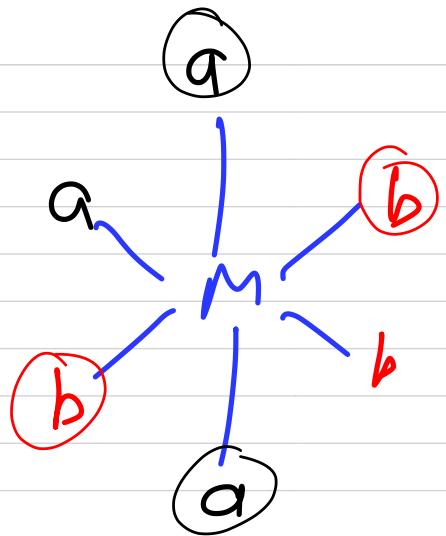
$[Ma_4b_2]$ ✓ 2.u.I.

$[Ma_3b_3]$

$[M a_3 b_3]$

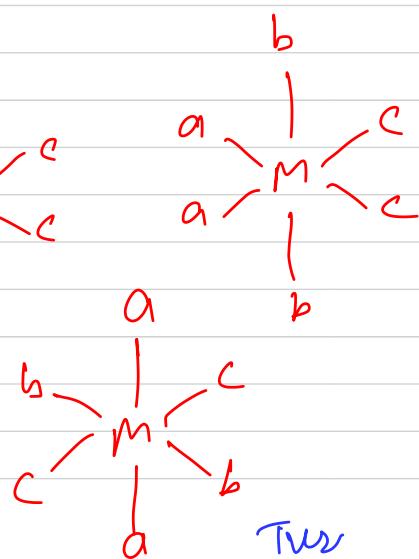
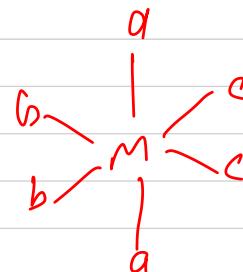
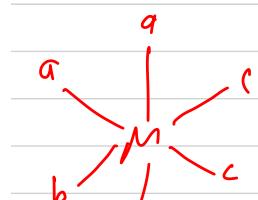


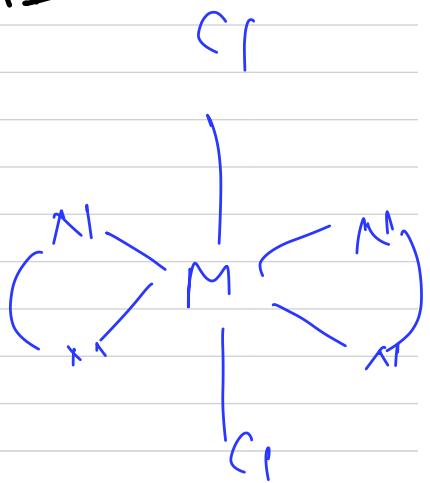
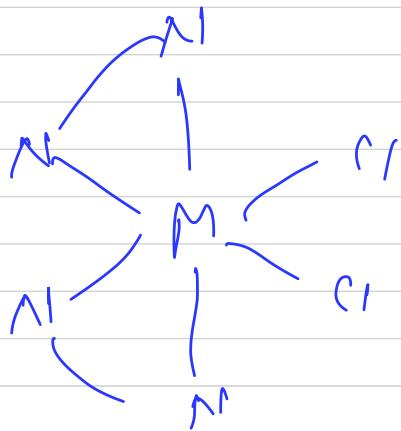
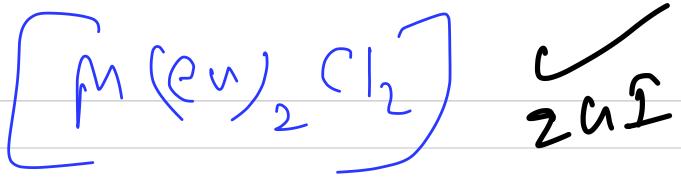
facial
(fac)



meridional
(mer)

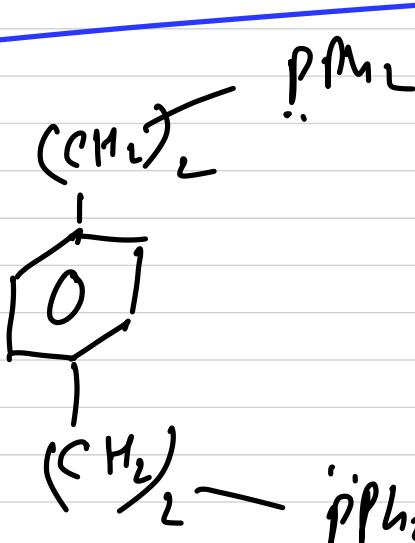
$[M a_2 b_2 c_2] \checkmark$ (S.U.I.)





(Cl)

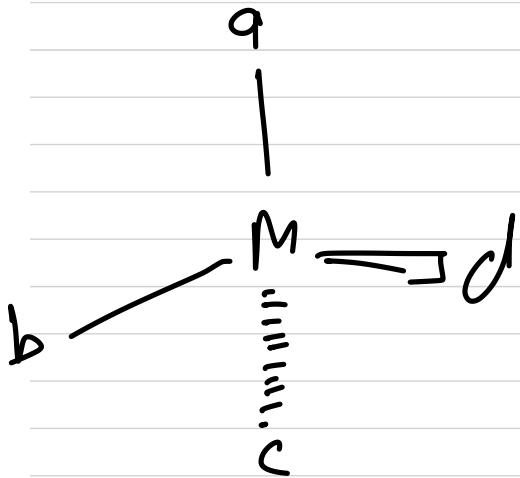
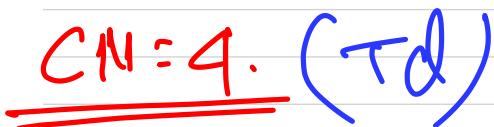
Für



trans chelating
ligand



(Optical isomers)

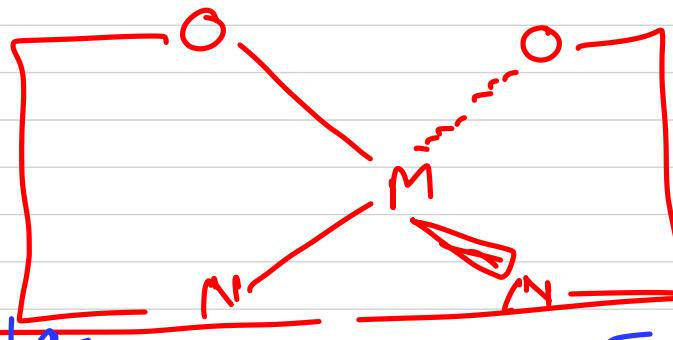


but this
fixed reflux
are consider
such lipid

Enchage
reaction

$$\frac{CN = 4y_1}{\text{Technique}} [M(AB)_2]$$

$$[M(61y)_2]$$



SOP plan \oplus Total dominable $[P^{\pi}(A_1m_2)(C_1R_2)(A_3)]$

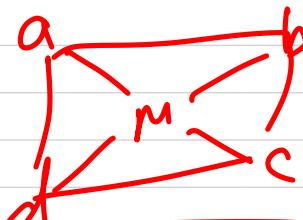
A·I & O·I

(A) 3 6

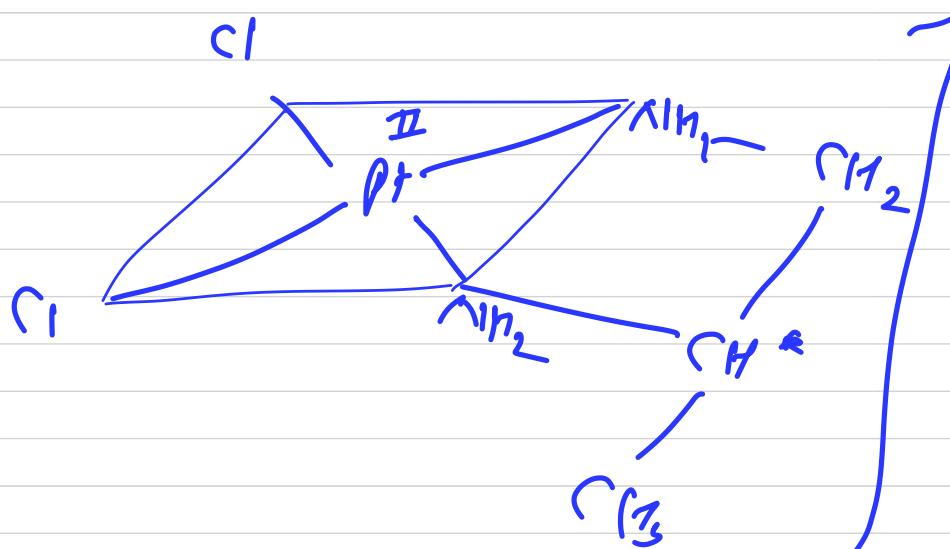
(B) 2, 4

(C) 0, 2

~~(D)~~ 3, 0
~~(E)~~ 0, 3



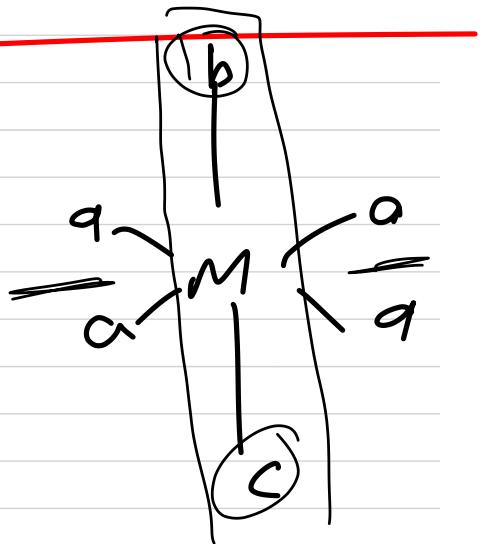
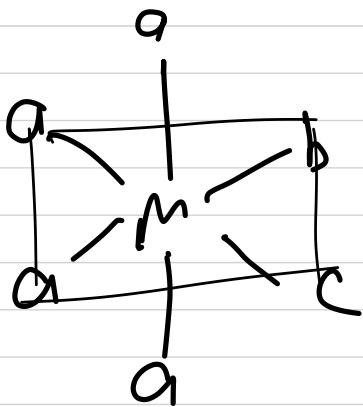
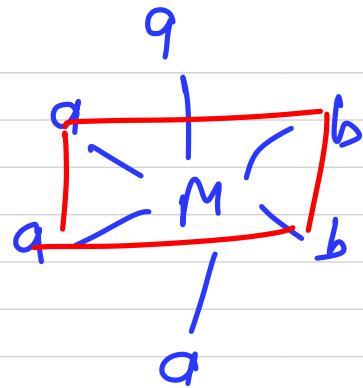
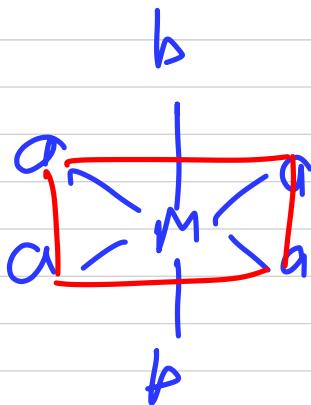
P^{+2} / Pd^{FL}
SOP



$CNI = G$ Octafelder

$[Mg_4b_2]$	2	$G \cdot I.$	$O I$	$S I$
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$[Mg_4bc]$	2	O	2
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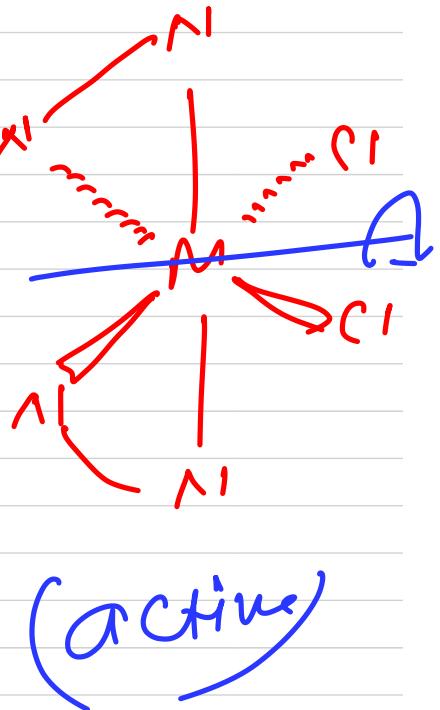
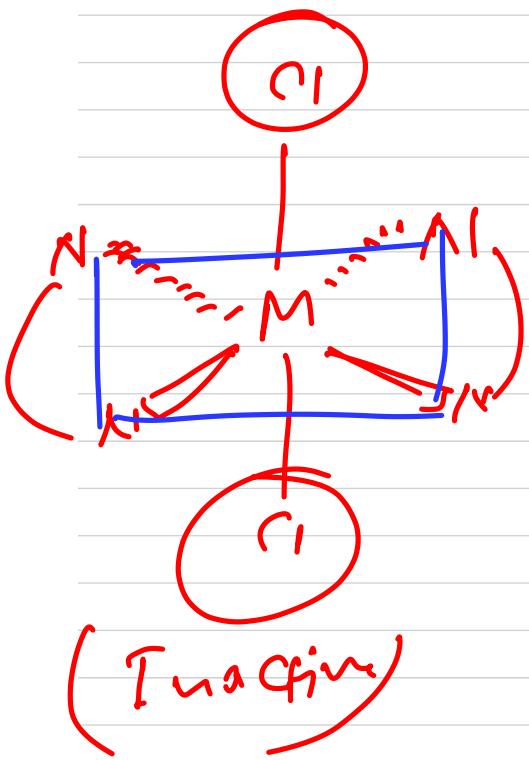
X

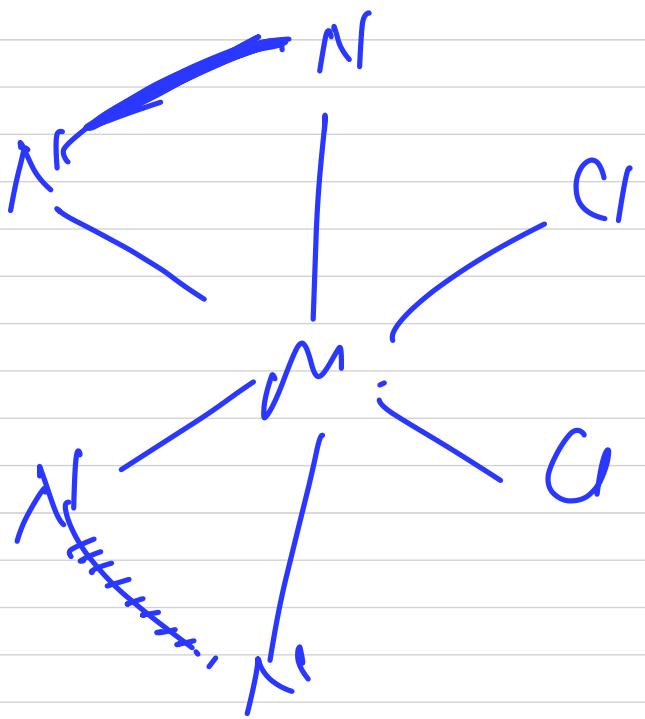
X

$[M(en)_2 Cl_2]$

C I O A e O · T M E P S I.

2 2 1 1 3

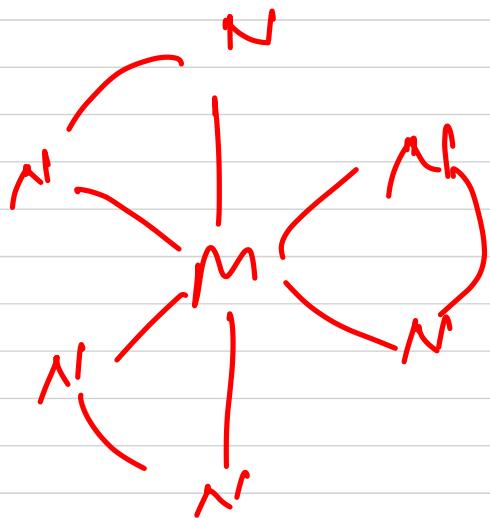




$[M(\text{en})_3]$

G.I. OAc OH E.P. S.I.

0 2 0 1 2



(H.W. · Question)

1. Write all possible G.I., optically active isomer, optically inactive isomer and stereoisomer of following :
 - (i) $[M(en)_2Cl_2]$
 - (ii) $[Ma_2b_2c_2]$
 - (iii) $[M(en)(C_2O_4)_2]$
 - (iv) $[M(en)_3]$
 - (v) $[M(en)(C_2O_4)(bipy)]$
 - (vi) $[Pt(NH_3)_2(H_2O)_2]Cl_2$
2. Select **CORRECT** about $[CoCl_3Br_3]^{3-}$

(A) It has 3 stereoisomer	(B) All stereoisomers are optically active
(C) Two optically active isomer	(D) All stereoisomers are optically inactive
(E) Only 1 stereoisomer have P.O.S.	
3. Find total number of P.O.S. in $[PtCl_6]^{2-}$
4. How many stereoisomers possible for $[M(en)(NH_3)_2(NO_2)_2]$
5. Total possible compound with molecular formula $[Pt(NH_3)_2(NO_2)Cl]$

(A) 2	(B) 3	(C) 4	(D) 5	(E) 6
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6. $[Ma_3b_2c]$ have :-
 G.I. = O.Ac. = O.InAc. = S.I. = E.P. =
7. Type of isomerism possible in $[Co(en)_3][Co(C_2O_4)_2(NO_2)_2]$

(A) Linkage isomerism	(B) Coordination isomerism
(C) Optical isomerism	(D) Geometrical isomerism
8. Select correct for $[ML_6]$ type octahedral complex :-

(A) It has C_4 – axis of symmetry	(B) It has C_2 – axis of symmetry
(C) It has C_3 – axis of symmetry	(D) It has C_6 – axis of symmetry

Q. $[M(bipy)_3]$ show G.I. and O.I. (T/F)

| Q. $[M(Gly)_3]$ show G.I. and O.I. (T/F)

| 1. Select which is/are optically active complex

- (A) pentaamminechloridocobalt(III) sulphate
- (B) cis-diamminedichloroplatinum(II)
- (C) trans-dicyanidobis(ethylendiamine)cobalt(III) bromide
- (D) sodium tris(oxalato)ferrate(III)

| 2. $[Mabcdef]$ type octahedral complex have 30 stereoisomer (T/F)

| 3. $[M(EDTA)]$ type octahedral complex show optical isomerism (T/F)

Q. 14, & 15 on Next Page

14. Draw all possible stereoisomers of $[\text{Cl}(\text{PPh}_3)\text{PtCl}_2\text{Pt}(\text{PPh}_3)\text{Cl}]$
15. Draw all possible G.I. of $[\overset{\text{III}}{\text{Co}}(\text{Gly})_2\text{Cl}_2]^-$