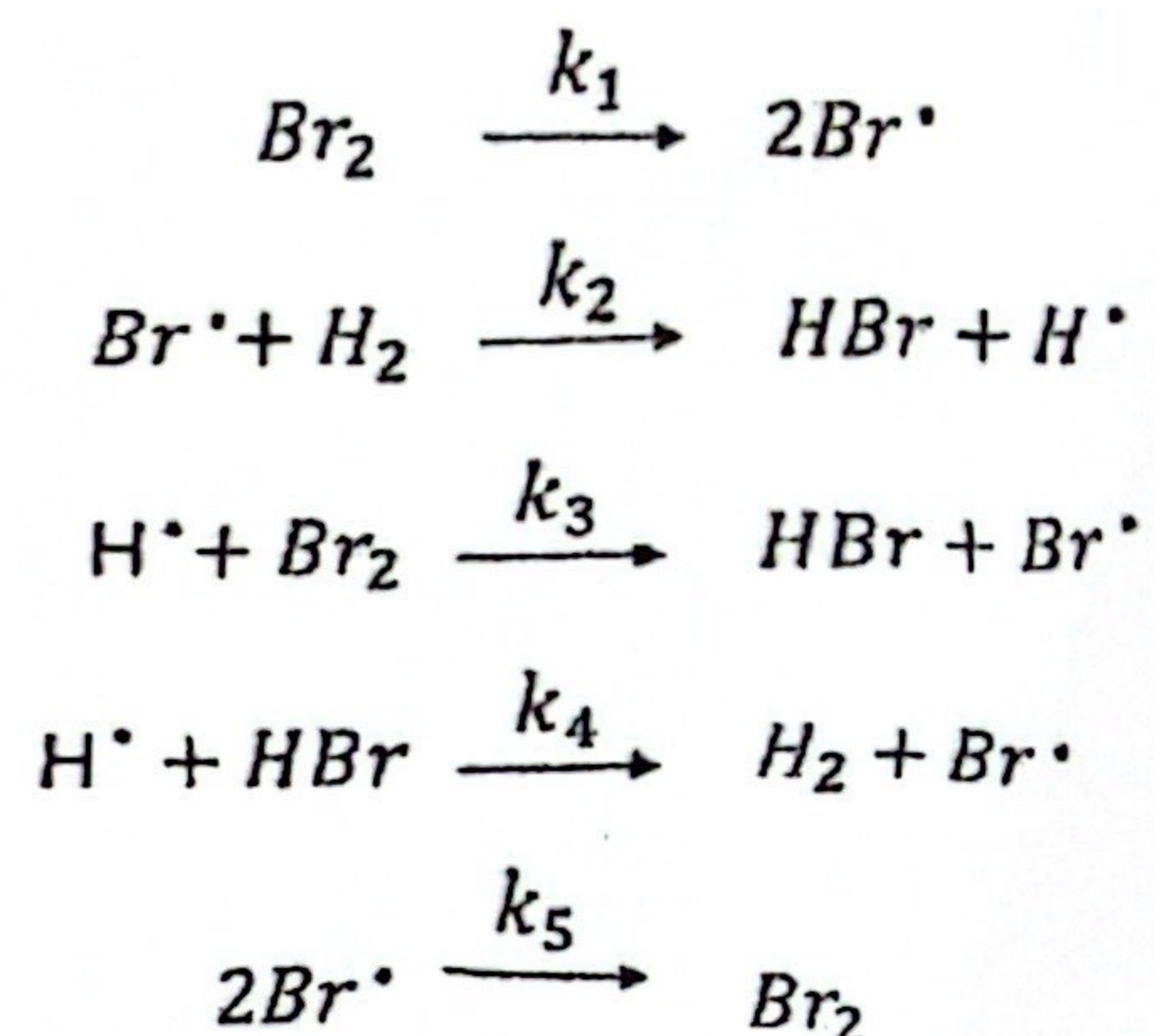
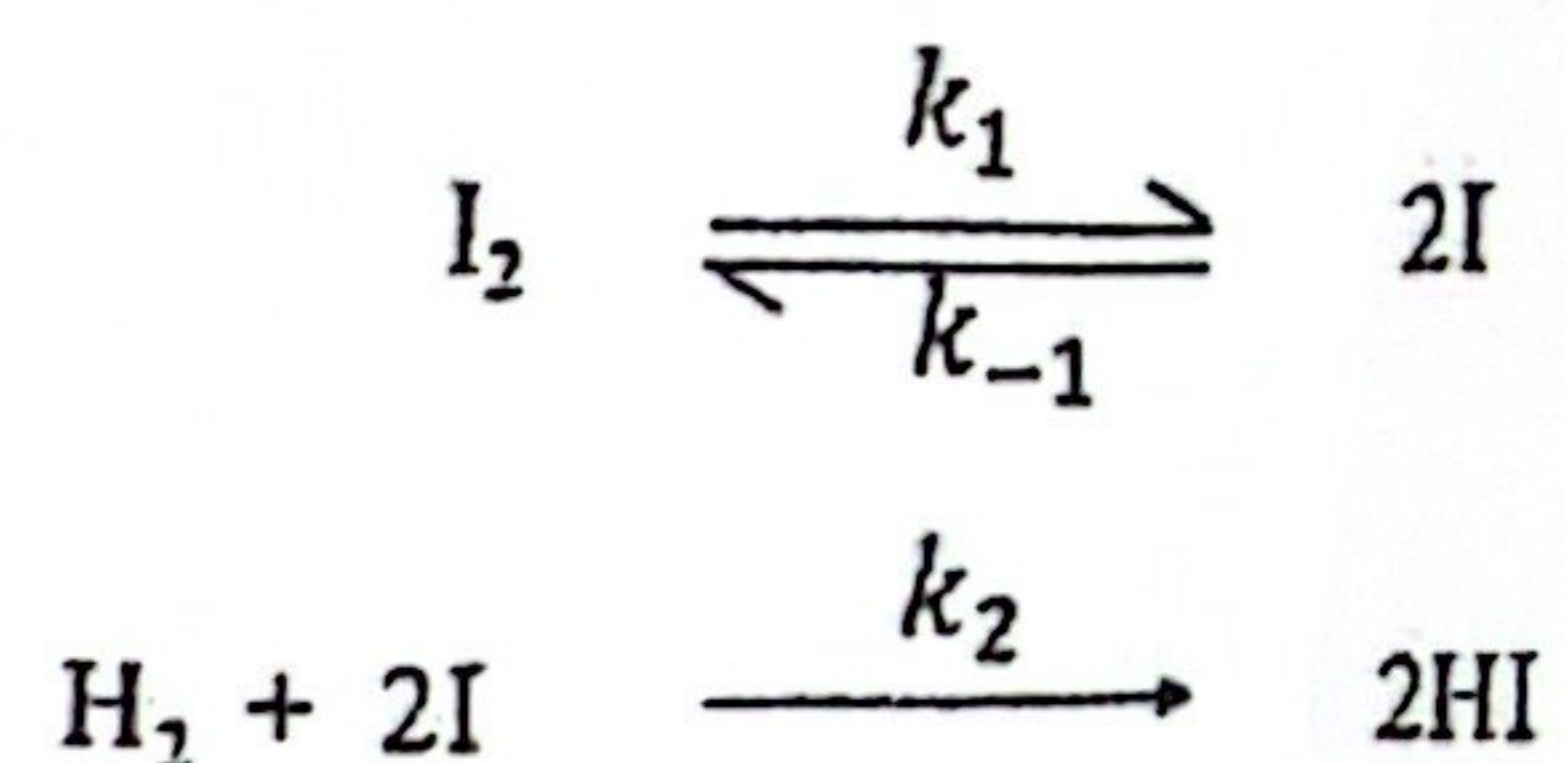


1. What is a composite?
2. The gas-phase reaction of $H_2 + Br_2$ follows a five-step mechanism to produce HBr. The mechanism of the reaction is as follows



Using steady-state approximation, determine the concentration of the chain carriers (intermediates)

3. The gas-phase reaction between H_2 and I_2 to form HI involves a two-step mechanism



If the first step is a rapid equilibrium, derive the rate law for the reaction.