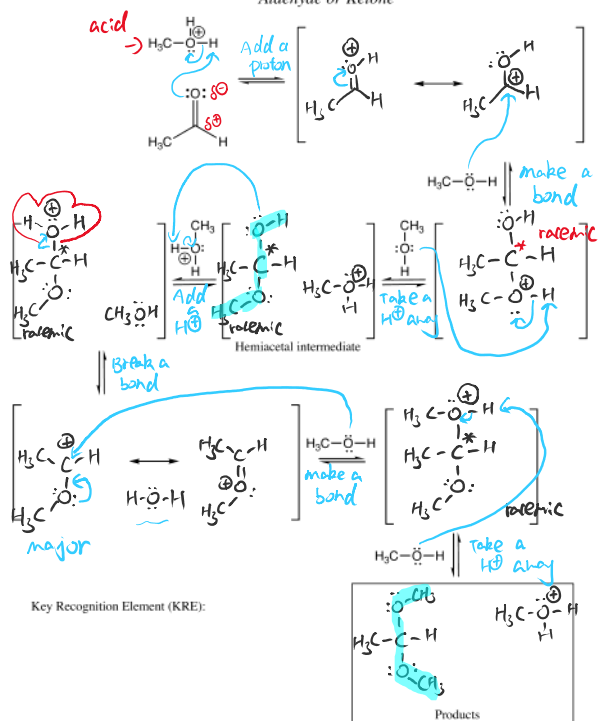
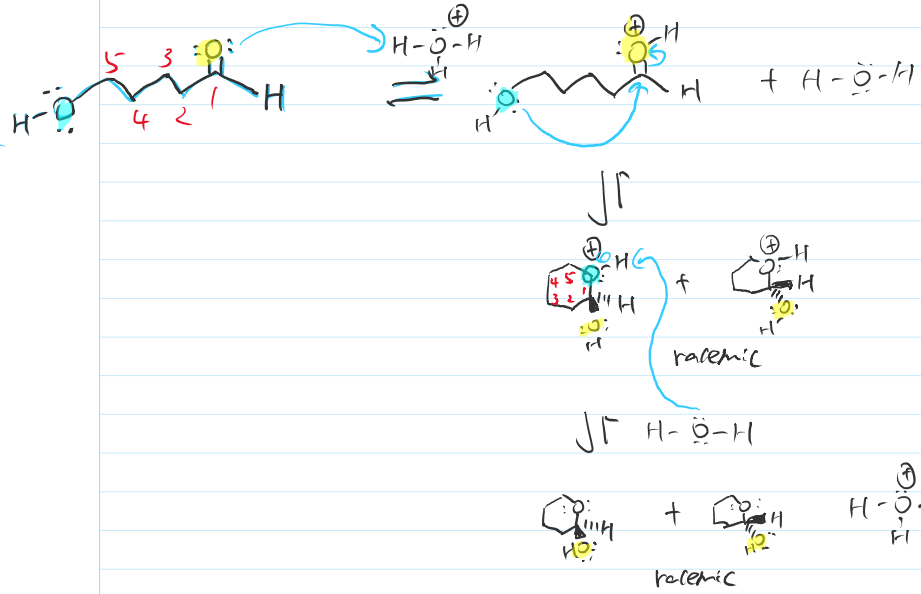
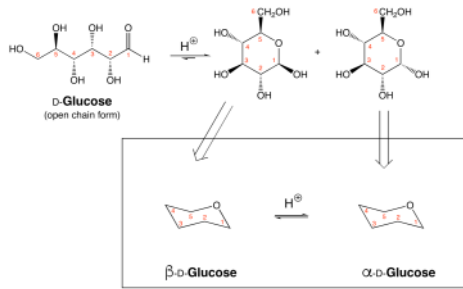
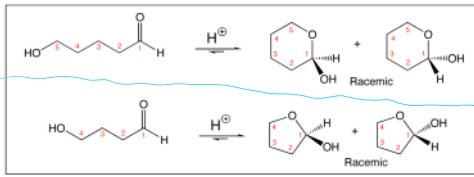
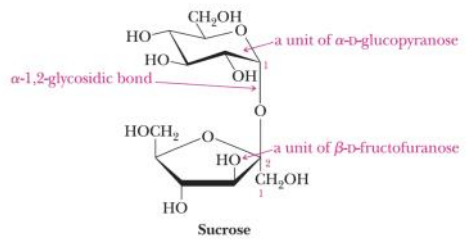
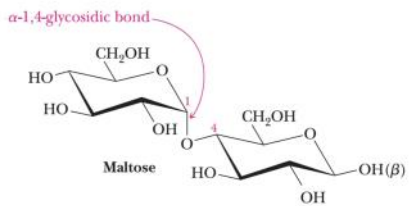
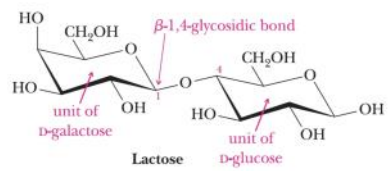


Acid Catalyzed Hemiacetal and Acetal Formation From an Aldehyde or Ketone Hem!

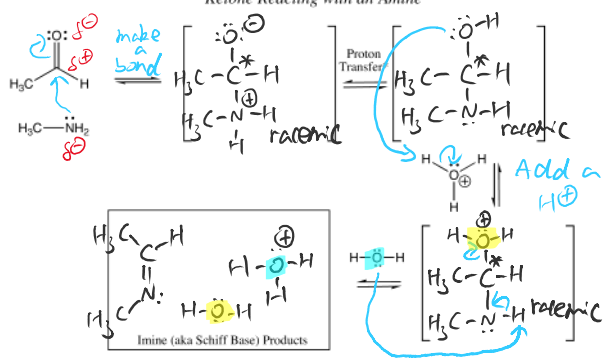


Cyclic Hemiacetals and Carbohydrates





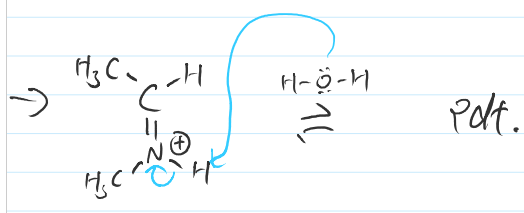
Formation of an Imine (Schiff Base) From an Aldehyde or Ketone Reacting with an Amine



Key Recognition Element (KRE):

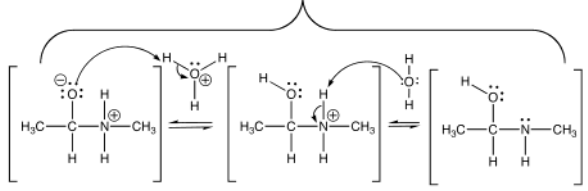


Note: this last step might actually occur as two steps in some cases.

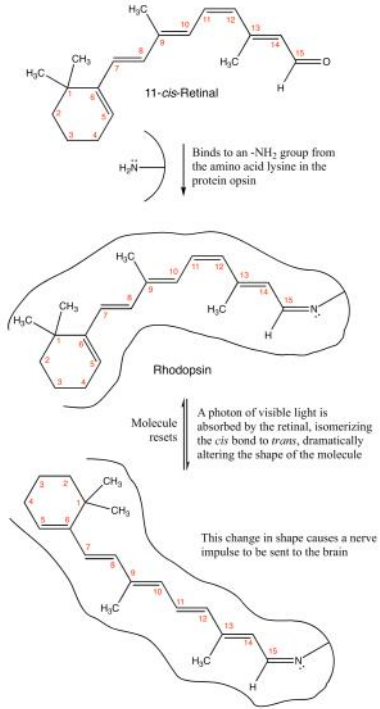


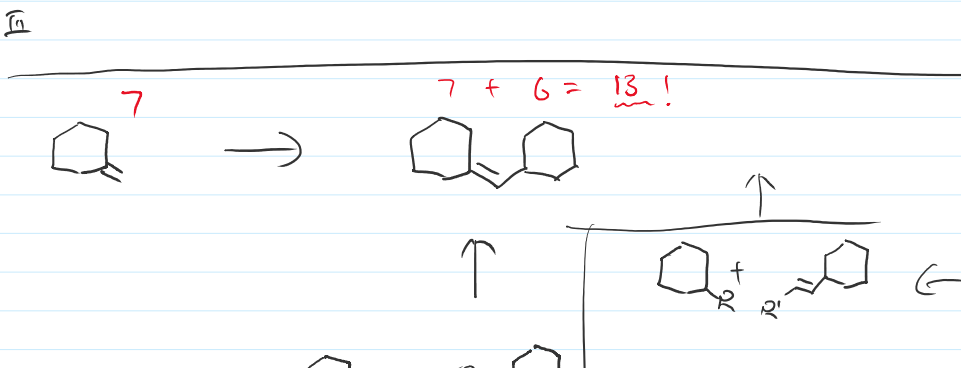
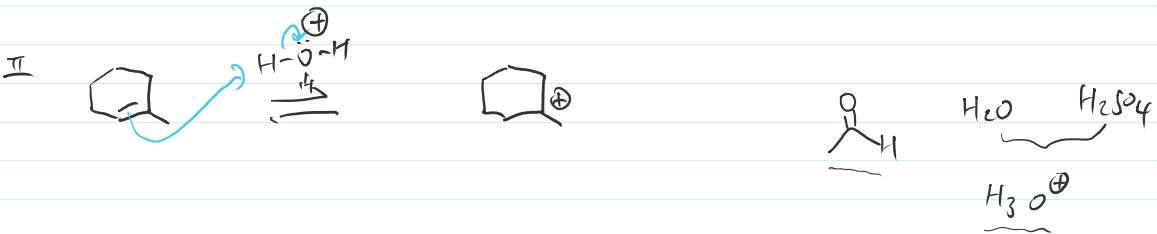
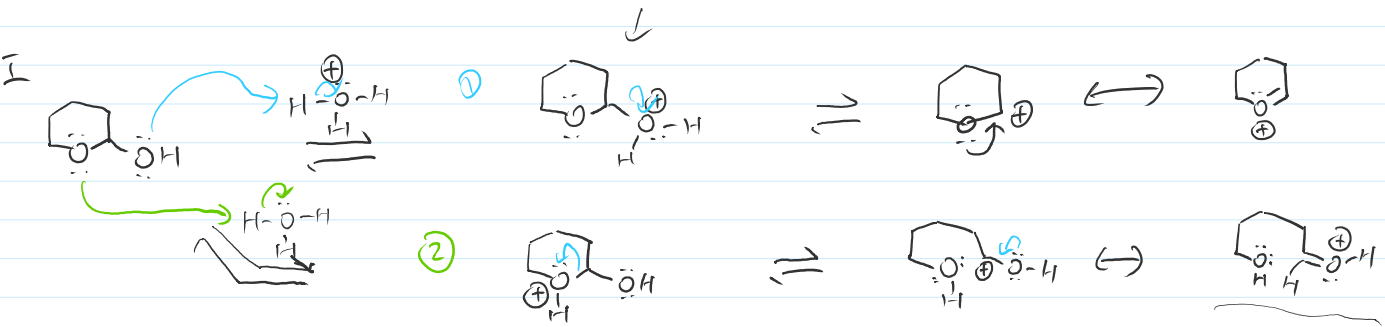
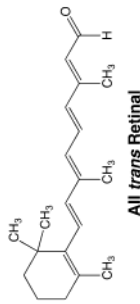
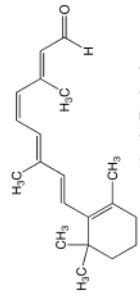
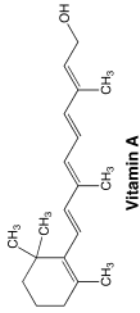
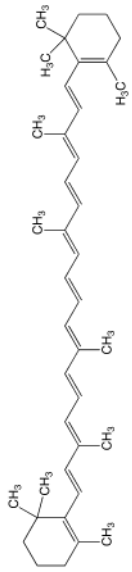
* "Proton Transfer" refers to a situation in which a proton moves from one part of a molecule to another on the SAME MOLECULE. We do not draw arrows for proton transfer steps because that would be deceptive. In some cases, the same proton may move from one part of the molecule to the other directly, but in other cases, solvent molecules may be involved as indicated in the following scheme. To make things even more interesting, the following two steps might even be reversed in some cases. Because of all the ambiguity, we just write "Proton Transfer" and do not bother with arrows.

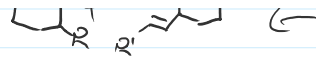
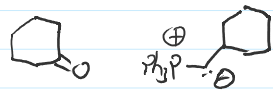
"Proton Transfer"



How vision works







R = electrophile → nucleophile on vinyl position, haven't really learned how to do it...

R = nucleophile → forcing C=C to be electrophile...

