Quiz #6

1. Please provide the major product for each. (4pts)

\[
\text{HO-} \overset{\text{O}}{\text{C}} \text{HO} \quad \xrightarrow{\text{conc. H}_2\text{SO}_4} \quad \triangle
\]

\[
\begin{align*}
\text{C} & \quad \text{C} \\
\text{C} & \quad \text{C}
\end{align*}
\]

2. Why do we reflux the reaction pot? What rate principle is in effect here? (4pts)

3. Since this reaction is an equilibrium reaction with a relative small equilibrium constant, how can we take advantage of Le Châtelier’s Principle to increase the yield? (4pts)

4. What are the following substances used for in the experiment today: (4pts)
   a. Sodium Bicarbonate:
   b. Sodium Sulfate:

5. A student observes a refractive index of \( n_D = 1.4040 \) for his compound at 24.5°C. Calculate the refractive index at 20°C. (2pts)
   \[
   n_D \left( T \right) = n_D \left( T_0 \right) + \left( T - T_0 \right) \times 0.00045
   \]

6. Why are we performing a vacuum distillation instead of a normal distillation? (2pts)