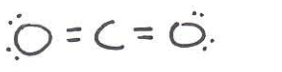
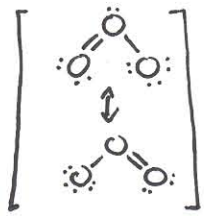
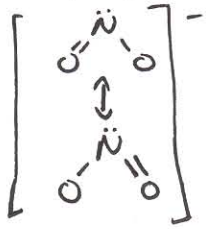
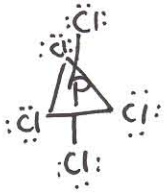
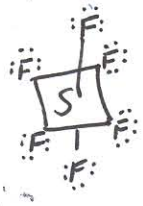
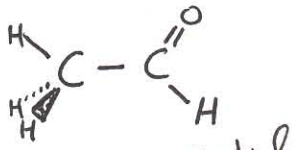
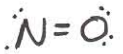
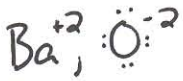
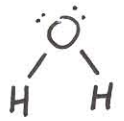
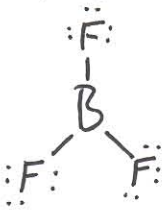
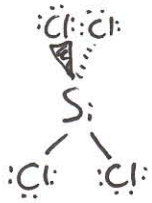
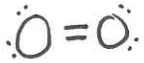
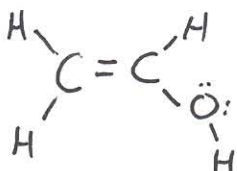
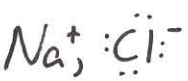
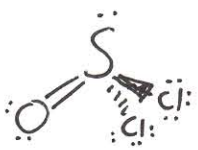
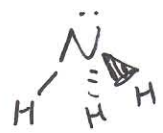
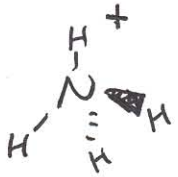
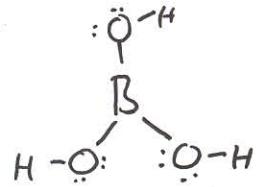
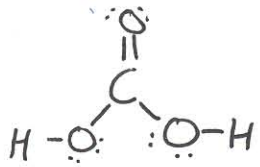
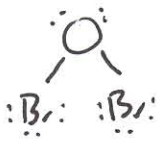
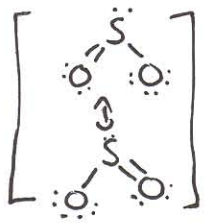
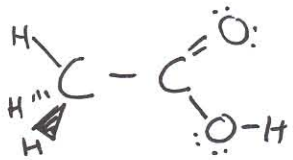
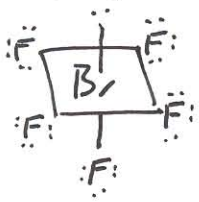
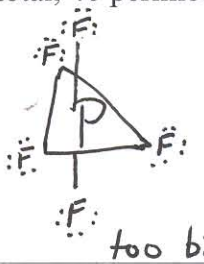
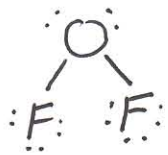
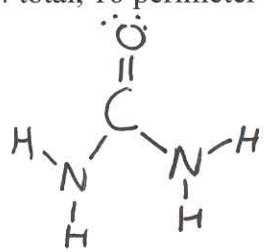
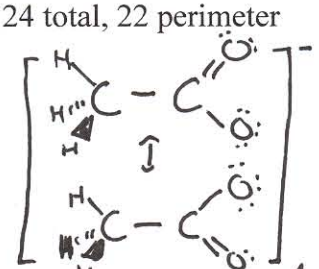
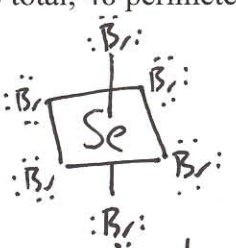
Fall 2006 CH301 Worksheet 4

In each box, write the total number of electrons, the number of electrons around the perimeter atoms, and the 3D Lewis structure for the given compound. Identify multiple bonds or resonance. Indicate compounds that do not follow octet/duplet structures and the reason (too big, too small, too odd).

CO_2 16 total, 16 perimeter  2 double bonds	O_3 18 total, 16 perimeter  resonance	NO_2^- 18 total, 16 perimeter 	PCl_5 40 total, 40 perimeter  too big
SF_6 48 total, 48 perimeter  too big	CH_2Cl_2 20 total, 20 perimeter 	CH_3CHO 18 total, 16 perimeter  multiple central atom	NO 11 total, 11 perimeter  too odd
CO 10 total, 8 perimeter triple bond	BaO  Ionic	H_2O 8 total, 4 perimeter 	H_2O_2 14 total, 4 perimeter  multiple central atom
I_3^- 22 total, 16 perimeter  too big	BF_3 24 total, 24 perimeter  too small	HCN 10 total, 10 perimeter  triple bond	$SiCl_4$ 32 total, 32 perimeter 
O_2 12 total, 8 perimeter  double bond	CH_2CHOH 11 total, 8 perimeter  multiple central atom	NaCl  Ionic	$SOCl_2$ (S is the central atom) 26 total, 24 perimeter 

NH_3 8 total, 6 perimeter 	NH_4^+ 8 total, 8 perimeter 	N_2 14 total, 8 perimeter :N≡N: triple bond	$B(OH)_3$ 24 total, 6 perimeter  too small
H_2CO_3 24 total, 12 perimeter  multiple central atom	Br_2O 20 total, 16 perimeter 	KCl K^+, Cl^- Ionic	SO_2 18 total, 16 perimeter  resonance
CH_3COOH 24 total, 16 perimeter  multiple central atom	BrF_5 42 total, 40 perimeter  too big	K_2S $2K^+, :\ddot{S}:^{-2}$ Ionic	Mg_3N_2 $3Mg^{+2}, 2:\ddot{N}:^{-3}$ ionic
PF_5 40 total, 40 perimeter  too big	OF_2 20 total, 16 perimeter 	ClF 14 total, 14 perimeter :Cl–F:	HBr 8 total, 8 perimeter H–Br:
$(NH_2)_2CO$ 24 total, 16 perimeter  multiple central atom	CNO^- (C is the central atom) 16 total, 16 perimeter $:\ddot{N}=C=\ddot{O}:^-$ 2 double bonds	CH_3COO^- 24 total, 22 perimeter  multiple central atom	$SeBr_6$ 48 total, 48 perimeter  too big