

Problem of the Day 01

Section 1.1

Question 1.3 (e)

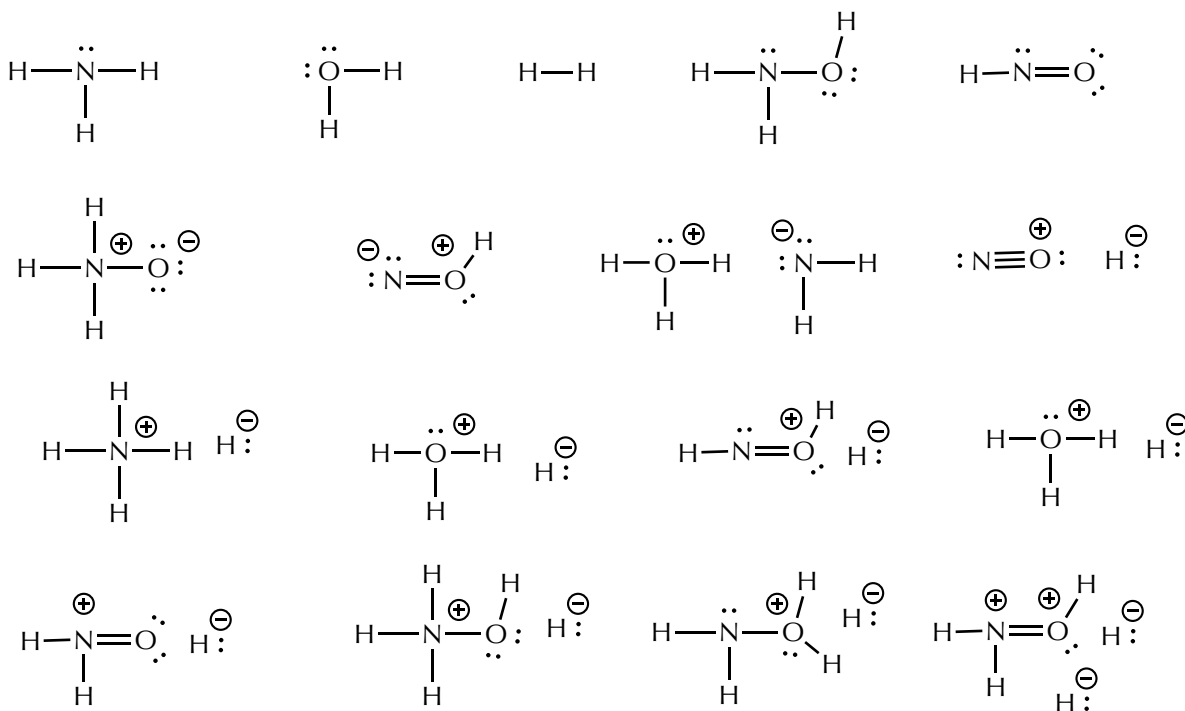
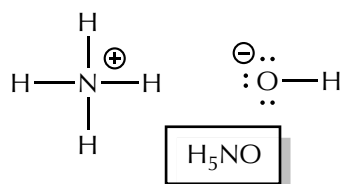
Question 1.03 (e) asks you to draw the Lewis structure for ammonium hydroxide. Using that set of atoms, how many other molecules can you create using the same drawing rules as stated in the original question?

Additional guidelines:

(a) you do not need to use all the atoms (i.e., a diatomic or triatomic molecule is OK)

(b) all atoms in your molecules should have closed shell configurations

(c) any ionic compounds should have both ions



Of note: there is no reliable, systematic way to generate these options. Simply “playing” with the atoms is required. H⁺ cannot be used because it is open shell. Main group elements with charges outside of the [-1, 0, +1] range are extremely rare and not shown without evidence to support them.

As written, this is not a great exam question because you have to burn lots of time and there is no way to know if you are done. Although, as a non-exam exercise, this is an excellent question to test your inventiveness. An exam question might provide constraints, e.g., “There are five non-ionic compounds in which there are no formal charges on the atoms, draw three of them.” or “There are only two non-ionic compounds in which there are no formal charges on the atoms, and in which all three different atoms (N, O, and H) appear at least once, draw them.”