Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form A ~~MWF 1 pm Quiz VI Exam #~~ _____

Sign Name Kelly Print Name (TF, NFE - too far not far enough color)

Please show work on all questions for partial credit even on questions which do not specify. (25 pts)

1. Complete the following reactions by giving the organic products. (Circle the number of 4 of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume work up for all Rxns) (1/2 off)

1) $CH_3-CH_2-O-H \xrightarrow{K_2Cr_2O_7 / H^+}$ $CH_3-C(=O)-OH$ $CH_3-C(=O)-O-CH_2CH_3$

2) $CH_3-C(=O)-O-H$ + excess $HOCH_2CH_3 \xrightarrow{H^+}$

3) $CH_3-CH_2-CH_2-Br + Na^+ C\equiv N^- \rightarrow$ $CH_3CH_2CH_2-C\equiv N$ $\xrightarrow{H_2O}$ $CH_3CH_2CH_2-C(=O)-OH$

4) $CH_3-C(=O)-O-H$ + $SOCl_2 \rightarrow$ $CH_3-C(=O)-Cl$ $CH_3-C(OH)(CH_2CH_3)(CH_2CH_3)$ (intermed, regio, 1/2 off)

5) $CH_3-C(=O)-Cl$ ① CH_3CH_2MgBr, THF ② H^+, H_2O

6) $CH_3-C(=O)-O-H$ $\xrightarrow{LiAlH_4}$ CH_3-CH_2OH

7) $Cl-C(=O)-CH_3$ + $H-N(CH_2CH_3)-CH_3 \rightarrow$ $CH_3CH_2-N(CH_3)-C(=O)-CH_3$

2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)

$CH_3CH_2CH_2-C(=O)-Cl$ + $H-NH-CH_3 \rightarrow$ $CH_3CH_2CH_2-C(O^-)(Cl)-N^+H-CH_3$ (base) (2pt)

$CH_3CH_2CH_2-C(O^-)(Cl)-N^+H-CH_3 \rightarrow$ $CH_3CH_2CH_2-C(=O)-N-CH_3$ + Cl^- + H^+ (3pt, 4pt)

Extra Credit: Complete the reaction for the following..(2 pts)

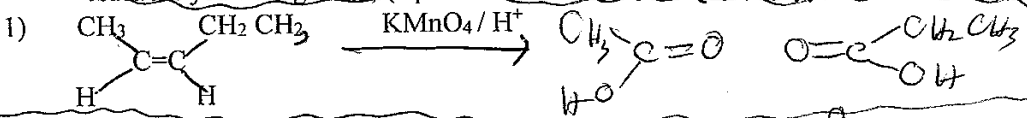
$CH_3-C(=O)-O-C(=O)-CH_3$ + excess $CH_3-CH_2-O-H \rightarrow 2\,CH_3-C(=O)-O-CH_2CH_3$

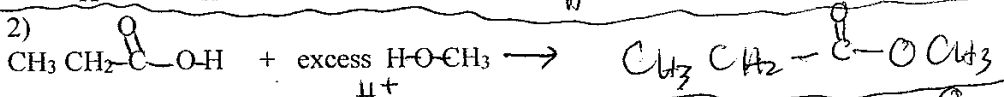
Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form B MWF-1 pm Quiz VI Exam # _____

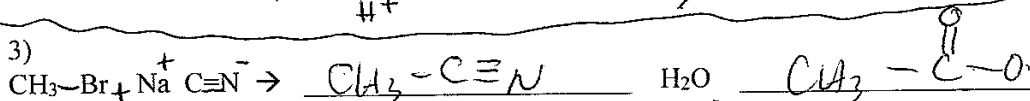
Sign Name Key Print Name _____

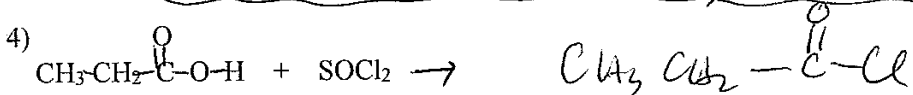
Please show work on all questions for partial credit even on questions which do not specify. (25 pts)

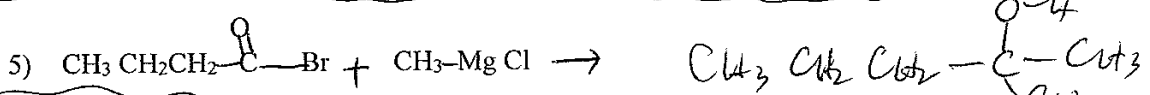
1. Complete the following reactions by giving the organic products. (Circle the number of 4 of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume workup for all RXNs)

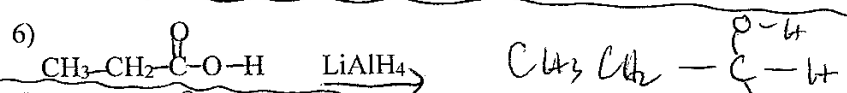
1) 

2) 

3) 

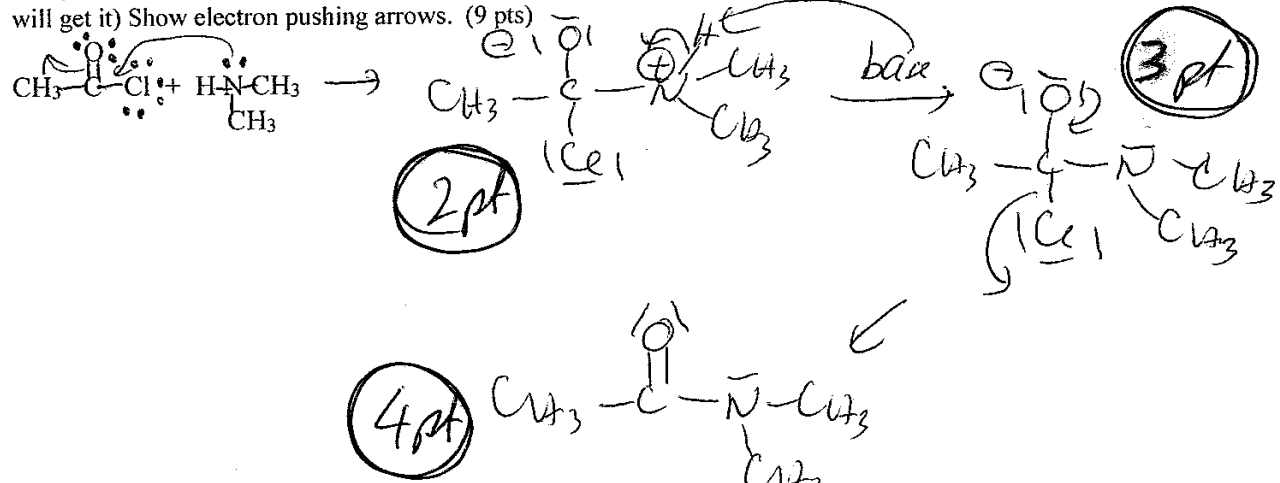
4) 

5) 

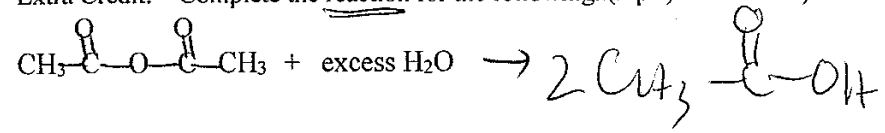
6) 

7) 

2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)



Extra Credit: Complete the reaction for the following..(2 pts)



Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form A MWF-1 pm Quiz VI Exam # _____

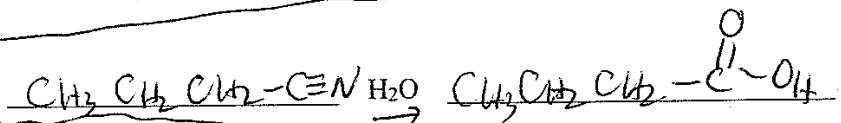
Sign Name Key Print Name _____

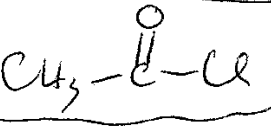
Please show work on all questions for partial credit even on questions which do not specify. (25 pts) color

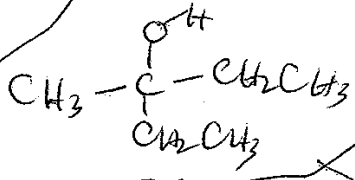
1. Complete the following reactions by giving the organic products. (Circle the number of **4** of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume work up for all Rxns)

1) $CH_3-CH_2-O-H \xrightarrow{K_2Cr_2O_7 / H^+}$ 

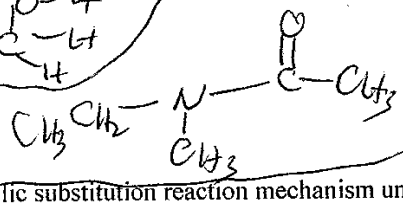
2) $CH_3-\overset{O}{\overset{\|}{C}}-O-H$ + excess $H\,O\,CH_2\,CH_3 \xrightarrow[H^+]{}$ 

3) $CH_3-CH_2-CH_2-Br + Na^+\,C\equiv N^- \rightarrow$ 

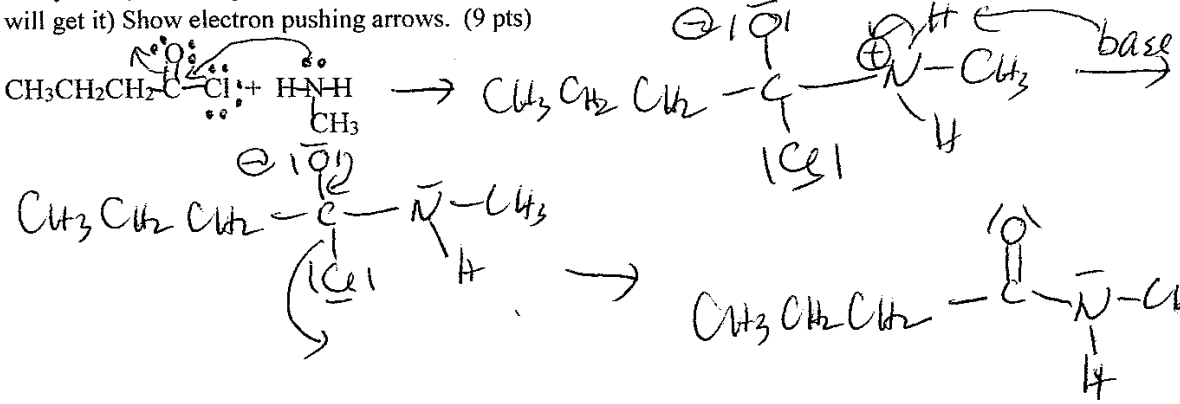
4) $CH_3-\overset{O}{\overset{\|}{C}}-O-H + SOCl_2 \rightarrow$ 

5) $CH_3-\overset{O}{\overset{\|}{C}}-Cl$ ① $CH_3CH_2\,Mg\,Br$, THF ② H^+, H_2O 

6) $CH_3-\overset{O}{\overset{\|}{C}}-O-H \xrightarrow{LiAlH_4}$ 

7) $Cl-\overset{O}{\overset{\|}{C}}-CH_3 + H-\underset{CH_2\,CH_3}{\overset{|}{N}}-CH_3 \rightarrow$ 

2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)



Extra Credit: Complete the reaction for the following..(2 pts)

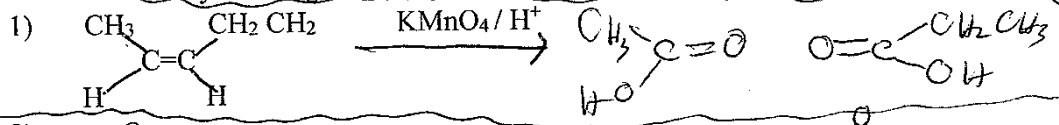
$CH_3-\overset{O}{\overset{\|}{C}}-O-\overset{O}{\overset{\|}{C}}-CH_3$ + excess $CH_3-CH_2-O-H \rightarrow$ 

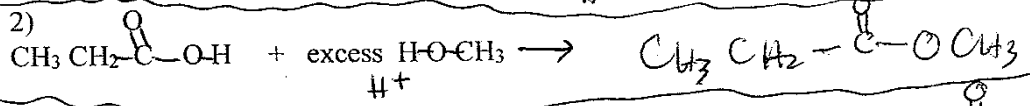
Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form B MWF-1 pm Quiz VI Exam # _____

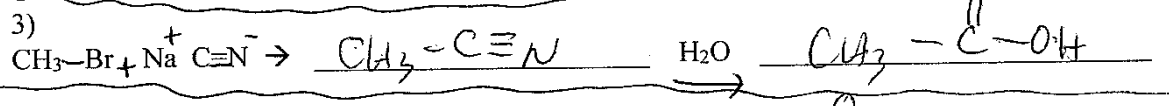
Sign Name Key Print Name _____

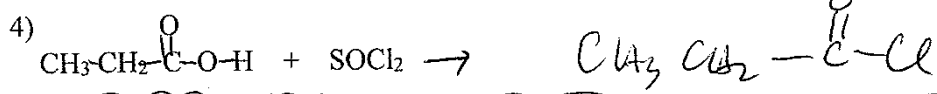
Please show work on all questions for partial credit even on questions which do not specify. (25 pts)

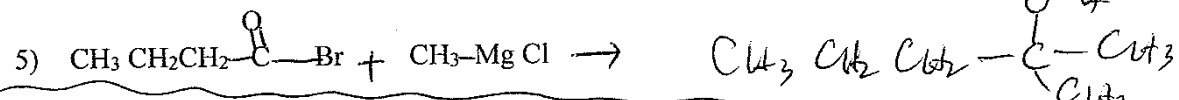
1. Complete the following reactions by giving the organic products. (Circle the number of 4 of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume Workup for all RXNs)

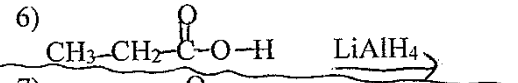
1) 

2) 

3) 

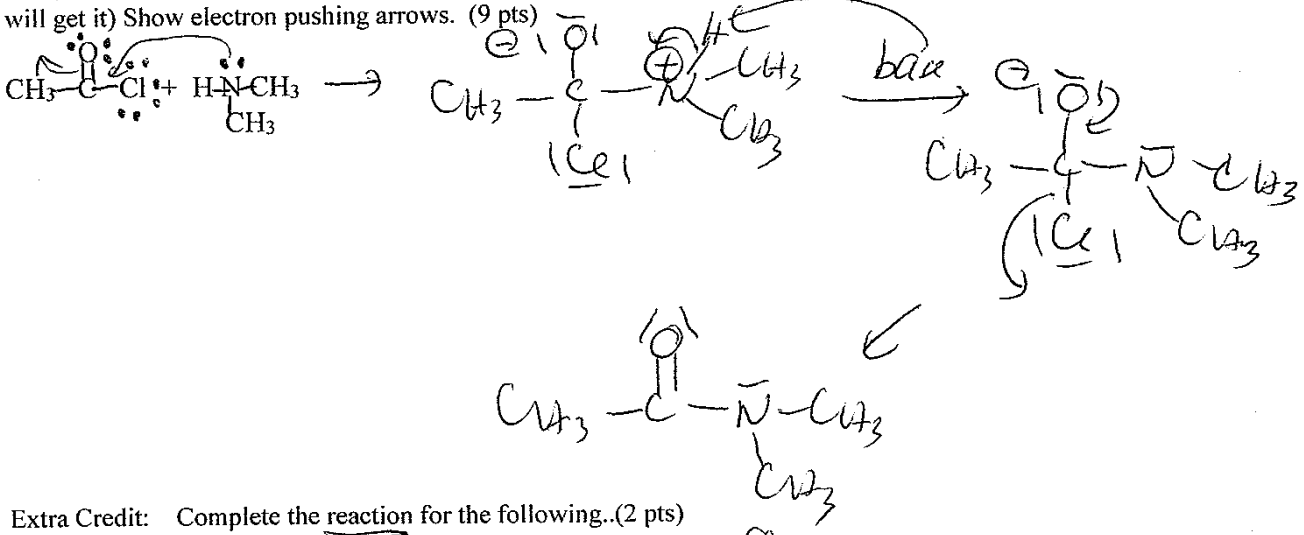
4) 

5) 

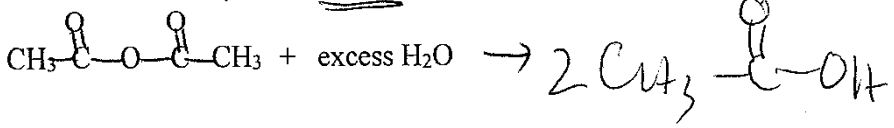
6) 

7) 

2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)



Extra Credit: Complete the reaction for the following..(2 pts)



Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form A MWF-1 pm Quiz VI Exam # C-16

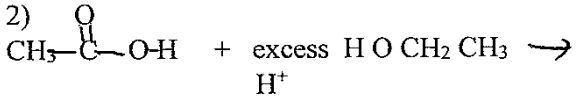
Sign Name _____ Print Name _____

Please show work on all questions for partial credit even on questions which do not specify. (25 pts) color

1. Complete the following reactions by giving the organic products. (Circle the number of 4 of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume work up for all Rxns)

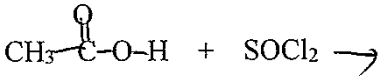
1)

2)

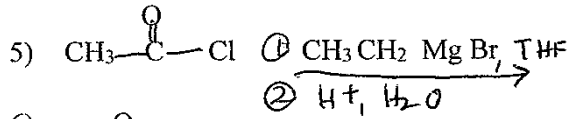


3)

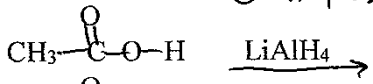
4)



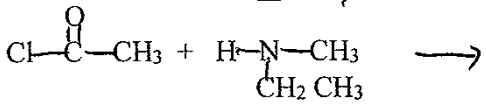
5)



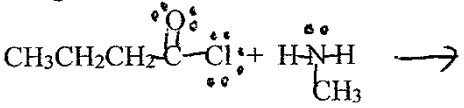
6)



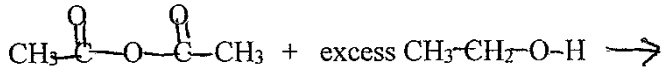
7)



2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)



Extra Credit: Complete the reaction for the following..(2 pts)

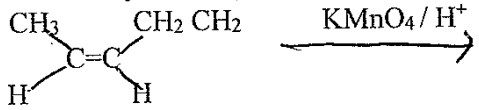


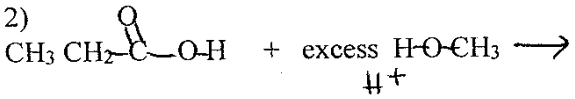
Organic Chem II (CHEM 442) Spring 2016 Dr. Hahn 4/15 F Form B MWF-1 pm Quiz VI Exam # C-17

Sign Name _____ Print Name _____

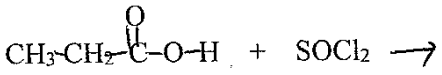
Please show work on all questions for partial credit even on questions which do not specify. (25 pts)

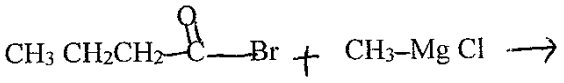
1. Complete the following reactions by giving the organic products. (Circle the number of 4 of the following reactions you want graded.) (4 pts each reaction, 16 pts) (assume workup for all RXNs)

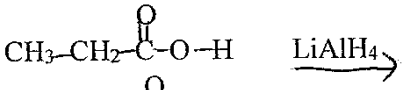
1) 

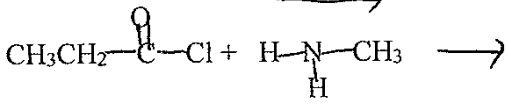
2) 

3) 

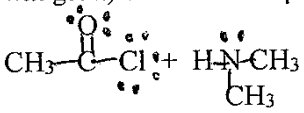
4) 

5) 

6) 

7) 

2. Show the following reaction mechanism. This is a nucleophilic substitution reaction mechanism under base catalysis. (I did not go over this specific mechanism but if you think "generalized nucleophilic substitution" then you will get it) Show electron pushing arrows. (9 pts)



Extra Credit: Complete the reaction for the following..(2 pts)