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AP Chemistry – VSEPR – 15

Name _____Per ___

1. Use average bond enthalpy values to determine the change in enthalpy for the following reaction:

$CO_2 + 4F_2 \longrightarrow CF_4 + 2OF_2$

2. Although I_3^- is known, F_3^- is not. Use a Lewis structure to show how I_3^- is formed and explain why F_3^- is not.

3. Indicate the number of electron domains about a central atom, given the following angles between them:

(a) 120°

(b) 180°

(c) 109.5°

(d) 90°

4. An AB_3 molecule is described as having a trigonal bipyramidal electron-domain geometry. How many nonbonding domains are on atom A? What is this type of geometry called? Explain.

5. What are the electron-domain **and** molecular geometries of a molecule that has the following electron domains on its central atom?

(a) Three bonding domains and no nonbonding domains.

(b) Three bonding domains and one nonbonding domain.

(c) Two bonding domains and three nonbonding domains.

6. Give the electron-domain **and** molecular geometries for the following molecules:

(a) N_2O

(b) SO_3

(c) PCl_3

(d) NH_2Cl

(e) BrF_5

(f) KrF_2

7. What geometries will give nonpolar molecules for the following types of molecules:

(a) AB_2

(b) AB_3

(c) AB_4