Week 5 Worksheet: Elimination Experiment

1. This week’s elimination experiment, the formation of products is measured using gas chromatography. Why does the gaseous product continuously form and flow into the gas collector.

2. In lab lecture this week, Dr. Link presents a challenge question about unexpected results in lab. After understanding why the major product of the hydrohalogenation reaction with 2-bromobutane may yield trans-2-butene as the major product instead of 1-butene, present a mechanism that shows the conditions under which the reaction that would form trans-2-butene as the major product.

   When trans-2-butene is observed as the major product of the hydrohalogenation reaction of 2-bromobutane, it is indicated that a smaller, but still strong, base is in solution and carrying out the E2 mechanism:

3. Rank the following substituents from best to worst leaving group.

   a. $\ce{H2O}$ $\ce{Br}$ $\ce{OH}$ $\ce{NH3}$

   b. $\ce{Br}$ $\ce{Cl}$ $\ce{F}$ $\ce{I}$
4. Predict the major product of the following reactions using the Zaitsev Rule. Draw all constitutional isomers.

\[ \text{BrCH}_3 \quad \overset{\text{OH}}{\rightarrow} \]

(a.)

\[ \text{CH}_3 \quad \overset{\text{OH}}{\rightarrow} \]

(b.)

\[ \text{(CH}_3\text{)}_3\text{CO} \quad \overset{\text{OH}}{\rightarrow} \]

(c.)

5. REVIEW: Spectroscopy

Draw the structure of \( C_7H_7N \) using IR and H NMR spectroscopy.