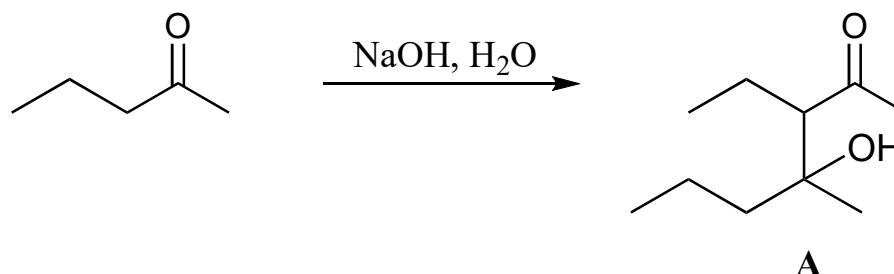
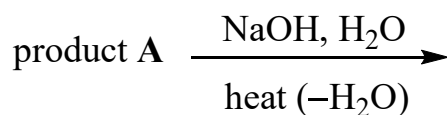


5A. (9 pts) Provide a complete mechanism to account for the following aldol reaction. Pay close attention to details, including lone pairs, formal charges and the use of curved arrows.



5B. (3 pts) When the *aldol reaction* shown above is run at elevated temperatures, product A loses water. In the box provided, draw the resulting *aldol condensation* product.



5C. (2 pts) Which of the following best describes the *mechanism* for the loss of water described in 5B? Place answer in box.

A small empty square box for selecting the mechanism.

- A) One step (concerted): deprotonate and loss of HO⁻ leaving group
- B) Two steps: Deprotonate, loss of HO⁻ leaving group
- C) Three steps: Protonate, loss of H₂O leaving group, deprotonate
- D) Two steps: Protonate, followed by concerted deprotonation and loss of H₂O leaving group
- E) One step (concerted): deprotonate and loss of H₂O leaving group

5D. (4 pts) The given ketone can undergo two different aldol reactions. One reaction leads to product A. Draw the other possible aldol reaction product (B).

