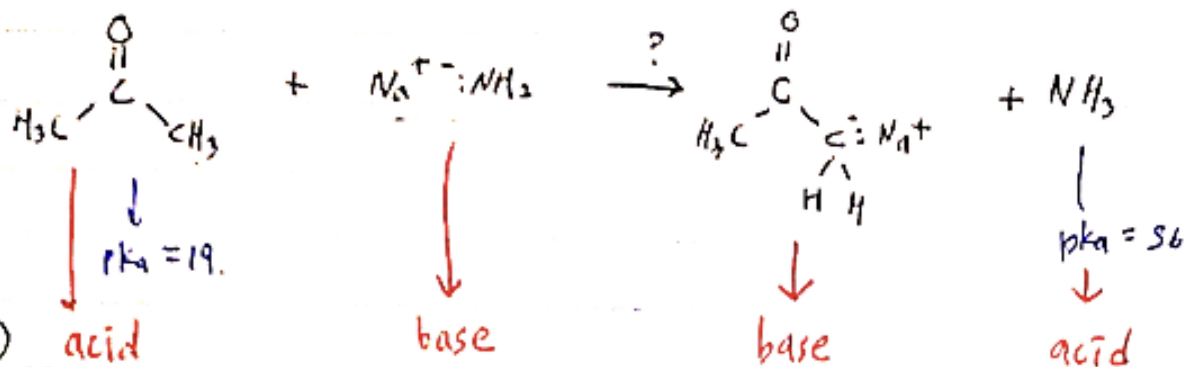


# CBE 203 Industrial organic chemistry (HW #1).

Q1.



①

Because acid is  $\text{H}^+$  donator and electron pairs acceptor, and base is  $\text{H}^+$  acceptor and electron pairs donator.

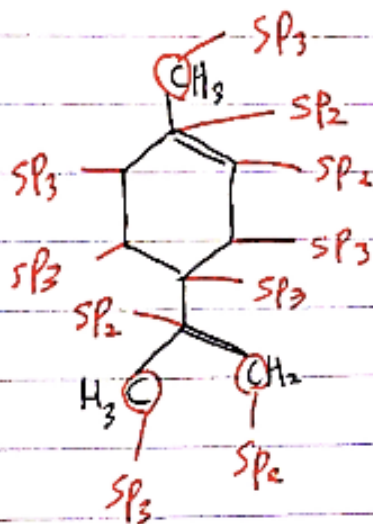
② the reaction goes from left to right ( $\rightarrow$ )

Because the reaction goes toward weaker acid.  
( $\text{NH}_3$ 's pKa value is higher than pKa value of acetone, which means that  $\text{NH}_3$  is less acidic)

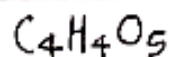
Q2.

- (a) Arene  
(b) Alkene

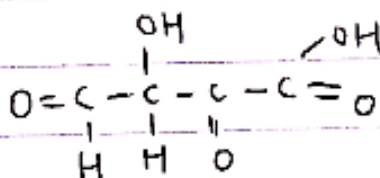
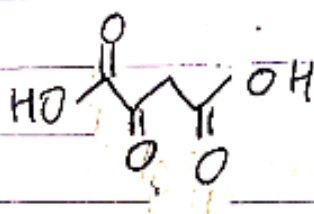
Q3.



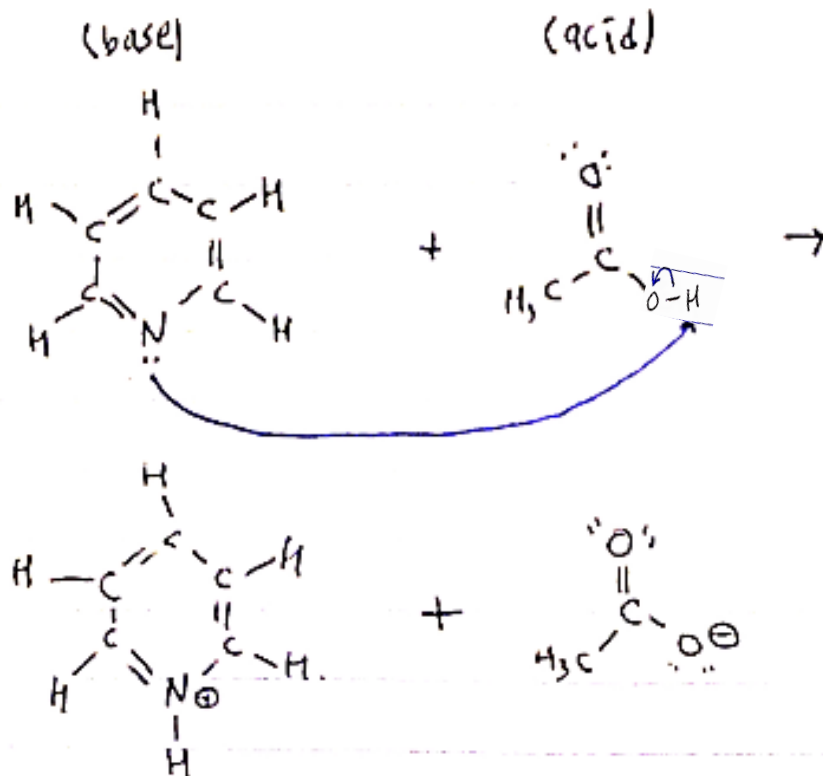
Q4



oxaloacetic acid.



Q5



Q6

(a) tri-methyl-octane

(b) 1, 3-methyl-cyclopentane.