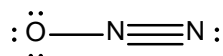


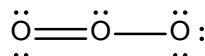
## Exercise 8.2 Assigning Formal Charge

1. Assign formal charges to all atoms in the Lewis diagrams shown below.

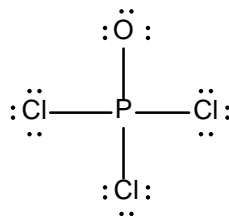
(a)



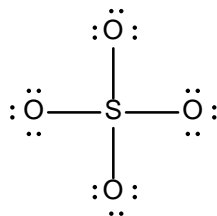
(b)



(c)



(d)



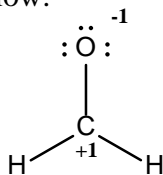
2. For each of the elements listed below, indicate the number of bonds a **neutral** atom will have in any Lewis diagram **when it obeys the octet rule**.

- |              |              |              |              |
|--------------|--------------|--------------|--------------|
| (a) carbon   | (b) sulfur   | (c) oxygen   | (d) fluorine |
| (e) hydrogen | (f) nitrogen | (g) chlorine | (h) silicon  |

3. For each of the elements listed below, indicate the number of lone pairs a **neutral** atom will have in any Lewis diagram **when it obeys the octet rule**.

- |              |              |              |              |
|--------------|--------------|--------------|--------------|
| (a) carbon   | (b) sulfur   | (c) oxygen   | (d) fluorine |
| (e) hydrogen | (f) nitrogen | (g) chlorine | (h) silicon  |

4. While marking organic chemistry lab reports this semester, I saw many students draw Lewis diagrams similar to the one below:



This is **not** a good Lewis diagram for the CH<sub>2</sub>O molecule.

- (a) Draw a good Lewis diagram for CH<sub>2</sub>O.  
 (b) Give **two** reasons why your diagram is better than the one drawn above.