1. Which of the following have delocalized electrons? Draw the resonance structures, indicating which are major or minor contributors, if applicable.

   a. \( \text{ } \)
   b. \( \text{ } \)
   c. \( \text{ } \)
   d. \( \text{ } \)

2. Label the following as aromatic (A), antiaromatic (AA) or nonaromatic (NA).

   \( \text{ } \)
   \( \text{ } \)
   \( \text{ } \)
   \( \text{ } \)
   \( \text{ } \)
   \( \text{ } \)
   \( \text{ } \)

3. Explain why 1,3-cyclopentadiene is a stronger acid than trans-1,3-pentadiene.
4. Which compound is a stronger base?

\[
\begin{align*}
&\text{A} \\
&\text{B}
\end{align*}
\]

5. Draw Frost diagrams for the following and indicate whether aromatic or antiaromatic.

a.

\[
\text{C}
\]

b.

\[
\text{D}
\]

6. Give the products obtained from the reaction of 1 mol of HBr with 1 mol of 2-methyl-1,3-butadiene. Label the kinetic and thermodynamic product and draw an energy diagram for the reaction.