

Some things to review:

- 1) Give the electron configuration of phosphorus.
- 2) Give the dot structure for hydrogen peroxide.
- 3) Draw the dot structure for  $\text{CH}_2\text{CHCH}_2\text{COOH}$ .
- 4) What is the hybridization of the carbon atom in methane?

5) What is the hybridization of the carbon atom in formaldehyde,  $\text{H}_2\text{CO}$ ?

6) Which atom has a partial negative charge in  $\text{H}_2\text{O}$ ? in  $\text{NCl}_3$ ?

7) Which bond is more polar:  $\text{H} - \text{Cl}$  or  $\text{H} - \text{Br}$ ?

8) Draw the structure and assign formal charges to each atom in  $\text{SO}_4^{2-}$ .

9) Give the shapes that correspond to the following hybridizations:  $\text{sp}$ ,  $\text{sp}^2$ ,  $\text{sp}^3$ .

- 11) What is the shape of the p-orbital?
- 12) How many bonds does each have to have in order to be a neutral atom (no formal charge or lone electron): carbon, chlorine, oxygen, hydrogen, nitrogen.
- 13) Is the C-H bond considered to be a polar or nonpolar covalent bond?
- 14.) Draw an orbital picture for  $\text{CCl}_4$
- 15.) Draw/ID methyl cation, methyl radical, methyl anion
- What type of hybridization is in each?
- 16.) What are the names/angles of basic geometric shapes, up to 4 total clouds?