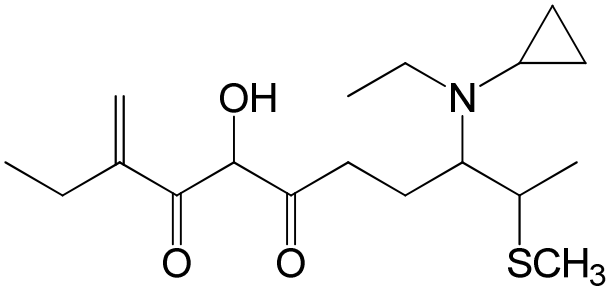
CHEM 266 – EXAM 3 (Fall 2017) **NAME_____Keys_____**

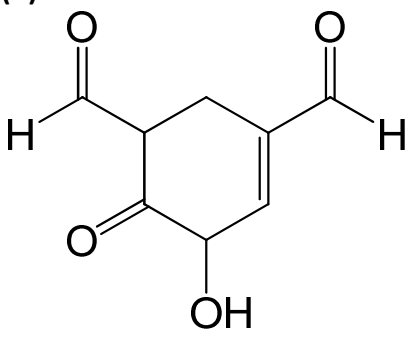
Tuesday November 28, 2017

1. Name the following compounds (3 x 8 = 24 pts)

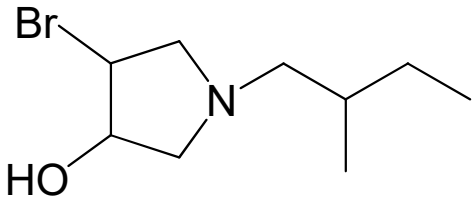
(a)



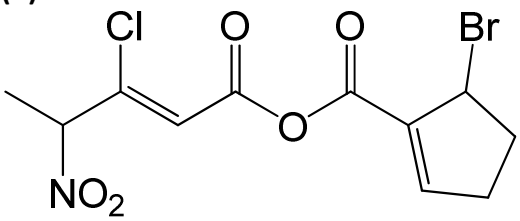
(b)



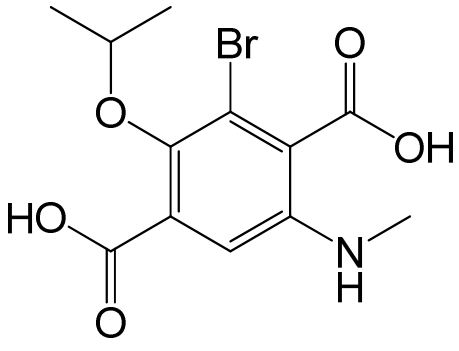
(c)



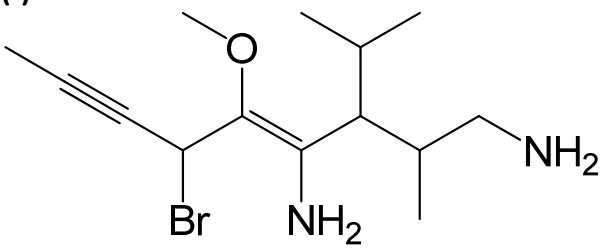
(d)



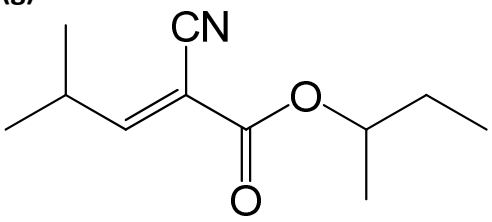
(e)



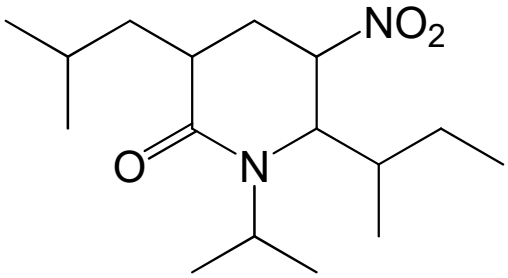
(f)



(g)

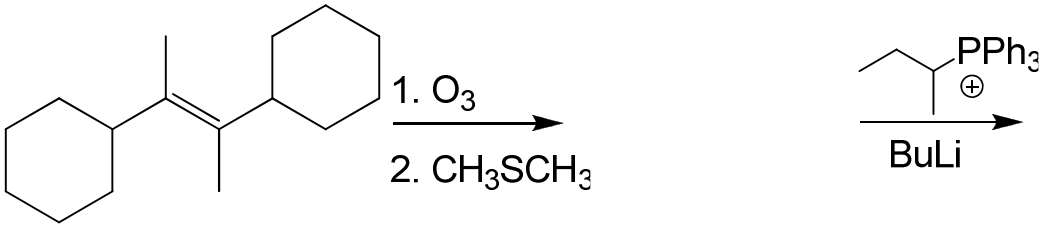


(h)

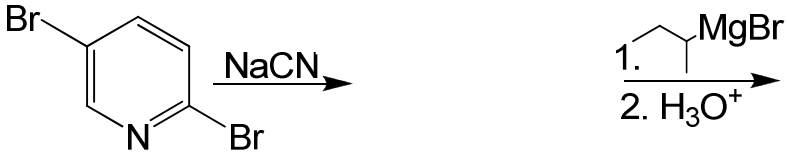


2. Predict the major product(s) expected from the following reactions (3 x 16 = 48 pts)

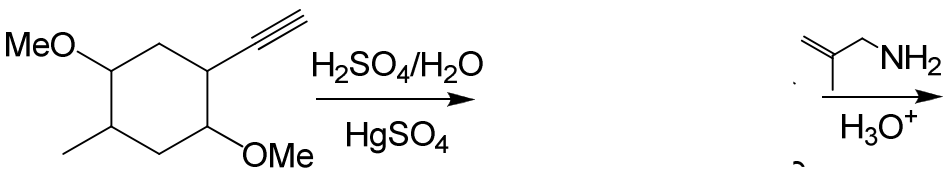
(a)



(b)



(c)



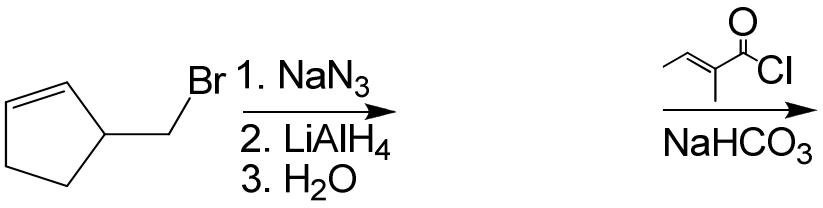
(d)


O
HCN
1. LiAlH4
2. H3O+

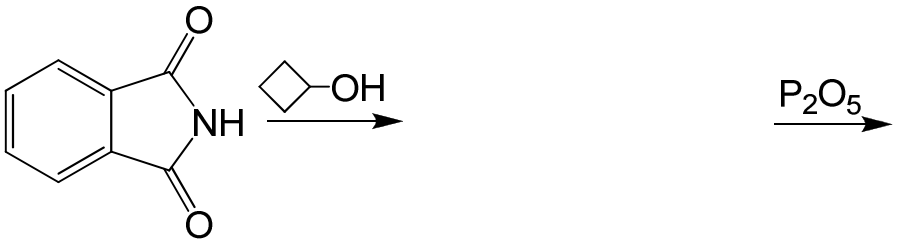
(e)


Cl
O
NH3
Br2, NaOH
Heat

(f)


Br
1. NaN3
2. LiAlH4
3. H2O
O
Cl
NaHCO3

(g)


O
NH
O
OH
P2O5

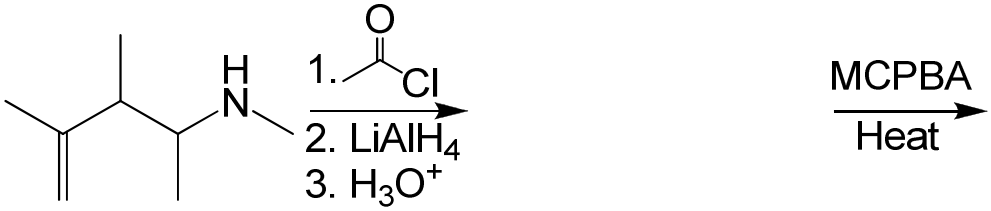
(h)


O
O
O
O
MeO
OMe
NH2
CH2N2

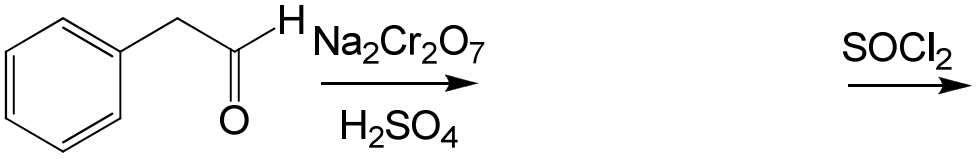
(i)


Br
N
Br
HNO3
H2SO4
Fe, HCl

(j)


H
N
O
1.
Cl
2. LiAlH4
3. H3O+
MCPBA
Heat

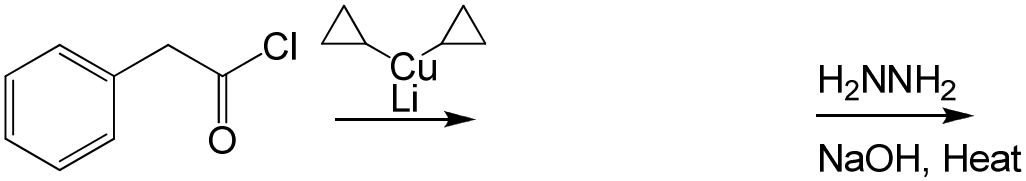
(k)


H
O
$Na_2Cr_2O_7$
H_2SO_4
$SOCl_2$

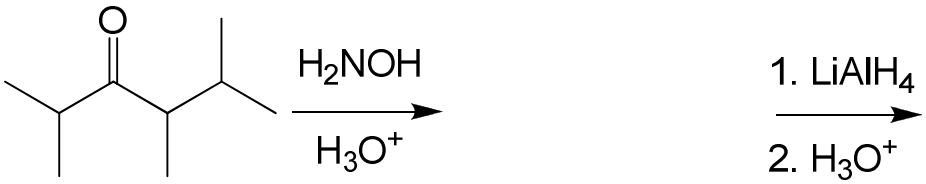
(l)


CN
H_3O^+
1.
Li
2. H_3O^+

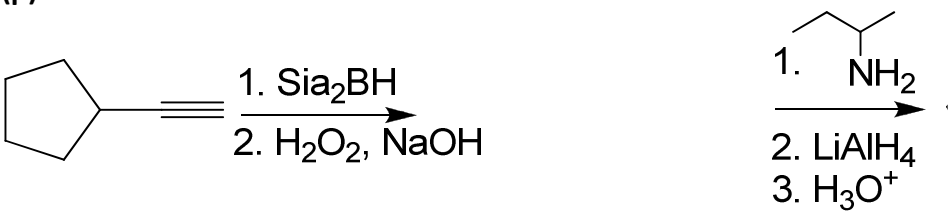
(m)


Cl
O
Cu
Li
H_2NNH_2
NaOH, Heat

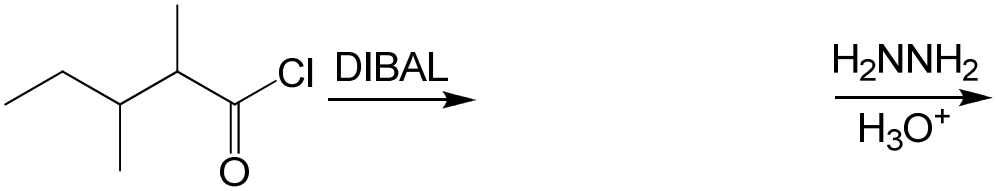
(n)


O
H_2NOH
H_3O^+
1. $LiAlH_4$
2. H_3O^+

(p)

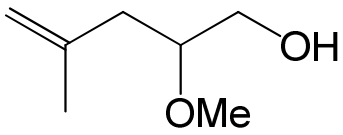

1. Sia_2BH
2. H_2O_2, NaOH
1.
NH_2
2. $LiAlH_4$
3. H_3O^+

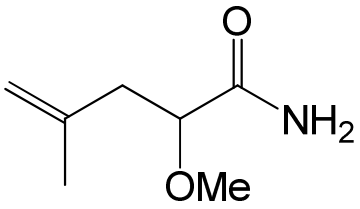
(q)


Cl
O
DIBAL
H_2NNH_2
H_3O^+

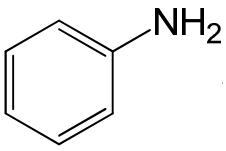
3. Show how you would synthesize each of the following compounds from the given starting material(s). **You must show all the intermediates to receive full credit** (3 x 6 = 18 pts)

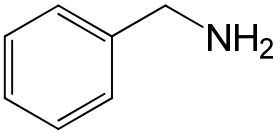
(a)



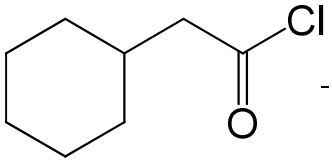


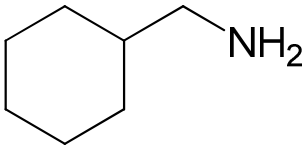
(b)



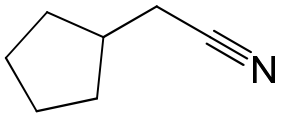


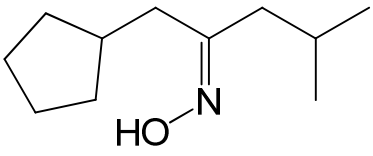
(c)



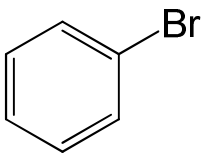


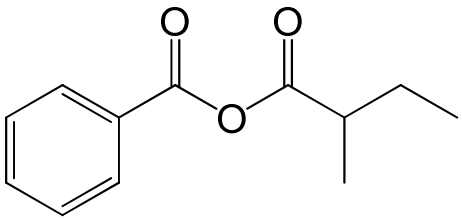
(d)



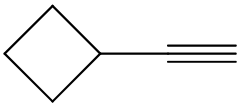


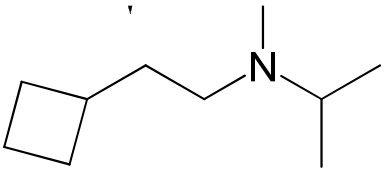
(e)





(f)





4. Propose a mechanism consistent with the following reactions (**you must show all the intermediates and arrows indicating the electron flow to receive full credit**) (3.5 x 3 = 10.5 pts)

(a)

(b)

(c)