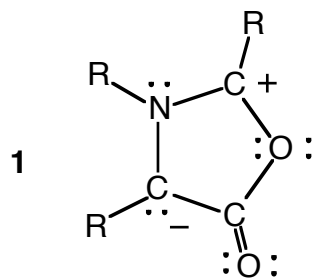
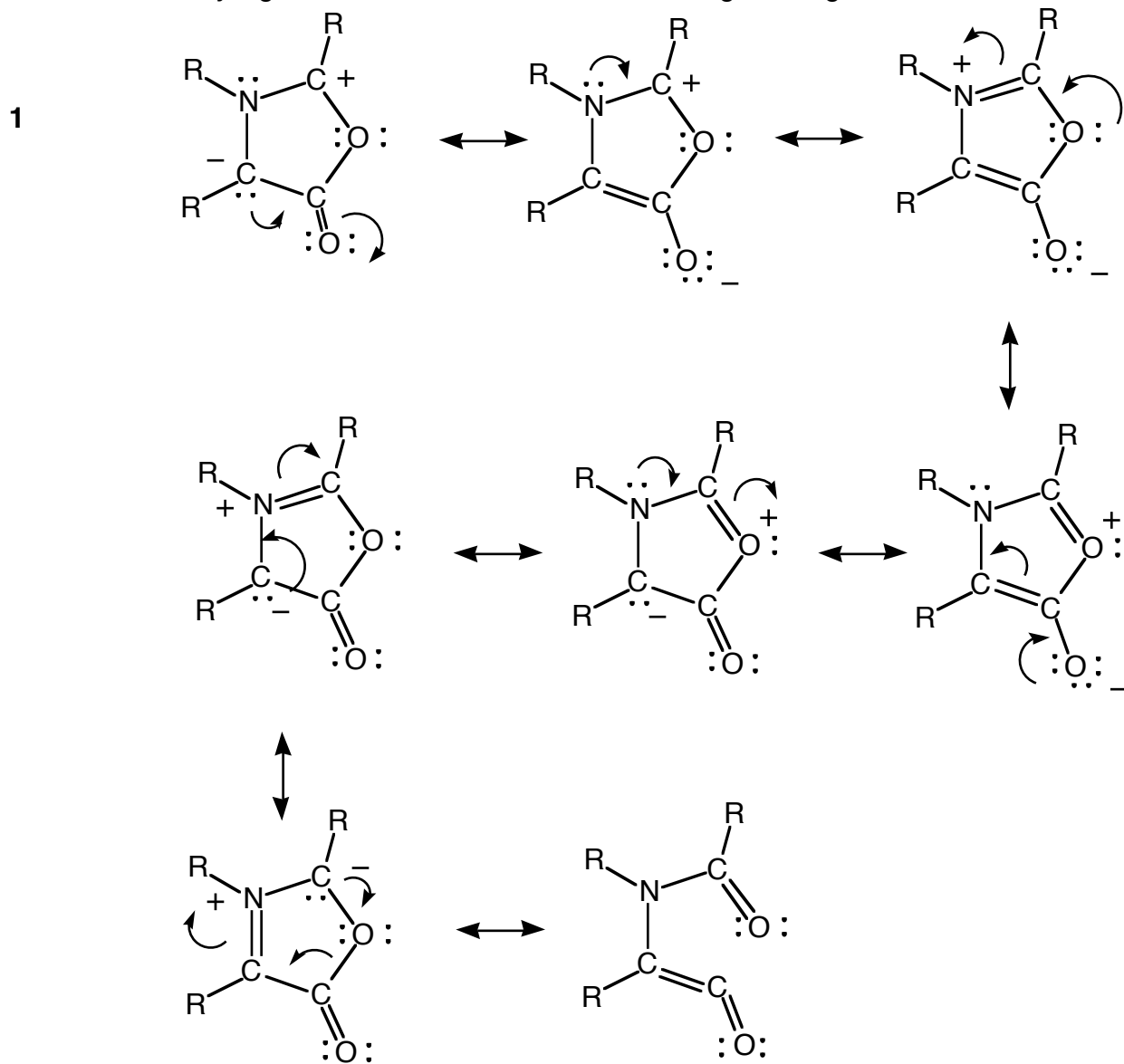


Answers to Problem 22, Chemistry 301X - 2006

a.



b. There are many legitimate resonance forms. Here are eight, along with arrow formalisms:



X - This is *not* 2!



c. Each atom in the ring must be  $sp^2$  for maximum orbital overlap.

d,e. Structure **X** is a legitimate resonance form, but **2** is not. In **2** atoms have been moved. Compound **2** might be in equilibrium with **1**, but it is not a resonance form (**X** is, but **X** is not **2**).

