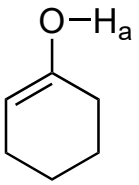
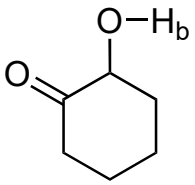
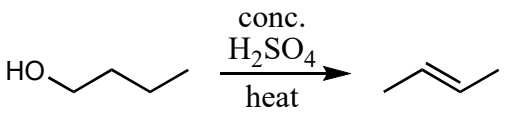
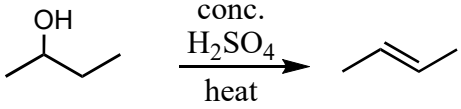
6A) (6 pts) Which is the more acidic proton, $\mathbf{H_a}$ or $\mathbf{H_b}$? Provide an explanation and **use appropriate drawings** to support your answer.





6B) (8 pts) For each of the following pairs of reactions, indicate which one will be faster and <u>briefly</u> <u>explain</u> why. If you expect no significant difference in the reaction rates, say so.

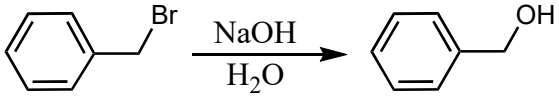
a. 

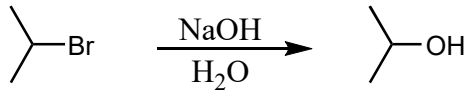
b. 

Mechanism name? ☐

Which is faster (a, b or neither)? ☐

Explain.

a. 

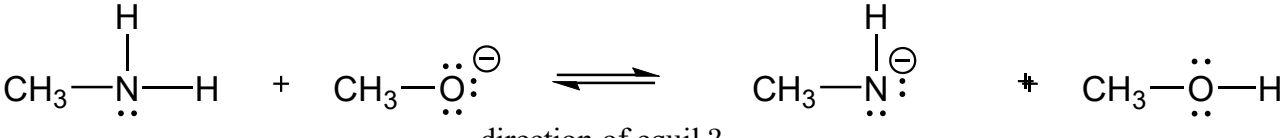
b. 

Mechanism name? ☐

Which is faster (a, b or neither)? ☐

Explain.

6C) (5 pts) Consider the following proton-transfer reaction, and follow the instructions below.



direction of equil.? ☐

a) Using the structures given above, add **curved arrows** to show the reaction mechanism.
b) To which side does the equilibrium lie (forward or reverse)? Place your answer in provided box.