

HOMEWORK #6

CHEM 121, section 1, winter 2015.

Printed Name: _____

Chapter. 15. Carboxylic Acids, Esters, and Other Acid Derivatives

Homework# 6 Due JAN 21, 2015, 12:15 PM! Group Name: _____

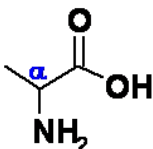
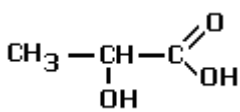
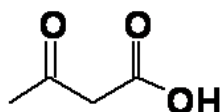
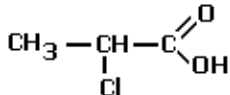
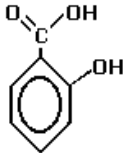
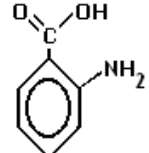
- 1) (2 pts) Identify the carboxylic acids, their derivatives (esters, anhydrides, amides, chlorides and salts) from the following and give their common and/or IUPAC names.

a) $\text{CH}_3\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{OH} \end{matrix}$ Type: _____ Name: _____	b) $\text{CH}_3\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{O-CH}_3 \end{matrix}$ Type: _____ Name: _____	c) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{O-CH}_2\text{-CH}_3 \end{matrix}$ Type: _____ Name: _____
d) $\begin{matrix} \text{CH}_3\text{CH}_2\text{CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{O} \end{matrix} \\ \text{CH}_3\text{CH}_2\text{CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{O} \end{matrix} \end{matrix}$ Type: _____ Name: _____	e) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{NH}_2 \end{matrix}$ Type: _____ Name: _____	f) $\text{CH}_3\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{NHCH}_2\text{CH}_3 \end{matrix}$ Type: _____ Name: _____
g) $\text{CH}_3\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{N(CH}_3)_2 \end{matrix}$ Type: _____ Name: _____	h) $\text{CH}_3\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{Cl} \end{matrix}$ Type: _____ Name: _____	i) $\text{CH}_3\text{-CH}_2\text{-C}\begin{matrix} \text{O} \\ \parallel \\ \text{O}^- \text{Na}^+ \end{matrix}$ Type: _____ Name: _____

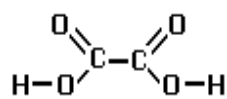
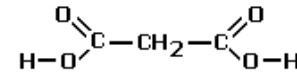
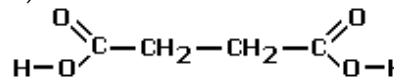
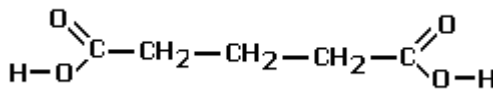
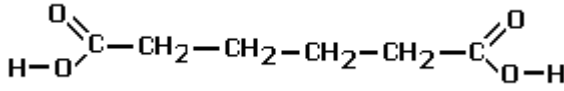
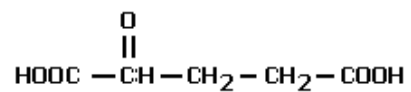
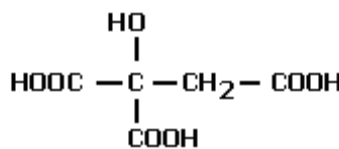
- 2) (2 pts) Draw the condensed formula of following carboxylic acid and their derivatives.

a) methyl propanoate	b) ethyl pentanoate	c) propanoyl chloride	d) N-methyl propanamide
e) N,N-dimethyl ethanamide	f) 2-methyl pentanamide	g) 2(α)-aminopropanoic	h) butanoic ethanoic anhydride

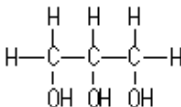
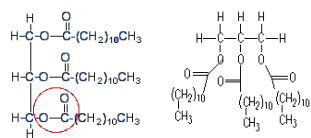
3) (2 pts) Identify type and give name of each of the following carboxylic acids.

a)  Type: _____ Name: _____	b)  Type: _____ Name: _____	c)  Type: _____ Name: _____
d)  Type: _____ Name: _____	e)  Type: _____ Name: _____	f)  Type: _____ Name: _____

4) (3 pts) Give common/IUPAC names of following dicarboxylic acids. Use "Oh my, such great apple pie!" (oxalic, malonic, succinic, glutaric, adipic, pimelic).

a)  Common: _____ IUPAC: _____	b)  Common: _____ IUPAC: _____	c)  Common: _____ IUPAC: _____ _
d)  Common: _____ IUPAC: _____		e)  Common: _____ IUPAC: _____
e)  Name: _____	f)  Name: _____	g)  Common: _____ IUPAC: _____

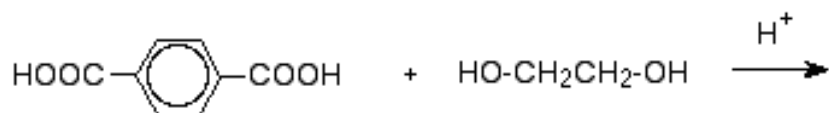
5) (2 pts) Give type/name of following fatty acids, and their derivatives.

a) $\text{CH}_3(\text{CH}_2)_{10}\text{CO}_2\text{H}$ Type: _____ Name: _____	b) $\text{CH}_3(\text{CH}_2)_{14}\text{CO}_2\text{H}$ Type: _____ Name: _____	c) $\text{CH}_3(\text{CH}_2)_{16}\text{CO}_2\text{H}$ Type: _____ Name: _____
j) $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ Type: _____ Name: _____	k)  Type: _____ Name: _____	l)  Type: _____ Name: _____

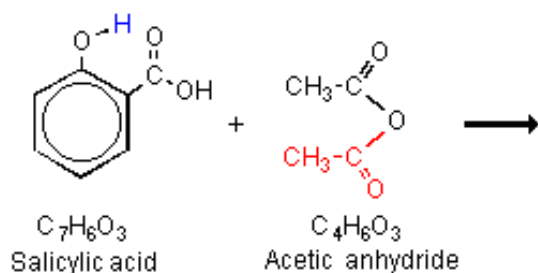
6) (3 pts) Name and complete following reactions.

1.	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH} \xrightarrow[\text{(Jones' reagent)}]{\text{H}_2\text{CrO}_4, \text{H}_3\text{O}^+ \text{ \& acetone}}$
2.	$\text{CH}_3-\text{CH}_2-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{OH} \xrightarrow[2. \text{H}_3\text{O}^+]{1. \text{LiAlH}_4}$ propanoic acid
3.	$\text{R}-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{OH} \xrightarrow{\text{SOCl}_2}$
4.	$\text{CH}_3-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{OH} + \text{HOCH}_2\text{CH}_3 \xrightarrow{\text{H}^+}$ Carboxylic Acid Alcohol
5.	$\text{CH}_3-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{Cl} + \text{CH}_3\text{OH} \xrightarrow[\text{heat}]{\text{H}^+}$
6.	$\text{CH}_3-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{Cl} + \text{CH}_3-\overset{\text{O}}{\underset{\text{ }}{\text{C}}}-\text{O}^-\text{Na}^+ \longrightarrow$

7) (3 pts) Name and complete following reactions.



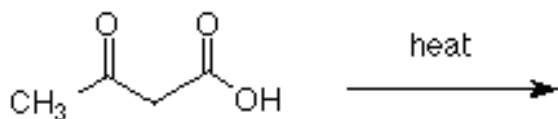
1.



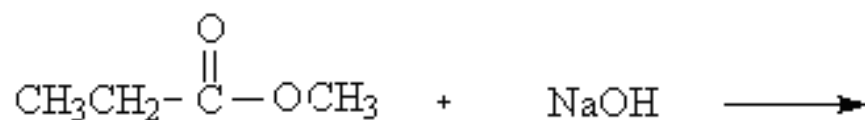
2.



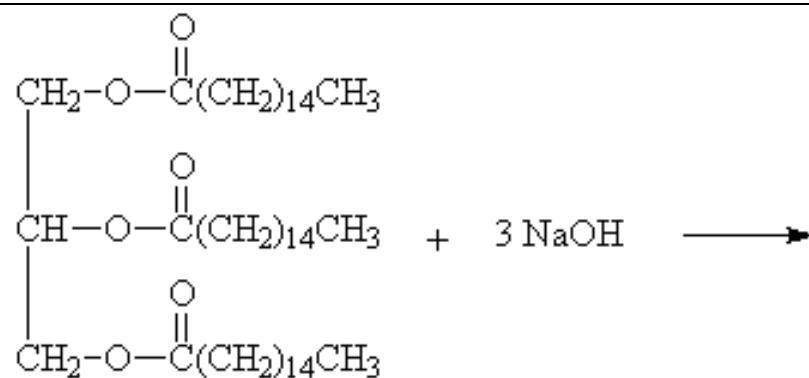
3.



4.



5.



6.