Symmetry of Molecules and Group Theory (Hagiwara)

Problem Set #3(For Chapter 3&4) 2019/10/23

1. Find the irreducible representation for the d orbitals, d_{xy}, d_{xz}, d_{yz} and $d_{x^2-y^2}$ in the point group D_4 (See the character table on p.247 to find the symmetry operations if necessary).

2. Derive the character table for the point group C_{4v} from the rules written on p.65-69. Of course you cannot look up the character table.

3. XeF$_4$ is a square planar molecule. Taking the four fluorine atoms as a basis, obtain the representation for symmetry operation and reduce it.