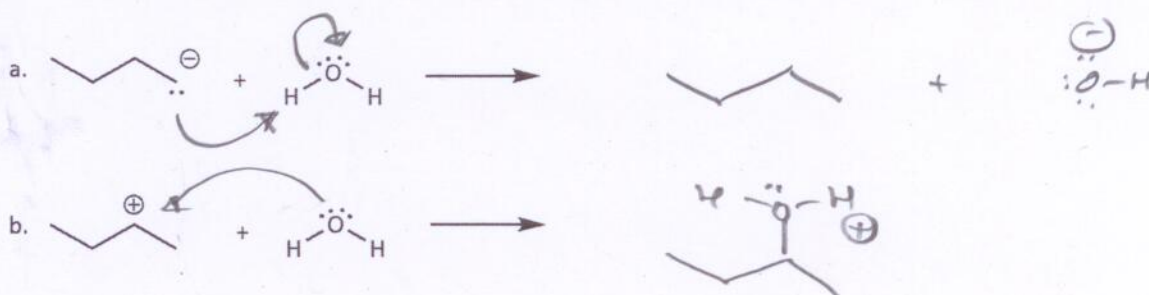


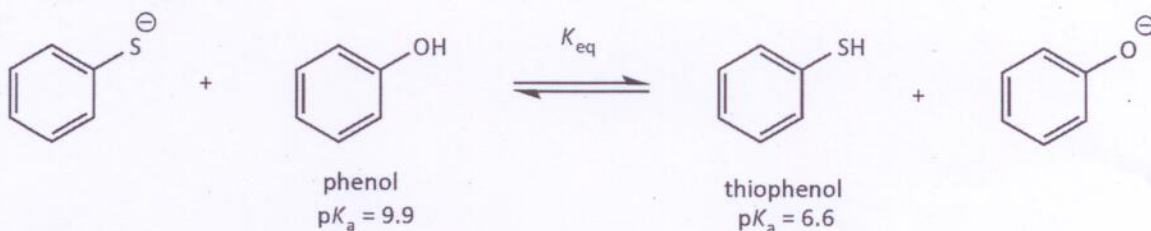
Quiz 3 (50 points)

Name Key

1. Show the expected products from the acid-base reactions shown below - use electron-pushing! (20 points)



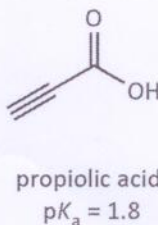
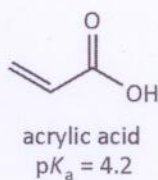
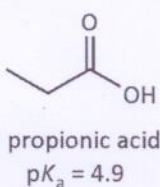
2. Predict the equilibrium constant (K_{eq}) for the acid-base reaction shown below. Which side is favored, Products or Reactants? (10 points)

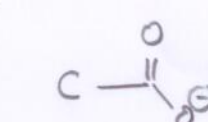


weaker acid
favored!

stronger acid
or $K_{eq} = 10^{6.6 - 9.9} = 10^{-3.3} < 1$
this means reactants favored

3. For the series of carboxylic acids shown below, suggest an explanation for the trend in acidity. Suggest a favored reason for changes in acidity. Note that A, R are the same - how could I and O be involved? (20 points)



 - in all four cases the carboxylate is formed as the conjugate base
A
 $sp^2, sp^?, or sp$ - the difference is the hybridization of the attached carbon

- most stable conj. base means strongest acid!

- the greater the s-character of the hybrid orbital the more inductive withdrawing so the more stable the conjugate