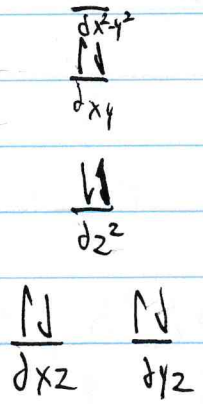
Lecture 29 Problems

Problem 1

(a): $d^{10-2} = d^8$

(b): To determine this, draw the square planar field splitting diagram:

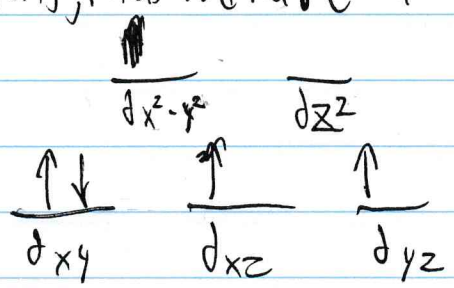


Diamagnetic.

Problem 2

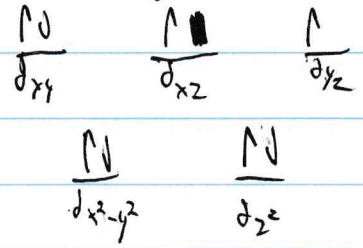
(a): d^n has $n = 7-3 = 4 \Rightarrow d^4$

The ligands are strong, thus we have a strong field & to consider



Low spin, $(t_{2g})^4$ 2 unpaired

(b): d^n has $n = 10-2 = 8$, d^8; tetrahedral is generally weaker



$(e)^4 (t_2)^4$ high spin 2 unpaired