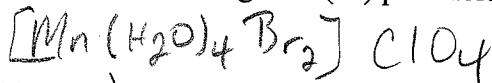


CH 223 – Worksheet 5

1. Write the formula for each of the following

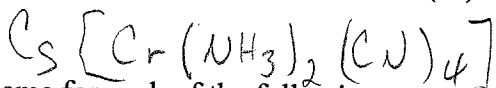
a) tetraaquadibromomanganese(III) perchlorate



b) bis(bipyridyl)cadmium(II) chloride



c) cesium diamminetetracyanochromate(III)



2. Write the name for each of the following

a) $[\text{Cd}(\text{en})\text{Cl}_2]$

dichloroethylenediaminecadmium(II)

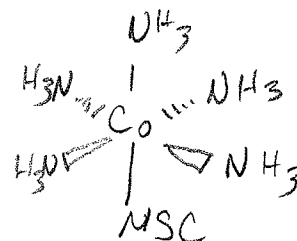
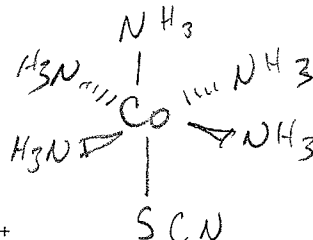
b) $\text{K}_4[\text{Mn}(\text{CN})_6]$

potassium hexacyanomanganate(II)

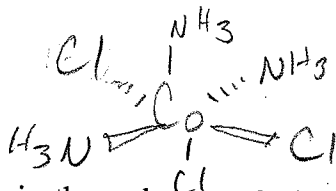
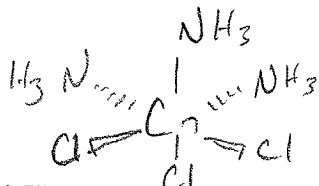
c) $[\text{Ir}(\text{NH}_3)_4(\text{H}_2\text{O})_2](\text{NO}_3)_3$

tetraammineaqua iridium(III) nitrate

3. a) Draw the two linkage isomers of $[\text{Co}(\text{NH}_3)_5\text{SCN}]^{2+}$



- b) Draw the two geometric isomers of $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]^{2+}$



4. (a) How can we calculate ΔS for an isothermal process? (b) Does ΔS for a process depend on the path taken from the initial to the final state of the system? Explain.

$$\Delta S = \frac{\Delta H_{\text{sys}}}{T}$$

No state functions are path independent.

5. Indicate whether each of the following processes produces an increase or decrease in the entropy of the system:

(a) $\text{CO}_2(\text{s}) \rightarrow \text{CO}_2(\text{g})$

a) increase

(b) $\text{CaO}(\text{s}) + \text{CO}_2(\text{g}) \rightarrow \text{CaCO}_3(\text{s})$

b) decrease

(c) $\text{HCl}(\text{g}) + \text{NH}_3(\text{g}) \rightarrow \text{NH}_4\text{Cl}(\text{s})$

c) decrease

(d) $2 \text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2 \text{SO}_3(\text{g})$

d) decrease