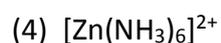
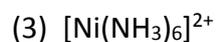
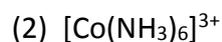
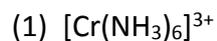


Answer on Question #41174 -Chemistry-Physical Chemistry

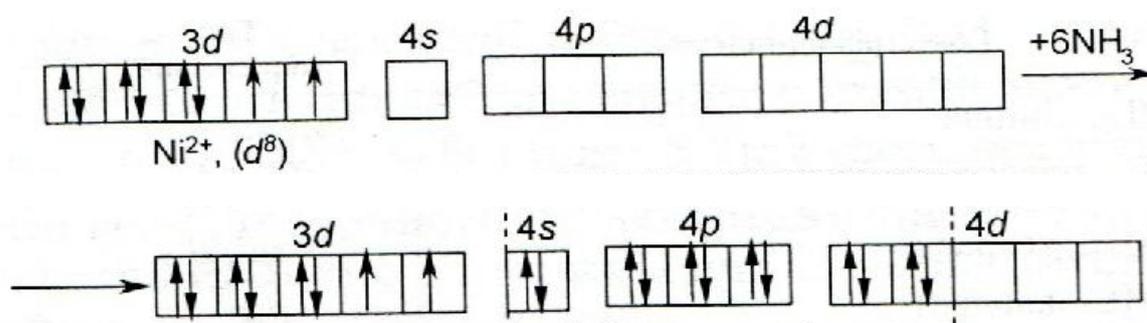
Question.

Which one of the following is an outer orbital complex and exhibits paramagnetic behavior?



Solution.

Outer-orbital or high-spin or spin-free complexes are the complexes that use outer d -orbitals in hybridization; for example, $[\text{Ni}(\text{NH}_3)_6]^{3+}$. The hybridization scheme is shown in the following diagram.



It can be easily seen that the hybridization of complex is sp^3d^2 .

According to the diagram, the compound has 2 unpaired electrons and exhibits paramagnetic behavior.

Answer: (3) $[\text{Ni}(\text{NH}_3)_6]^{2+}$