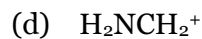
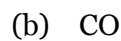
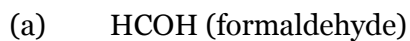
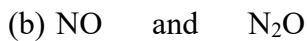
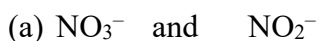


1. Draw Lewis structure for the following, indicating all bonds, lone pairs, and formal charges.



2. Which molecule/ion of the following pairs has the longest NO bond length?

Draw Lewis structures to support your answers.



3. Consider the combustion of ammonia: $4 \text{NH}_3 (g) + 5 \text{O}_2 (g) \rightarrow 4 \text{NO} (g) + 6 \text{H}_2\text{O} (g)$

Using the bond enthalpies given, estimate the heat of the combustion reaction (ΔH_{rxn}).

Bond	Bond Enthalpy (kJ/mol)
N – H	388
O – O	146
O = O	495
O – H	463
N – O	201
N = O	607
N ≡ O	678

4. Draw the resonance structures for the $\text{N}(\text{NO}_2)_2^-$ ion, indicating all bonds, lone pairs, and formal charges in your Lewis structures.