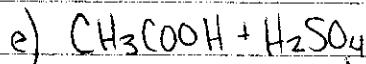
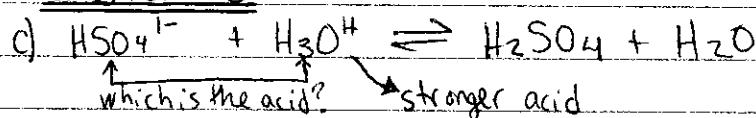


The Battle of the Better Base Continued

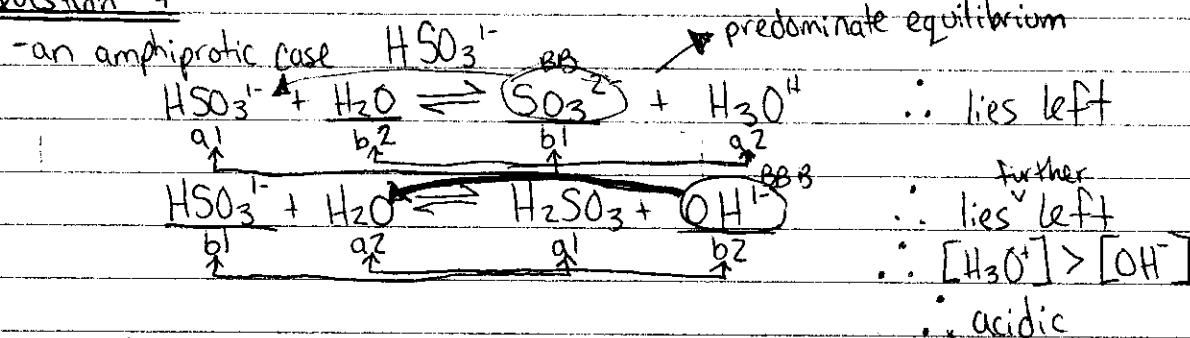
January 16, 2009

• Question #5



stronger acid

• Question #7



• Question #8

- salts

- consider the activity of the cation or the anion (active or inactive)

- four possibilities

* Active Cations

- an active cation will react w/ water to form H_3O^{1+}

- active cations behave in an acidic manner

* Inactive Cations

- inactive cations merely hydrate with water (neutral reaction)

- active cation → acidic

- inactive cation → neutral

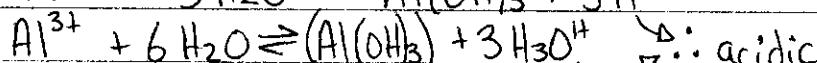
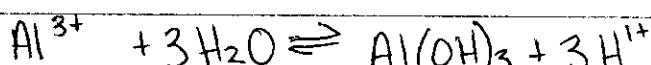
- inactive cations include: $\text{Na}^{1+}, \text{K}^{1+}, (\text{Rb}^{1+}, \text{Cs}^{1+}), \text{Ba}^{2+}$

- active cations include: most metallic cations and the special case of NH_4^+

- active cation (w/ an inactive anion such as Cl^{-})

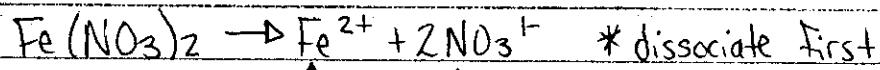
*eg: $\text{AlCl}_3 \rightarrow \text{Al}^{3+} + 3\text{Cl}^{-}$ * dissociate first

↑ active ↑ inactive

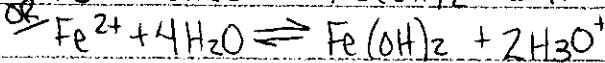
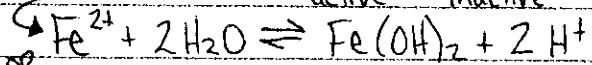


H₃O⁺

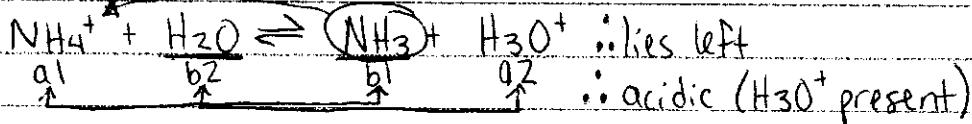




↑ active ↑ inactive



*SPECIAL CASE

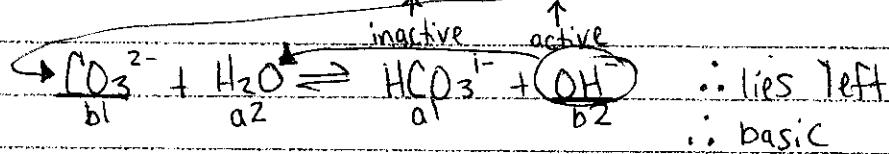
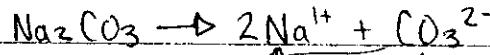


- active anions is any anion that is the conjugate base of an acid that is weaker than hydronium

∴ IO_3^- , HSO_3^- , SO_4^{2-} , H_2PO_4^- etc. all are increasingly active

∴ ClO_4^- , I^- , Br^- , Cl^- , NO_3^- , HSO_4^- , H_2O are inactive
 Δ SO_4^{2-} exception

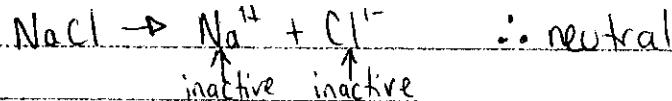
e.g: active anion, inactive cation



- active anions lead to basic

- inactive anions lead to neutral (as in, no reaction)

e.g: inactive anion + inactive cation



e.g: active anion + active cation

- truly evil & not part of this course

- problem = low solubility

- comparison of cation & anion equilibria required = unpleasant!