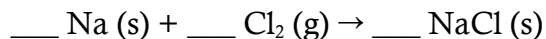


Practice Questions for Chem 60 Test 3

Not necessarily comprehensive—study your lecture notes, labs, etc. as well!

1. Sodium chloride forms by the following (unbalanced) reaction:



Balance the reaction above.

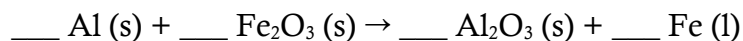
- a) How many moles of NaCl result from the complete reaction of 3.4 mol of Cl₂?

- b) How many moles of NaCl result from the complete reaction of 98.0 g of Cl₂?

- c) How many grams of NaCl results from the complete reaction of 2.5 moles of Na?

- d) How many grams of NaCl results from the complete reaction of 125 g of Na?

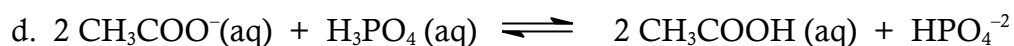
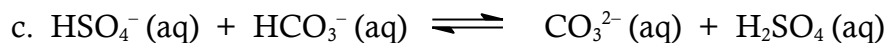
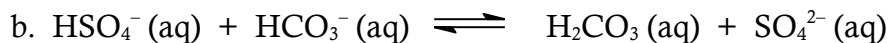
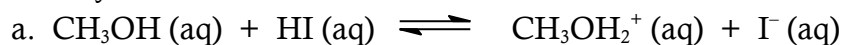
2. Balance the following reaction:



- a) How many grams of Al are needed to produce 45.5 g of Al₂O₃?

- b) How many grams of Fe are produced from 4.7 g of Al?

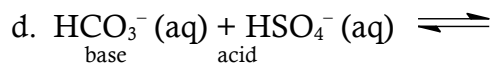
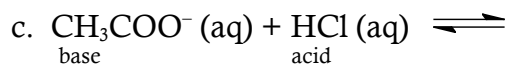
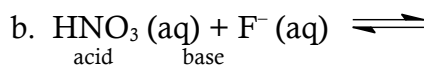
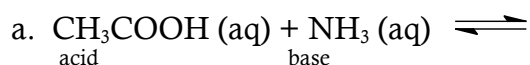
3. Identify the acid and base in each forward reaction.



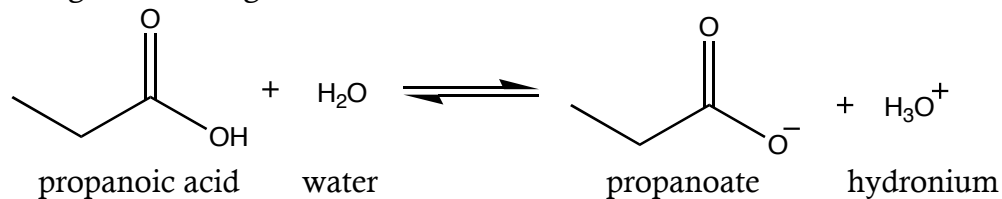
4. (2 pts) Fill in the blanks (remember, conjugates differ by the presence of H^+).

Acid	CH_3OH_2^+		H_2CO_3	
(Conjugate) Base		SO_4^{2-}		HSO_4^-

5. Predict the products of the following acid-base reactions. The acid and base are marked for you.



6. For the equilibrium below, predict how the concentrations of the different species would change under the given circumstances:



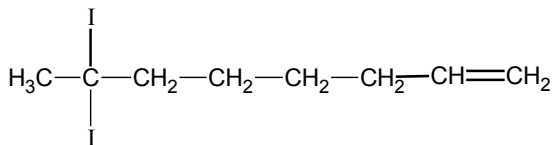
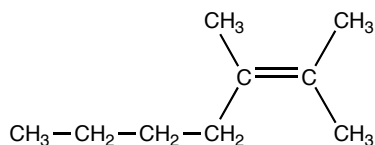
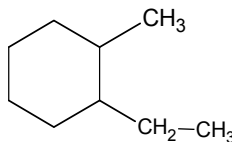
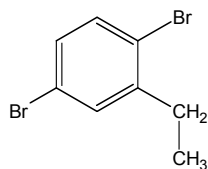
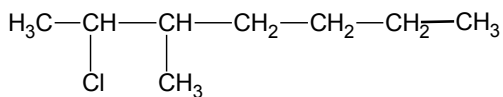
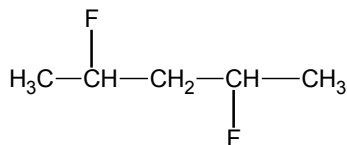
a. $[\text{H}_3\text{O}^+]$ is increased.

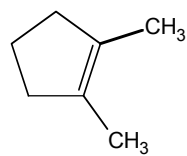
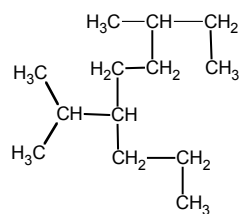
Equilibrium shifts	left	right
[propanoic acid]	increases	decreases
[propanoate]	increases	decreases

b. [propanoic acid] is increased.

Equilibrium shifts	left	right
[propanoate]	increases	decreases
$[\text{H}_3\text{O}^+]$	increases	decreases

7. Name the following organic molecules:





8. Draw the following organic molecules:

2,5-dichloro-3-methylheptane

1,3-dimethylcyclohexane

4-isopropyloctane

1,2-diethylcycloheptene