

Name _____ (print) Name _____ (sign)

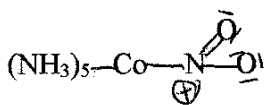
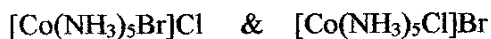
Please show all work for full credit & to get partial credit. (suggestion: A guess is better than no answer.)

turn in deadline in classroom: Please return the completed take home quiz by 4/22 M 11:45 am.

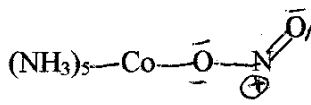
You will receive the answer key as you turn in the take home quiz in class. After this deadline the quiz will **be worth zero points** because I will hand out the key and will discuss the answers.

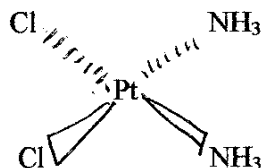
turn in deadline into turn in box: You may also turn in this quiz anytime before 11:20 am into my **turn in box or under the door of my office LSF 303 H** for full credit. You cannot turn in the take home quiz into my turn in box or under the door of my office after 11:20 am (for the 11:30 am class). I will check my turn in box and under the door of my office LSF 303H at 11:20 am. If the take home quiz has not been turned into my box by this deadline, then you would be turning in the take home quiz after **the answer key has already been handed out in class** (because I would already have entered the classroom and I will not be at my office or my turn in box & I will not be back at my office until after I have handed out the answer key) so the take home quiz will **be worth zero points** after this final deadline.

1. Given the isomer pairs shown, match the kind of isomer by using the letters given. Each blank may have one to as many as four of the possible isomer names. (a) cis/trans isomer type of geometric isomer (b) fac-mer isomer type of geometric isomer (c) coordination isomer type of structural isomer (d) linkage isomer type of structural isomer (8 pts, 2 pts per blank)

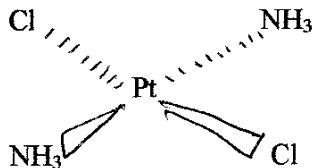


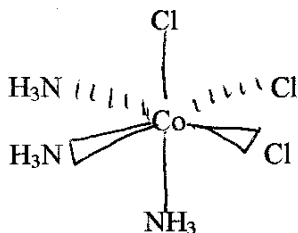
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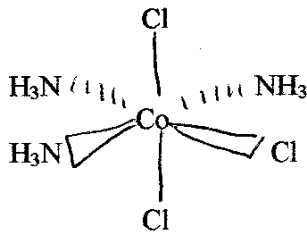


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2. For the reaction $2 \text{NH}_3(\text{g}) \rightarrow \text{N}_2\text{H}_4(\text{g}) + \text{H}_2(\text{g})$ calculate $\Delta G^\circ_{\text{RXN}}$ and $\Delta S^\circ_{\text{RXN}}$
{Some useful data: $\Delta G_f^\circ[\text{NH}_3(\text{g})] = -16.4 \text{ kJ/mol}$ $\Delta G_f^\circ[\text{N}_2\text{H}_4(\text{g})] = 159.4 \text{ kJ/mol}$ S°
 $[\text{NH}_3(\text{g})] = 192.8 \text{ J/mol K}$ $S^\circ[\text{N}_2\text{H}_4(\text{g})] = 238.5 \text{ J/mol K}$ $S^\circ[\text{H}_2(\text{g})] = 130.7 \text{ J/mol K}$ } (You may also find
kilojoule = 1000 Joule useful) (12 pts)

$$\Delta G^\circ_{\text{RXN}} = \sum n \Delta G_f^\circ(\text{product}) - \sum n \Delta G_f^\circ(\text{reactant})$$

$$\Delta S^\circ_{\text{RXN}} = \sum n S^\circ(\text{product}) - \sum n S^\circ(\text{reactant})$$