Quiz 10.1 – Molecular Shapes and Symmetry Groups

Name: _____

Symmetry Operations

List and briefly describe all symmetry operations

The inversion operator, i, can be represented by combinations of other operators. For example, three consecutive reflections $\sigma_x\sigma_y\sigma_z$ would accomplish the same transformation as i. There is also one *single* operator which is equivalent to i. What is this single operator?

Symmetry Groups

Assign each molecule or ion to a symmety point group

- ○ CO_2
- ○ CH_4
- ○ NO_3^-
- ○ NH_3
- ○ PCl_5
- ○ SF_4
- ○ SF_6
- ○ ClF_5
- ○ XeF_4
- ○ C_2H_6 (staggered conformation)
- ○ CH_2CCH_2
- ○ $C_{10}H_8$ (naphthalene)