

Chem 141
Fall 2006
Exam 2
10/04/06

NAME: _____

LAB SECTION
(Time, Day and TA): _____

Problems	Pages	Points	Grader	
	_____	_____	_____	
	_____	_____	_____	
	_____	_____	_____	
	_____	_____	_____	
	_____	_____	_____	TOTAL _____points
				% _____

1) Draw bond-line illustrations of the following compounds. (3 points each).

a) 3-bromo-1-methylcyclopentene.

b) *E*-3-methyl-2-pentene.

c) *trans*-1-bromo-2-chloroethene

d) methyl-pentyl ether

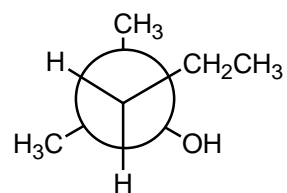
e) propyl ethanoate

f) butanal

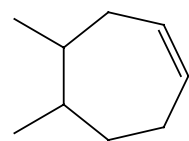
g) acetic acid

2) Give the full name of the following illustrations (2 points each)

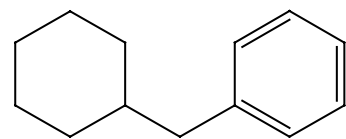
a)



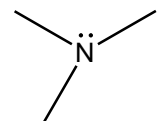
b)



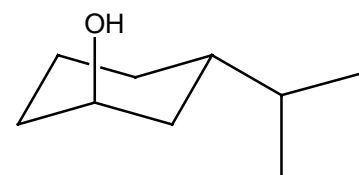
c)



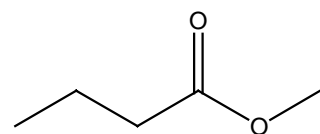
d)



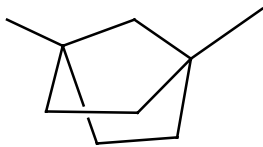
e)



f)



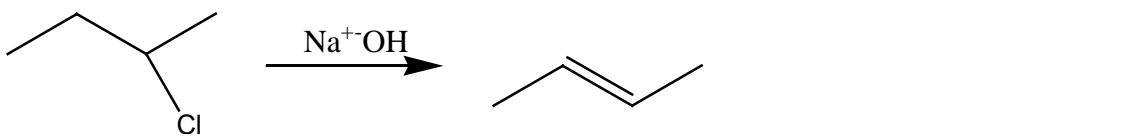
g)



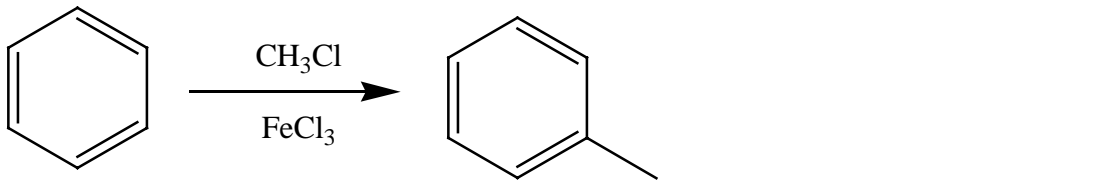
3) Define the following reactions as either SUBSTITUTION, ADDITION, ELIMINATION, REARRANGEMENT, OXIDATION or REDUCTION. (1 point each)

a) alcohol \rightarrow aldehyde _____

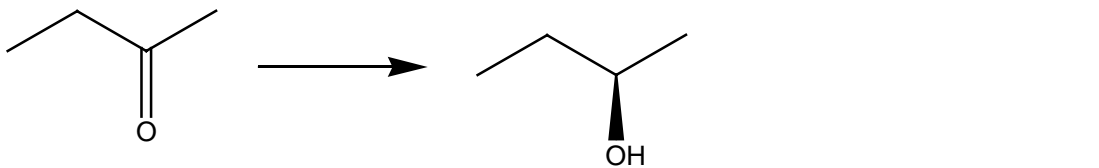
b)



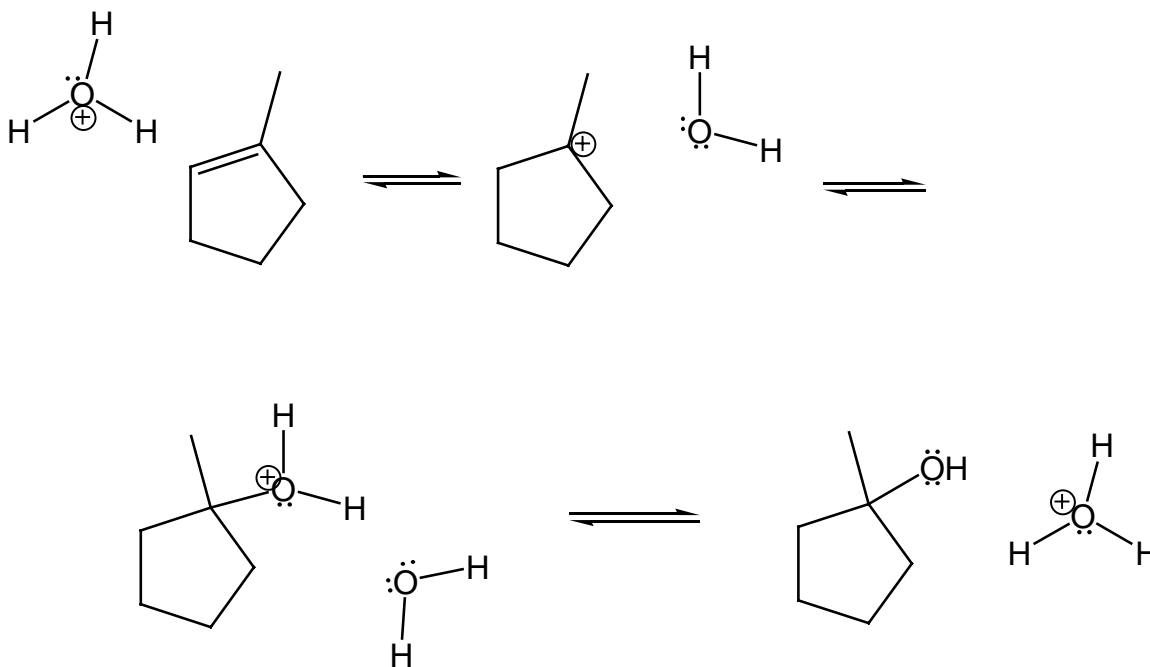
c)



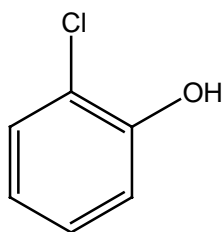
d)

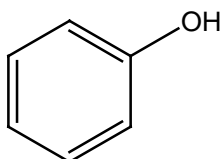


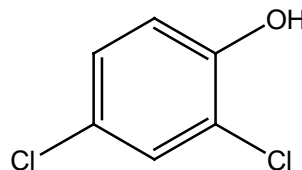
4) Fill in arrows to complete the following mechanism. All the reactants/reagents required are illustrated. (5 points)



5)a) Label the following compounds in order of increasing acidity (1 least acidic, 3 most acidic). (3 points).



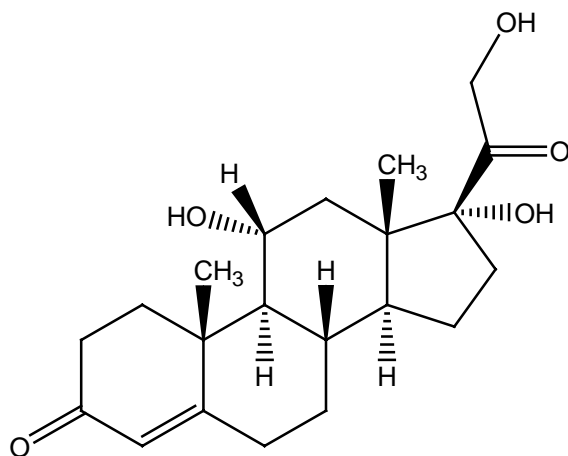




b) What principle is effecting the change in the pKa of the compounds illustrated in 5(a). Name the effect and define how it acts. (2 points).

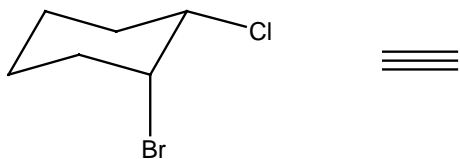
6) This is hydrocortisone a common anti-inflammatory used in the treatment of poison-ivy and insect bites.

Circle and label as many functional groups as possible within the structure; (alcohols, amines, esters, acids, aldehydes, ketone, amide, alkene, alkyne). Define the substitution of the functional groups, either primary, secondary or tertiary. (9 points)

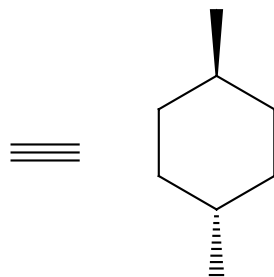


7) Redraw the following illustrations as either the 2-dimensional hexagonal representation (with wedges and dashes to show perspective [on right]) or the chair [on left]. (3 points each)

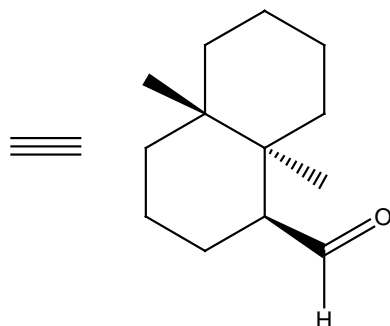
a)



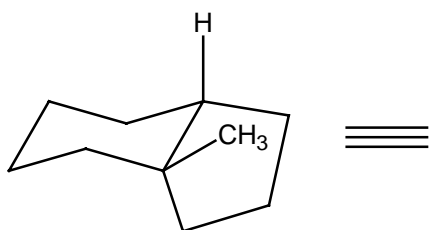
b)



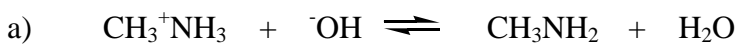
c)



d)

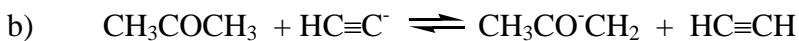


8) Define the role of each the following reagents (strong acid/base or weak acid/base). List the pKa's associated with the acidic components. Circle the side of the equilibrium that is favored. (7 points each).



Role

pKa

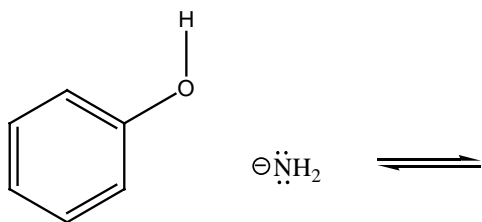


Role

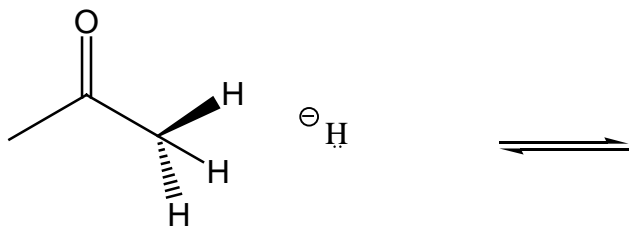
pKa

9) Provide bond-line illustrations of the products of the following reactions. Draw arrows to illustrate all the electrons in motion to generate the products. (4 points each).

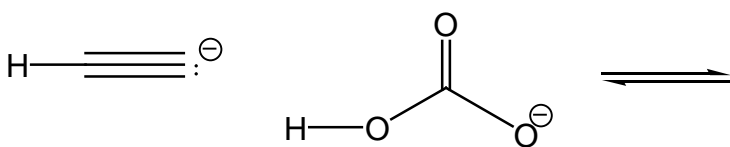
a)



b)



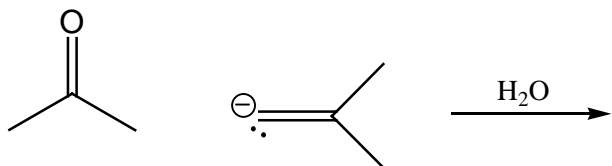
c)



d)

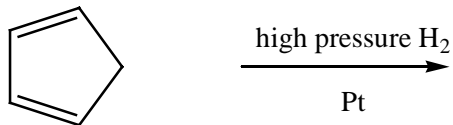


e)



10) What are the products of the following reactions (2 points each).

a)



b)

