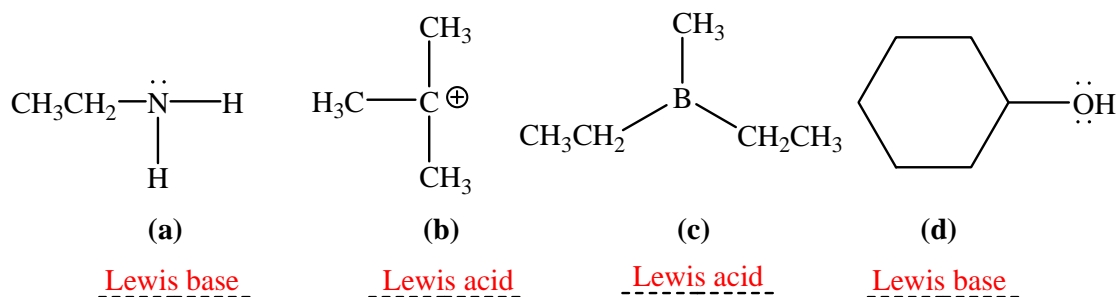


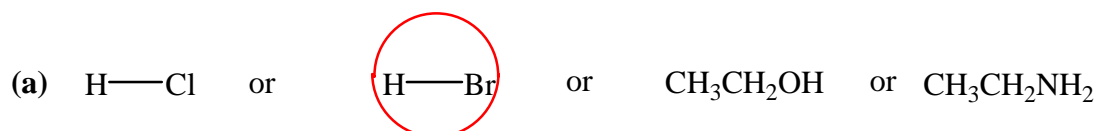
3. Classify each of the following compounds as Lewis acid or Lewis base:



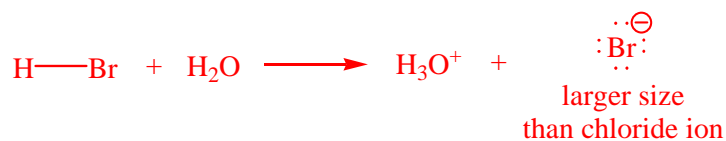
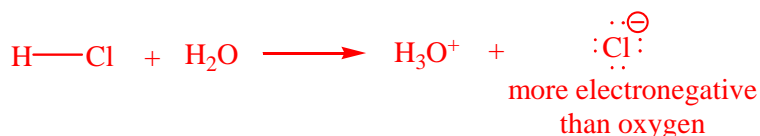
Lewis acid is electron-pair acceptor: both the positively-charged carbon in structure (b) and the boron in structure (c) have only 6 electrons, *i.e.*, there is a lack of 2 electrons to satisfy the octet configuration).

Lewis base is electron-pair donor: nitrogen atom in structure (a) and oxygen atom in structure (d) each carries electron pair that can be donated to an electron pair acceptor.

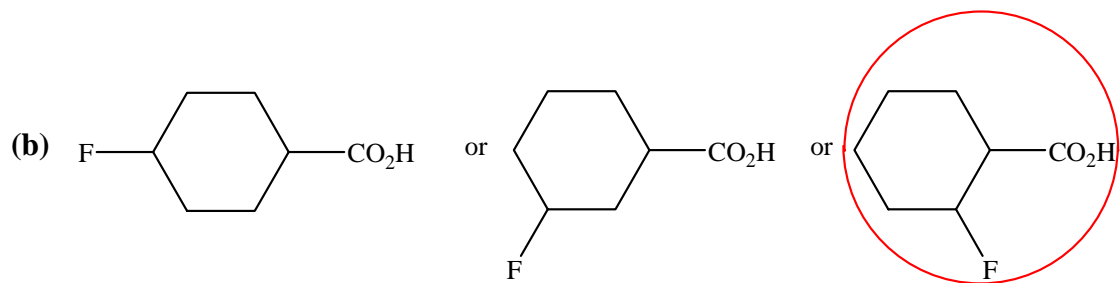
4. Circle the most acidic compound in each of the followings:



Oxygen and nitrogen are in the same row of the periodic table. Oxygen is more electronegative than nitrogen, and hence it (oxygen atom) can carry a negative charge more readily than can nitrogen. Therefore CH₃CH₂OH is more acidic than CH₃CH₂NH₂. With the same argument, HF is more acidic than CH₃CH₂OH. Fluorine, chlorine and bromine are in the same group of the periodic table; with bromine having the largest size among the three atoms. A larger atom can disperse the negative charge over a larger region and thus add stability to the conjugate base. Therefore, H-Cl is stronger than H-F, and H-Br is the strongest among the three acids (H-F, H-Cl, and H-Br).



H						
Li	Be	B	C	N	O	F
Na	Mg	Al	Si	P	S	Cl
						Br
						I



the electronegative fluorine atom is closest to the carboxyl group. The fluorine increases the acidity of the above compound by passing its electronegative effect through the single bonds to the carboxyl group. The closer the fluorine is to the carboxyl group, the more acidic is the carboxylic acid.