**Homework #8 Chemistry 1013 (Fong) due Friday 17 Nov 2017 20 pts (in class)**

**Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

8.1 Draw the best structures for the molecules below where we can break the Lewis octet rule

to minimize formal charge. Make sure to include all lone pairs and indicate any formal charges

(3 pts each/9 points total)

1. SO2(S in middle)
2. PBr5 (P in middle surrounded by 5 Br)
3. ClO3- (Cl in middle surrounded by 3 O)

8.2. Which molecule if any in the above can exhibit resonance ? (1 pt)

8.3 What are the shapes likely for the molecules listed below? (Use VSEPR theory to determine.)

a) O2  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) NO3- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) H2S \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) CCl4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) PCl5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8.4a. Draw the best structure of ClO4- including lone pairs and formal charges (3 pts)

8.4b What is the bond order (BO) for ClO4- ? (2 pts)