CHEM 633
Arrow-Pushing Mechanisms

Answer Key

Please draw reasonable arrow-pushing mechanisms for the following transformations. For each step, describe the FMO interaction that you are illustrating with your arrow-pushing.

\[
\text{1. KOH (excess), MeOH/H}_2\text{O} \\
\text{2. H}_3\text{O}^+ \text{ work-up}
\]
Break  
\[\text{Cl}-\text{Cl}2\]  
\[\text{C}5-\text{C}6\]  
\[\text{C}9-\text{H}\]  
\[\text{C}10-\text{O}\]  
\[2 \times \text{C}6-\text{H}\]  
\[\text{C}8-\text{C}10\]  

Make  
\[\text{Cl}=\text{O} (\text{CO}_2)\]  
\[\text{O}_2-\text{H}\]  
\[\text{C}5-\text{C}9\]  
\[2 \times \text{C}6-\text{H}\]  

Remember: most bases can also be nucleophiles! (\& vice versa)

Note: Order of cyclopropane ring opening vs. decarbonylation is debatable. Either order is OK.

Would be carbonylation if...

\[\text{Pd}+\]

\[\text{O}_{\text{C}10}-\text{O}\]