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)

When You See Water

By Alice Walker

When you see water in a stream
you say: oh, this is stream
water;
When you see water in the river
you say: oh, this is water
of the river;
When you see ocean
water
you say: This is the ocean's
water!
But actually water is always
only itself
and does not belong
to any of these containers
though it creates them.
And so it is with you.