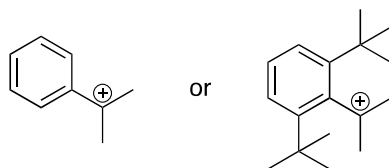
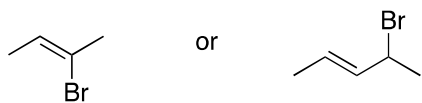
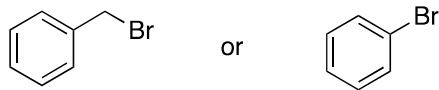


1. Which carbocation is more stable (1pt) and provide a justification why. (2pt)



2. Which alkyl halide is more reactive in S_N1 ? (4 pts; 2 pts each) Assume each alkyl halide has the same stability. In general, explain why these alkyl halides are more reactive? (1 pt)



3. Draw the two products that form under conditions that favor S_N1 reaction (4 pts; 2 pts each)



4. Propose a synthesis of the desired product from the given starting material. If multiple steps are required, draw the intermediates. Be sure to include any necessary reagents/conditions. Mechanisms are not required. (8 pts)

