Complex ion questions.

V. Draw the cis and trans isomers of the [Co(en)2(NH3)Cl]2+ ion. Be sure to indicate which is which. ( 6 pts)

B. Give the name of the ion. (either isomer) (en = ethylenediamine)

C. Indicate whether each of your two isomers is chiral. (has an optical isomer)

\_\_\_\_\_\_\_\_\_\_\_1. Which pair of transition metals BOTH form +2 ions having exactly 4

unpaired electrons? A) Fe and Co B) Cr and Fe C) Mn and Co

D) Mn and Cr

\_\_\_\_\_\_\_\_\_\_\_2. The complex [Pt(NH3)2ClBr] exists as two different isomers. The probable

geometry of the complex is A) tetrahedral B) square planar

C) octahedral D) trigonal planar

\_\_\_\_\_\_\_\_\_\_\_3. Indicate the coordination number about the metal and the oxidation number

of the metal in each of the following complexes. ( 1 pt each)

|  |  |  |
| --- | --- | --- |
| Complex | Coordination number | Oxidation number |
| [Mn(H2O)5Br]+ |  |  |
| [Co(C2O4)(NH3)4] |  |  |
| [Mo(en)2F2]NO3 |  |  |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_30. Using brackets to indicate the coordination sphere, write the formula for pentaaquabromomanganese (III) sulfate.

\_\_\_\_\_\_\_\_\_\_\_\_\_31. Give the name of the compound

K4[Fe(CN)6]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_32. The hexacyanoferrate (III) ion is a low spin complex, and has

A) 0 B) 1 C) 2 D) 4 E) 5 unpaired electrons.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_33. How many electrons are contributed to the coordination sphere

by a bidentate ligand?