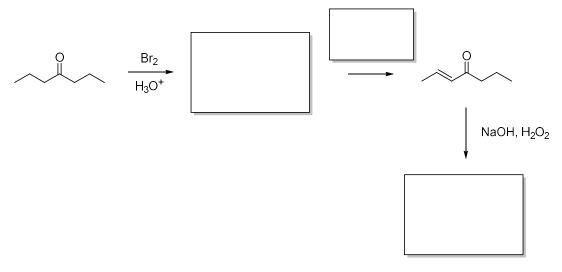
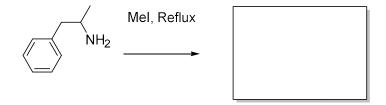
Name:	 
UIN:	

## Chem 436 – Spring 2023 Midterm #3

1) Fill in the blanks with the appropriate reagents and/or major product. (4 pts per Q, total 40)



$$\begin{array}{c|c} O & H_2SO_4, H_2O \\ \hline O & \\ \hline \end{array}$$



## 2. Draw the full arrow pushing mechanism for the following reactions (10 pts per Q, 30 total)

$$NH_2$$
 + Br<sub>2</sub> + NaOH  $NH_2$  + CO<sub>2</sub> + 2NaBr + H<sub>2</sub>C

$$NH_2$$
 +  $CO_2H$   $DCC$ 

3) Propose an efficient synthesis for the following reactions. Indicate all reagents, solvents, and intermediates. (15 pts per Q, 30 total)