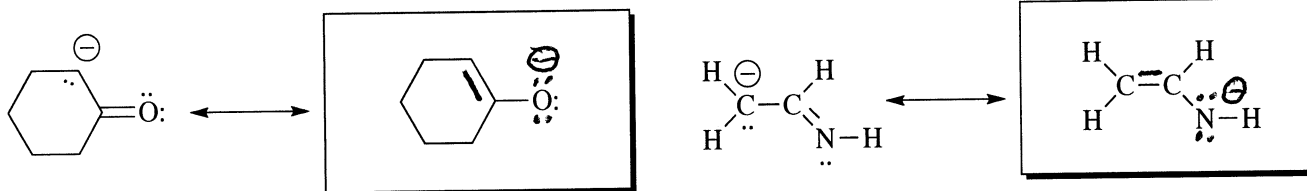


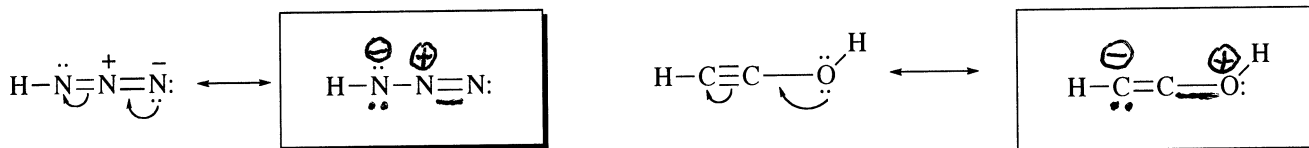
8

1. (8) In the provided boxes, finish drawing of the **most important resonance form** for each of the following species by placing missing double bonds, non-bonding electrons, and formal charges at appropriate position. (1 pt each missing charge, bond, or a pair of non-bonding electrons)

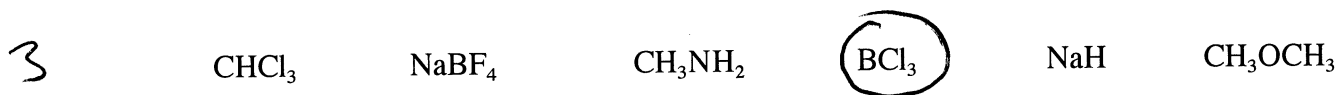


8

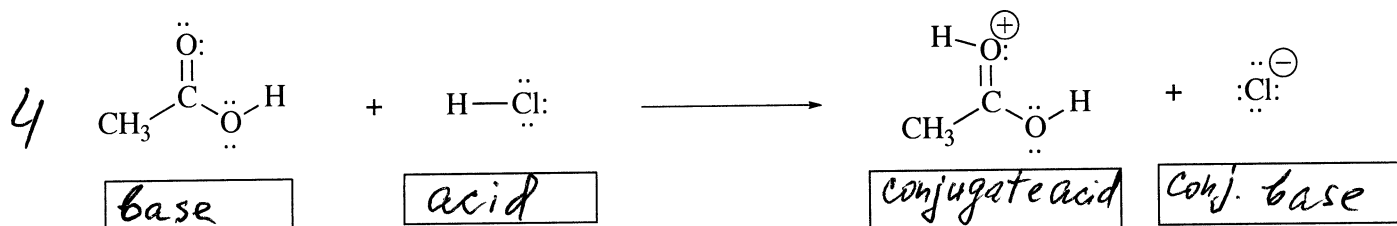
2. (8) Similarly to the previous problem, finish drawings of the **resonance forms** which are in agreement with the shown **curved arrows**. (1 pt each missing charge, bond, or a pair of non-bonding electrons)



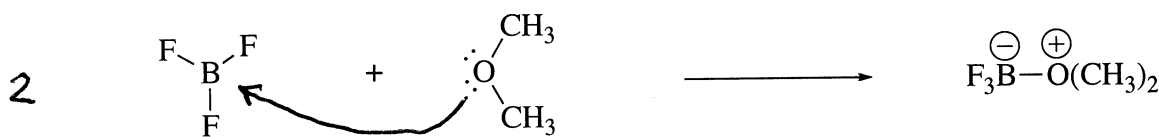
3. (3) Circle the structure of the compound that can react as a strong **Lewis acid**:



4. (4) Label the acid, conjugate acid, base, and conjugate base in the following reaction (1 pt each box):



5. (2) Use **curved arrow** to show the flow of electrons in the following reaction:



Overall Score: 25