Organic Chemistry I, CHM 3140
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Chapter 3 Acid-Base Reactions (Proton Transfer), Part 2 – Practice Problems

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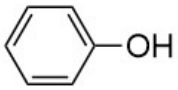
1 Arrange the following compounds in order of INCREASING acid strength (from least acidic to most acidic).



I

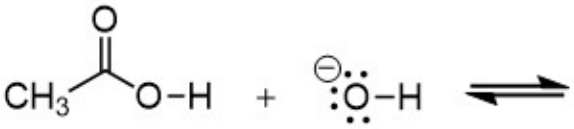
HCl

II

CH_3OH

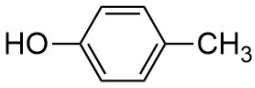
III

2 Is hydroxide a strong enough base to deprotonate acetic acid (CH_3CO_2H)? Explain.



3 Which is the stronger acid? Explain briefly.

A

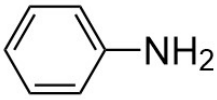


B

4 Which is the stronger base? Explain briefly.

NH_3

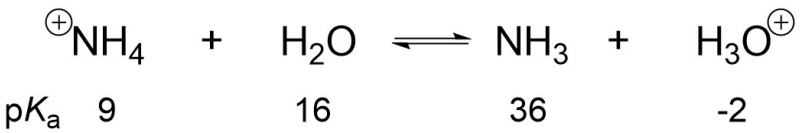
ammonia



aniline

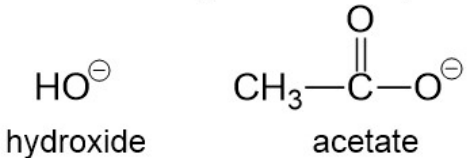
5

Given the pK_a values shown, in which direction does the equilibrium lie? Explain briefly. (next, try it without pK_a!)

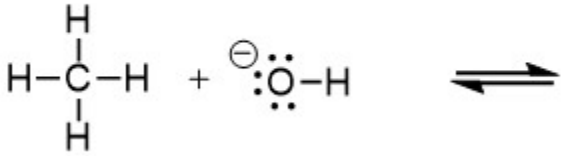


6

Which is the stronger base? Explain briefly.



7 Is hydroxide a strong enough base to deprotonate methane (CH_4)? Explain.



8 Is chloride a strong enough base to deprotonate ammonium (NH_4^+)? **A** = Yes; **B** = No