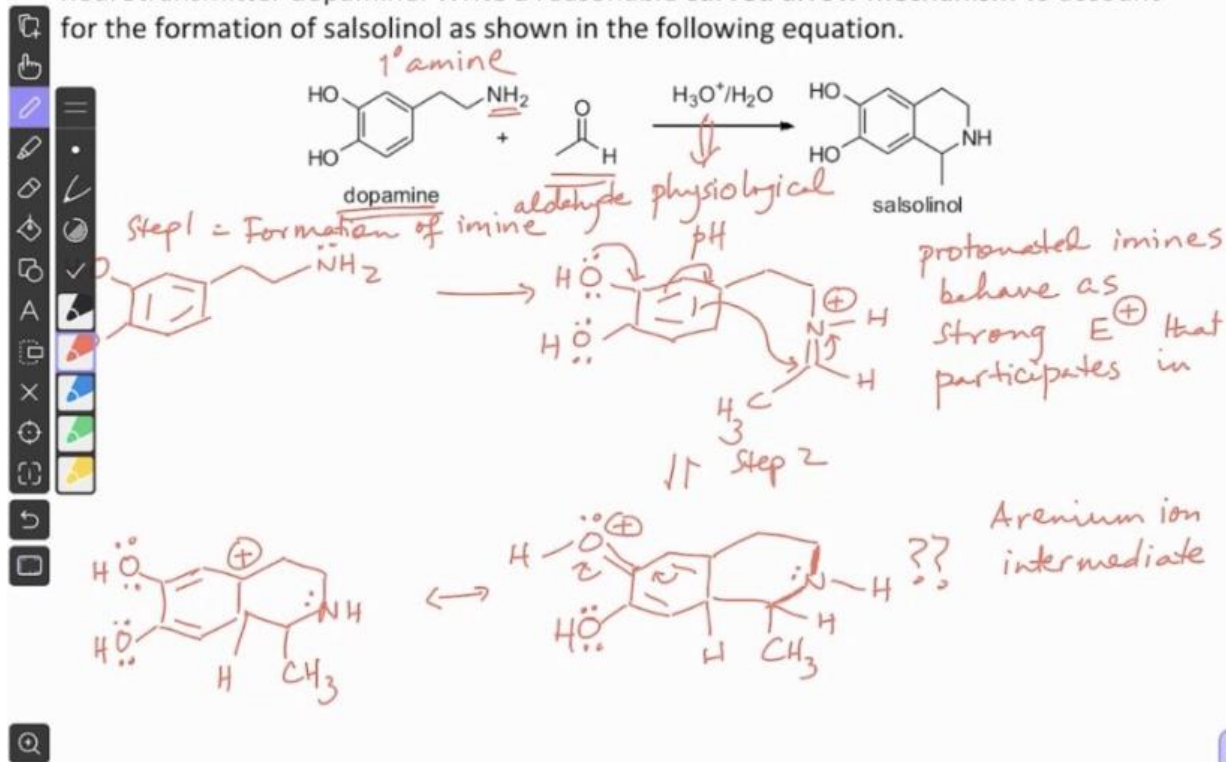


Problem 1: Salsolinol, a tetrahydroisoquinoline alkaloid, is typically detected at significantly higher concentrations in the urine of chronic alcoholics. It is formed in the body when acetaldehyde generated by oxidation of ethanol, reacts with the neurotransmitter dopamine. Write a reasonable **curved arrow mechanism** to account for the formation of salsolinol as shown in the following equation.



Problem 2: The following reaction is a key step in synthesis of **Celecoxib** (sold as Celebrex) - a Cox-2 selective non-steroidal anti-inflammatory drug (NSAID) typically prescribed to treat arthritic pain. Write a reasonable curved arrow mechanism for this transformation. Pay attention to the fact that one of the two ketones in the starting materials is significantly more electrophilic. }

