1. Using the diagram below, assign all of the electrons present in phosphorus (P) to their proper orbitals, shells and approximate energy level.

P: 15 electrons

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1s  2s  2p_x 2p_y 2p_z  3s  3p_x 3p_y 3p_z

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2. Identify the formal charges for the highlighted atoms in the structures below.
3. Indicate the hybridization of each of the indicated atoms.

4. What types of orbitals are overlapping to form the highlighted bonds?
5. In each case below, draw the curved arrows reqire in order to convert to each other, in each case begin by drawing all lone pairs and then use formal charges to guide you.

6. Draw at least 3 resonance structures for each of the following compounds.