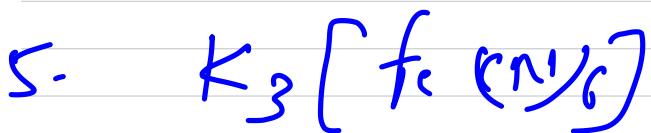
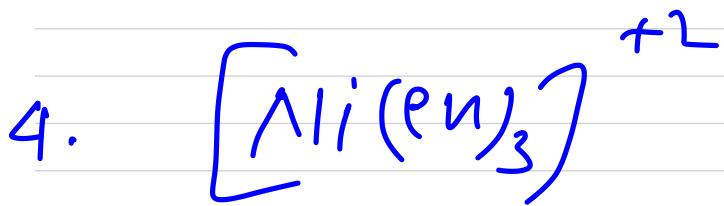
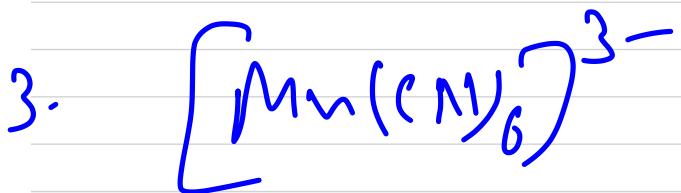
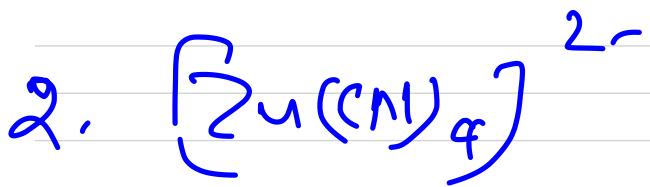
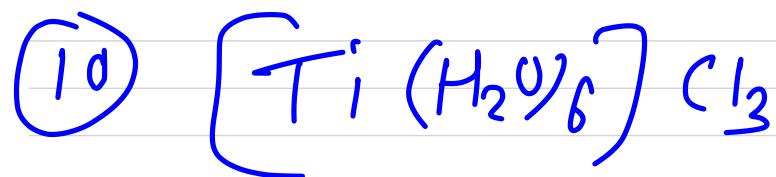
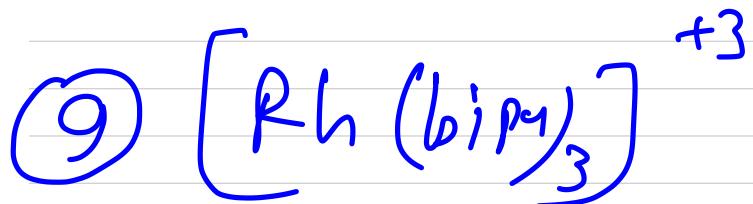


H.W.

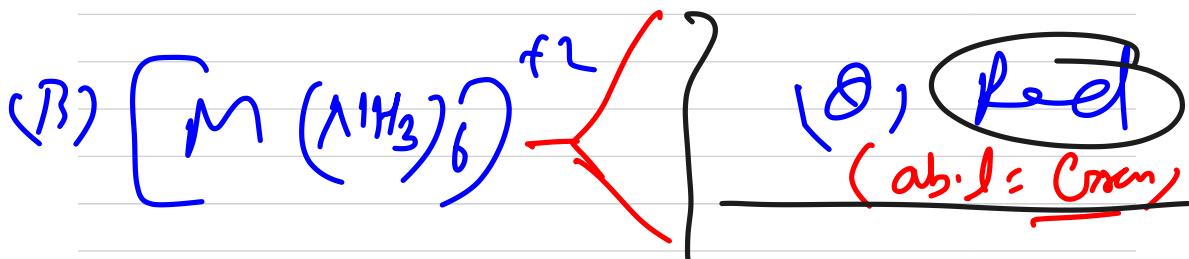
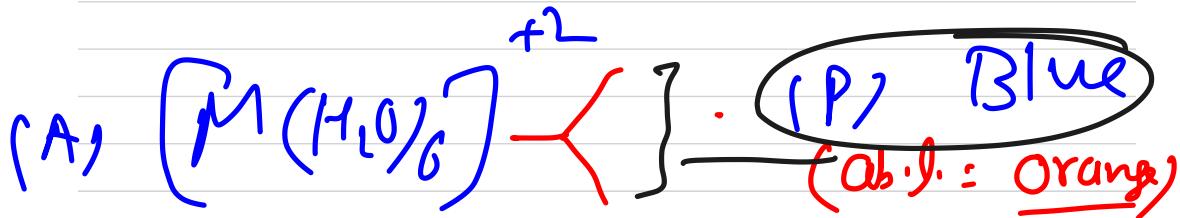


6. Sodium nitroprusside

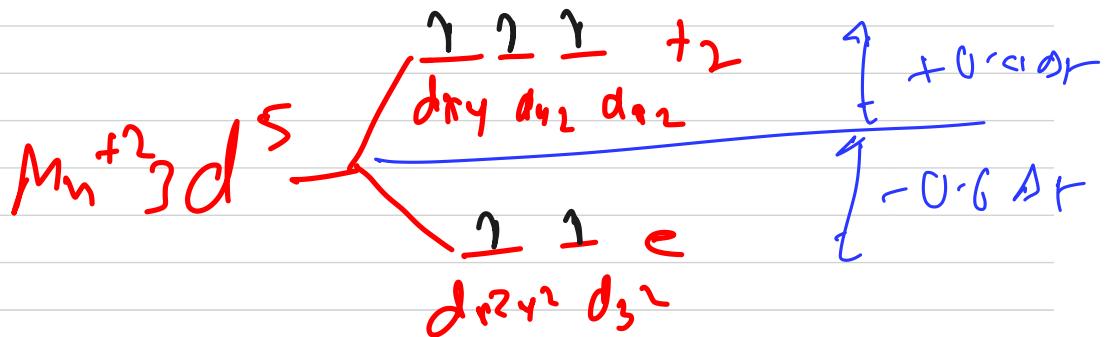
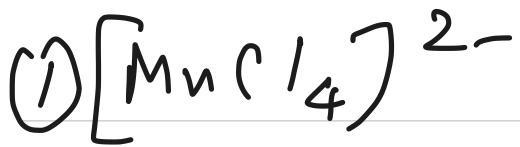




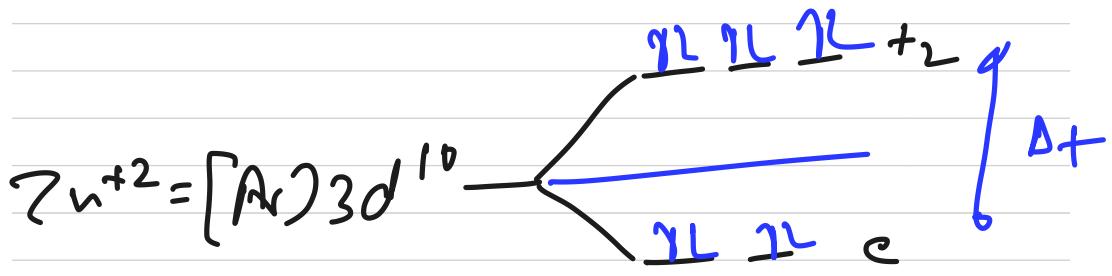
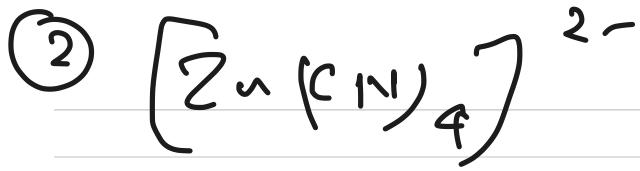
Q (I) (II)



VIBU₄O₁₂



- * tetrahedral SP³
- * Pauli
- * $M = \sqrt{3} S D \cdot M$
- * CFSE < PE
(ΔF)
- * Colored
- * Stabilization = 0
- * C², f₂³



tetrahedral

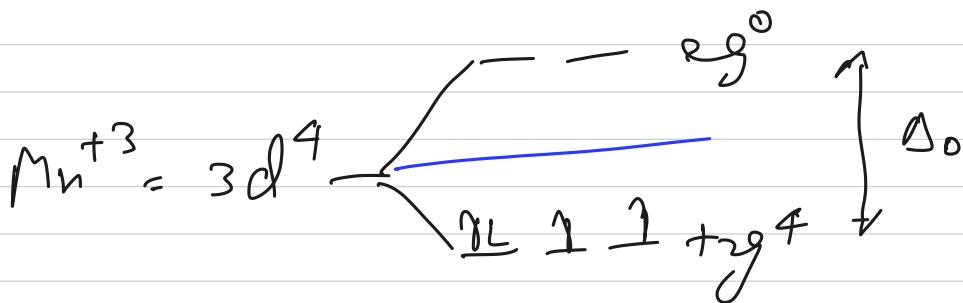
sp^3

Dia, $\Delta l = 0$

Colorless.

e^4, t_2G

$\Delta_f < PE$



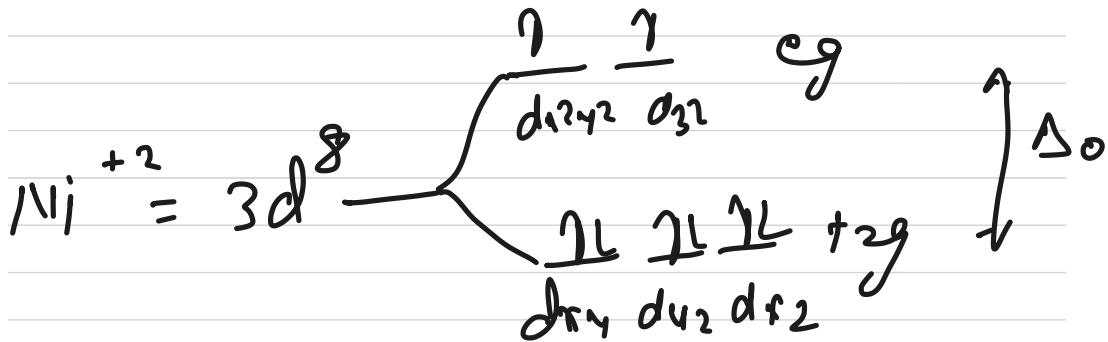
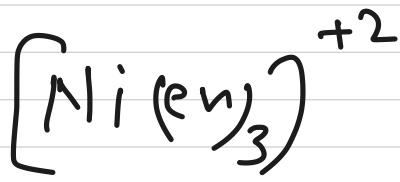
Octa, Para, $\mu = \sqrt{g} \cdot \text{B.M.}$, low spin

$\Delta_0 > \text{PE}$, Colored,

$$\begin{aligned} \text{CF Stabilization E} &= -0.4 \Delta_0 \times 4 \\ &= -1.6 \Delta_0 \end{aligned}$$

d^2sp^3 , Tern orbital

④

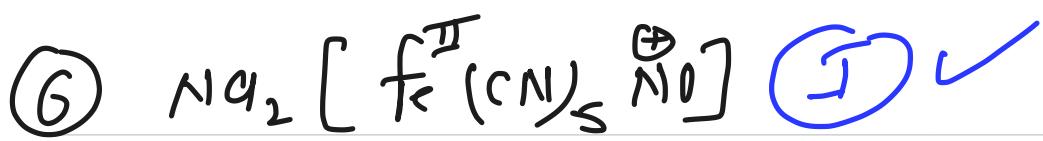


Octa, Parq. $\Delta = \sqrt{8} B.M.$

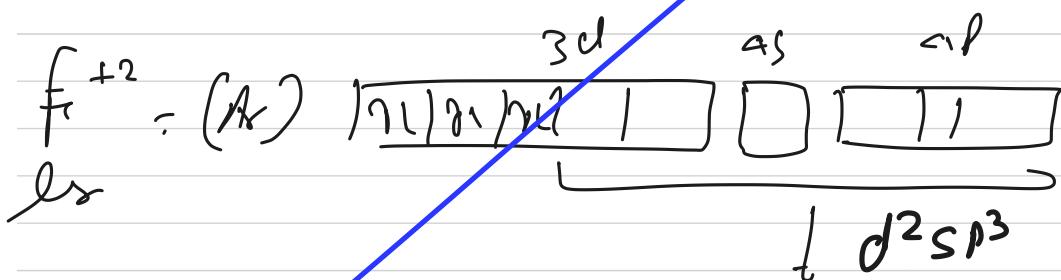
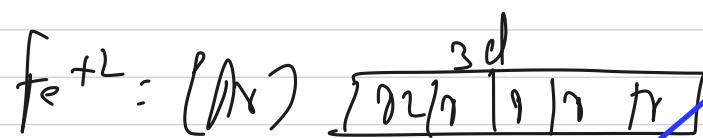
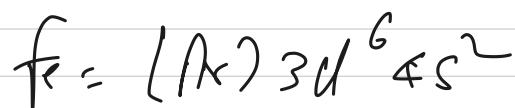
t_{2g}^6, e_g^2 , rotated

Stabilization E = $-1 \cdot 2 \Delta_0$

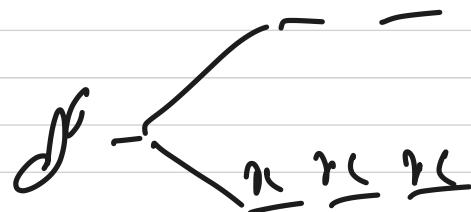
(SP3d², outer orbital)

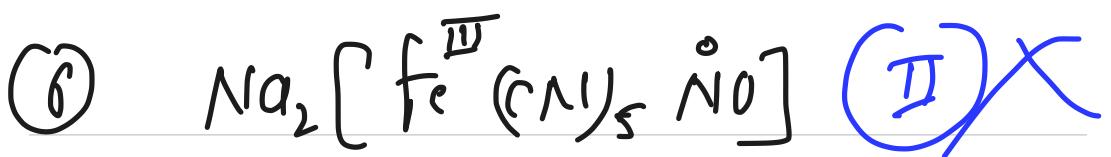


Sodium pentacyanidonitroferrate (II)

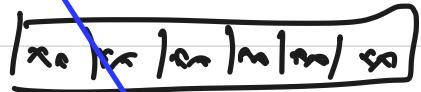
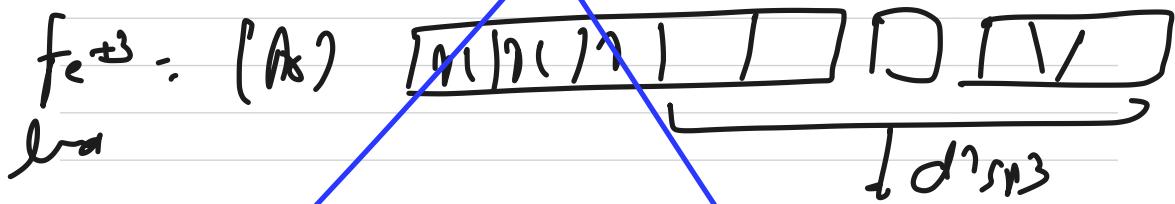
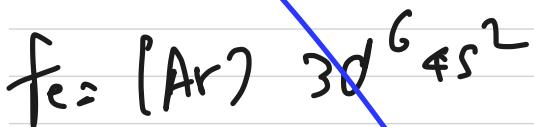


$d^2 s p^3$, octa, Dic

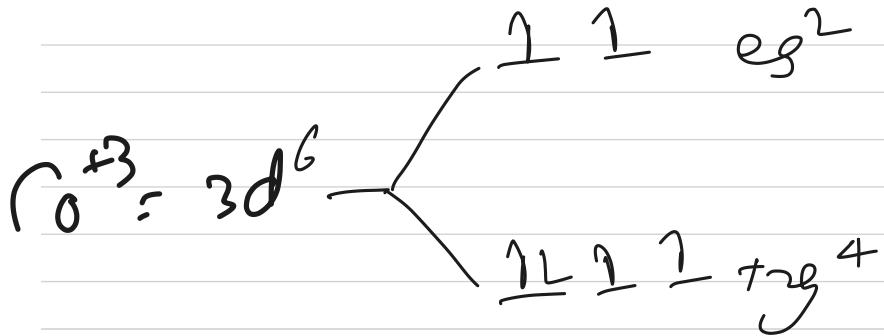




Sodium pentacyanido nitrosyl ferrate(II)



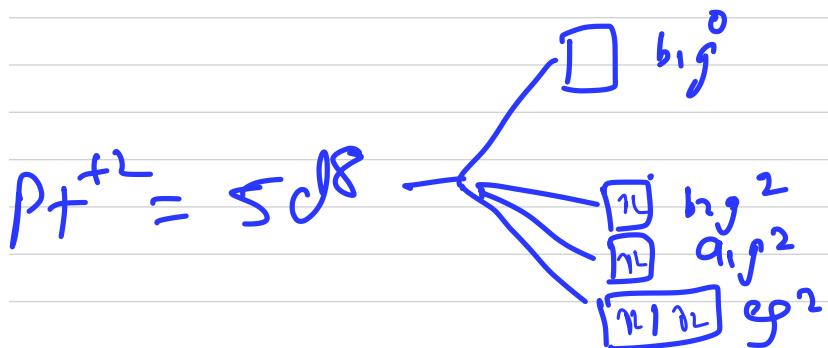
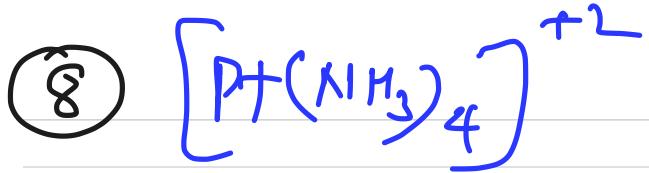
$d^2 s p^3$, lone



Oct, Para, $M = \sqrt{2} \Delta B.M.$

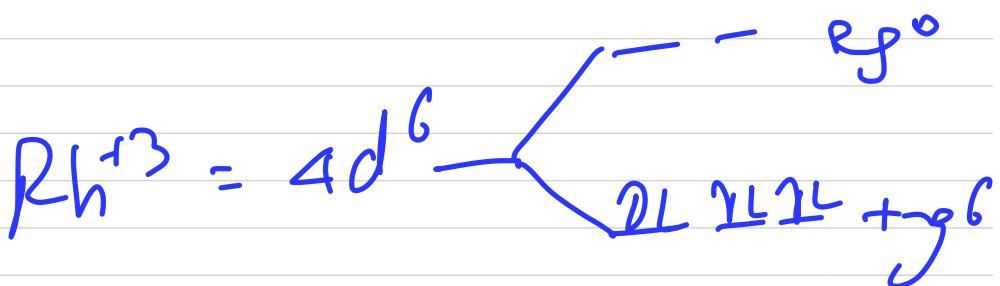
high spin, Colored, $\Delta_0 \text{CPF}$

C. Stabilization E: - 0.4 Δ_0



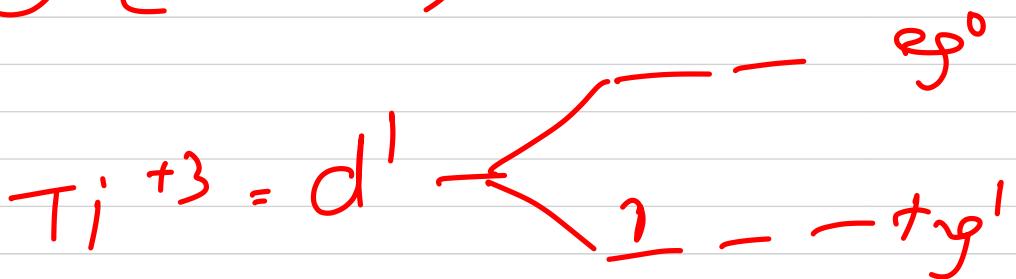
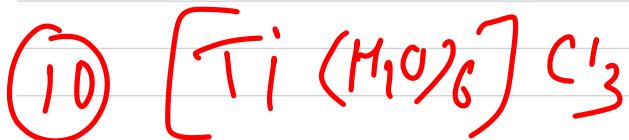
SO Plan, Dia, $\mu=0$, low spin
Colored

$d5p^2$, Inner orbital



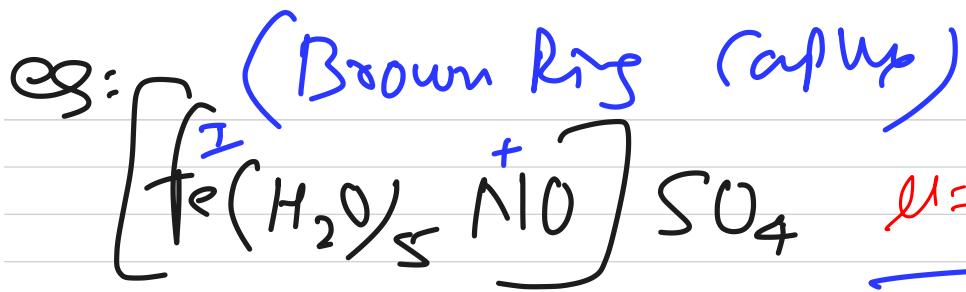
Octa, Dia, $\mu = 0$, Lewisian
Colored, $\text{CFSE} > \text{PE}$

d^2s^1 , Inn abitif



Octa, Para, $\mu = \frac{1}{3} \mu_B$.

Colored, d^2s^1 , Inn



IUPAC:

Pentaquaquoironium ion(I) sulfate

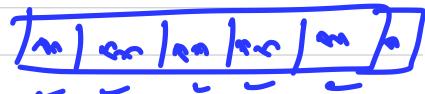
$$f_c = (\text{Ar}) 3d^6 4s^2$$

$$f_r^+ = (\text{Ar}) \boxed{\text{n} \text{l} \text{n} \text{l} \text{n} \text{n}} \quad \boxed{1}$$

$$f^+ = (\text{Ar}) \boxed{\text{n} \text{l} \text{n} \text{l} \text{n} \text{n}} \quad \boxed{\text{n}} \quad \boxed{\text{l}} \quad \boxed{\text{l}}$$

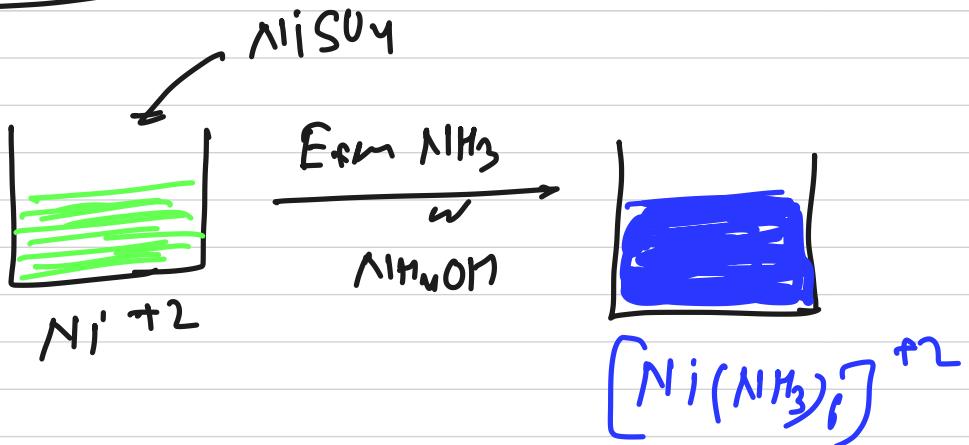
$\text{LS}3d^2$

SP^3d^2 , octahedral
octag.



Paq. $M = \sqrt{15}$ B.M

E + P - L



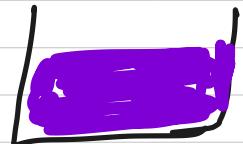
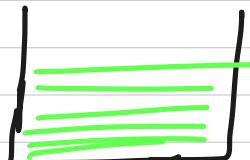
K_f:

$$\frac{[\text{Ni}(\text{NH}_3)_6]^{+2}}{[\text{Ni}^{+2}] [\text{NH}_3]^6} = 10^8$$

$$\frac{K_f = 10^8}{K_d = 10^{-8}}$$

ErP-2

NiSU₄



Ni⁺²

$\left[\text{Ni}(\text{en})_3 \right]^{+2}$



$$K_f = \frac{\left[\left[\text{Ni}(\text{en})_3 \right]^{+2} \right]}{\left[\text{Ni}^{+2} \right] (\text{en})^3} = 10^{18}$$

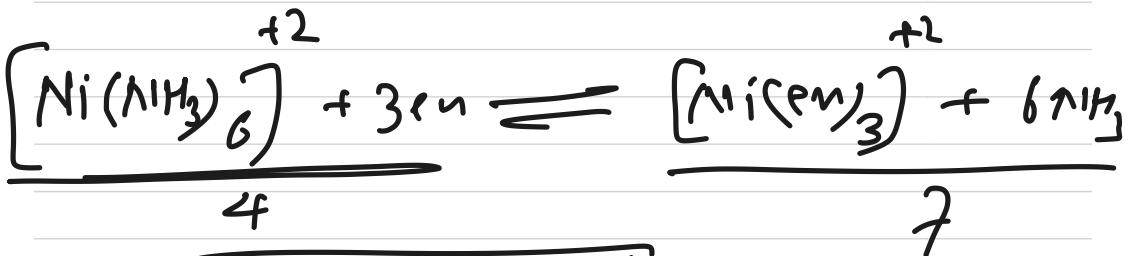
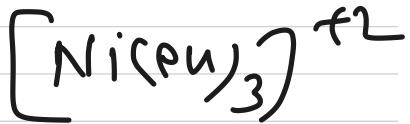
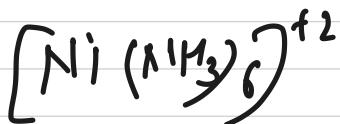
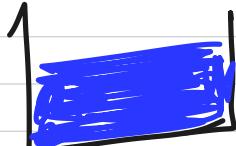
$$K_f = 10^{18}$$

$$K_d = 10^{-18}$$

Expt 3.

Experiments

Chelate effect



$$K_{sp} = 10^{10}$$

$$\Delta G^\circ = -RT$$

$$\Delta H^\circ = -RT \ln K$$

$$\Delta H^\circ = \Delta H^\circ_f - T\Delta S^\circ$$

$$\frac{[U(SO_n \cdot H, 0)]}{[K_1(SU_n \cdot A(H, 0))]^j} \cdot [L(H, 0)]$$

$$[U(H, 0)_4] SO_n \cdot H, 0$$

$$[K(H, 0)_6]_2 SO_n \cdot [A(H, 0)_6]_2 [S^m]$$

$$[F(H, 0)_6] SO_n \cdot (\lambda^{H_n})_2 SO_4$$

