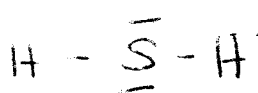
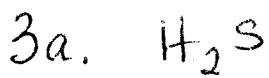
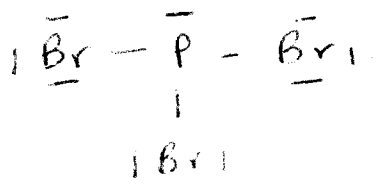
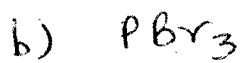


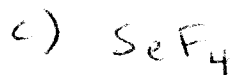
Chem 1151		HW6						
1a	Na, Mg, Al							
1b	Ca, Ga, Ge							
1c	As, P, S							
2a	$\delta^+$ P-O $\delta^-$							
2b	$\delta^+$ Si-Cl $\delta^-$							
Problem 3		(see attached for Lewis structures)						
Molecule	# total e-	# e- around central atom	# bonds	# LPs	e- pair geometry	molecular geometry	Formal Charge	
H <sub>2</sub> S	8	8	2	2	tetrahedral	bent or V	0	
PBr <sub>3</sub>	26	8	3	1	tetrahedral	trig pyram	0	
SeF <sub>4</sub>	34	10	4	1	trig bipyram	see-saw	0	
IF <sub>6</sub> <sup>+</sup>	48	12	6	0	octahedral	octahedral	1	
POCl <sub>3</sub>	32	8	4	0	tetrahedral	tetrahedral	1	
BeF <sub>3</sub> <sup>-</sup>	24	6	3	0	Trig planar	trig planar	-1	
ClO <sub>3</sub> <sup>-</sup>	26	8	3	1	tetrahedral	trig pyram	2	
NO <sub>2</sub> <sup>+</sup>	16	8	2	0	linear	linear	1	
NO <sub>2</sub> <sup>-</sup>	18	8	2	1	trig planar	bent or V	0	
COOH <sup>-</sup>	18	8	2	1	trig planar	bent or V	0	
Problem 4	8.54a							
$\Delta H = D(\text{H-C}) + D(\text{C} \equiv \text{N}) + 2D(\text{H-H}) - 3D(\text{C-H}) - 2D(\text{N-H}) - D(\text{C-N})$ $= 413 + 891 + 2(432) - 3(413) - 2(391) - 305$ $= 2168 - 2326 = -158 \text{ kJ}$								
Problem 4	8.108		(see attached for Lewis structures)					
$\Delta H = 2D(\text{O-H}) + 2D(\text{C-O}) + D(\text{C=O}) - 2D(\text{C=O}) - 2D(\text{O-H})$ $= 2(467) + 2(358) + 745 - 2(799) - 2(467)$ $= 2(358) + 745 - 2(799) = 137 \text{ kJ}$ <p>note 799 kJ is the C=O bond energy in CO<sub>2</sub> and 745 kJ is the avg C=O bond energy see Table 8.4 and footnote</p> <p>2 C=O bonds in CO<sub>2</sub> is more stable than one C=O bond in the acid.</p>								



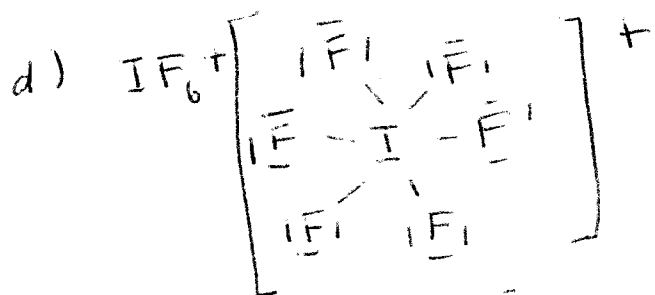
$$\text{FC} = 6 - \frac{4}{2} - 4 = 0$$



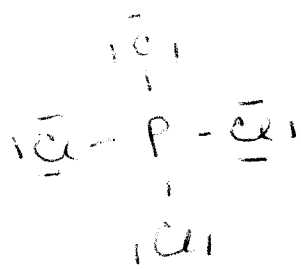
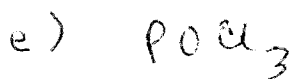
$$\text{FC} = 5 - \frac{6}{2} - 2 = 0$$



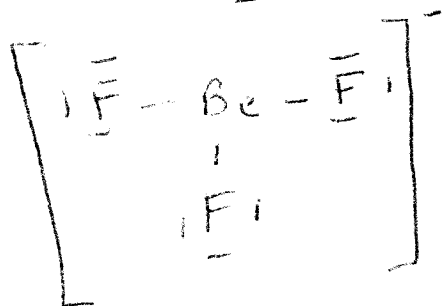
$$\text{FC} = 6 - \frac{8}{2} - 2 = 0$$



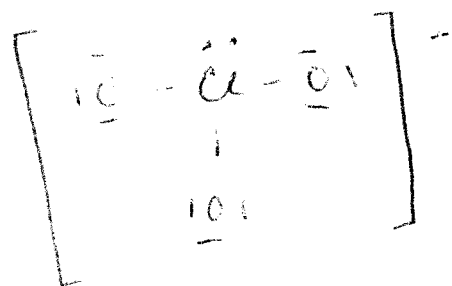
$$7 - \frac{12}{2} = +1$$



$$5 - \frac{8}{2} = +1$$



$$2 - \frac{6}{2} = -1$$



$$7 - \frac{6}{2} - 2 = +2$$

