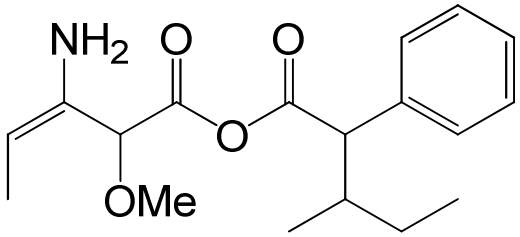
Homework 2 **NAME_____Keys_____**

Spring 2017 **(Due on May 3, 2017, at the beginning of the class, no late return, no exam under my office's door will be accepted)**

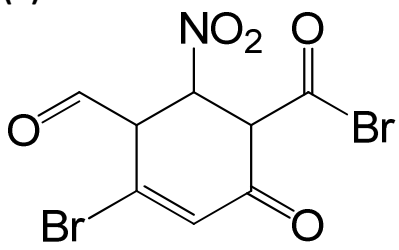
1. Name the following compounds (8 x 1.5 = 12 pts)

(A)



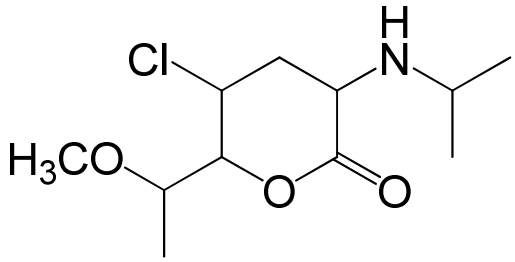
3-amino-2-methoxypent-3-enoic 3-methyl-2-phenyl pentanoic anhydride

(B)



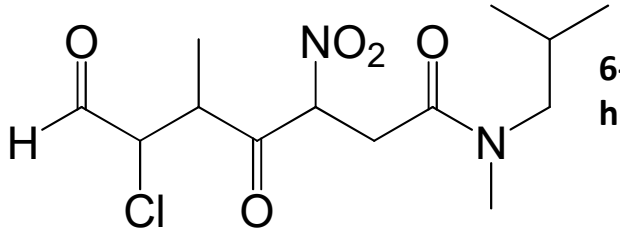
4-bromo-5-formyl-6-nitro-2-oxocyclohex-3-enecarbonyl bromide

(C)



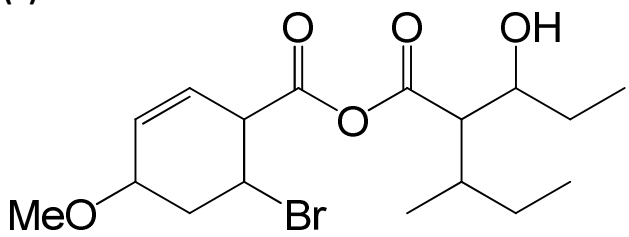
2-amino-4-chloro-5-hydroxy-*N*-isopropyl-6-methoxy heptanoic acid lactone

(D)



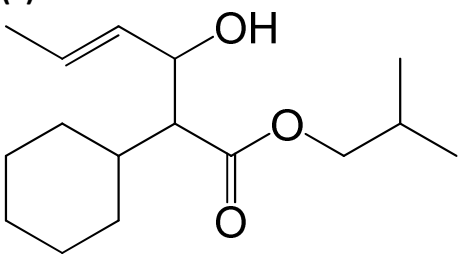
6-chloro-N-isobutyl-N,5-dimethyl-3-nitro-4,7-dioxo heptanamide

(E)



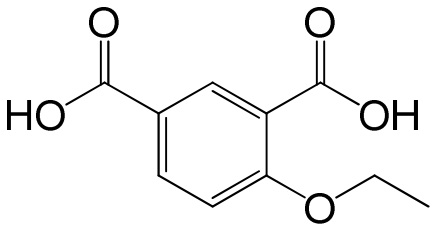
6-bromo-4-methoxycyclohex-2-enecarboxylic 2-*sec*-butyl-3-hydroxypentanoic anhydride

(F)



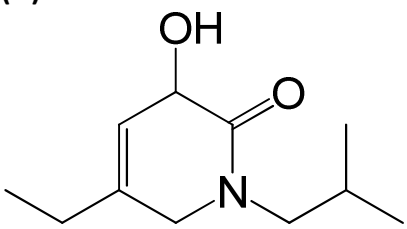
Isobutyl 2-cyclohexyl-3-hydroxyhex-4-enoate

(G)



4-Ethoxybenzene-1,3-dicarboxylic acid

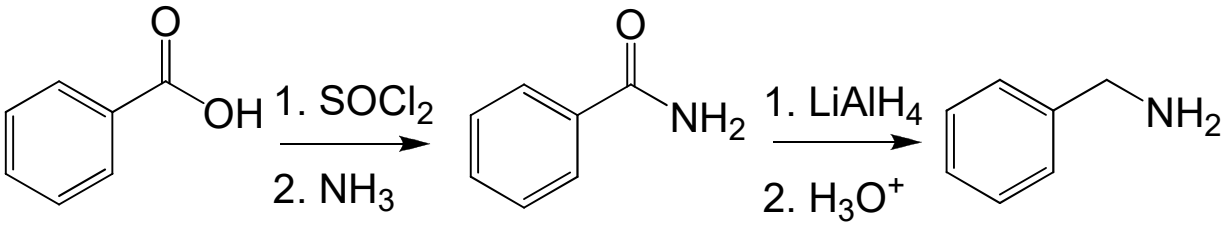
(H)



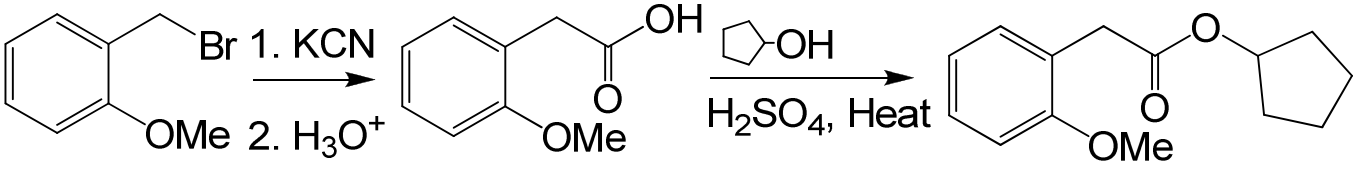
5-Amino-4-ethyl-2-hydroxy-*N*-isobutylpent-3-enoic acid lactam

2. Predict the product(s) obtained from the following reactions (1.5 x 16 = 24 pts)

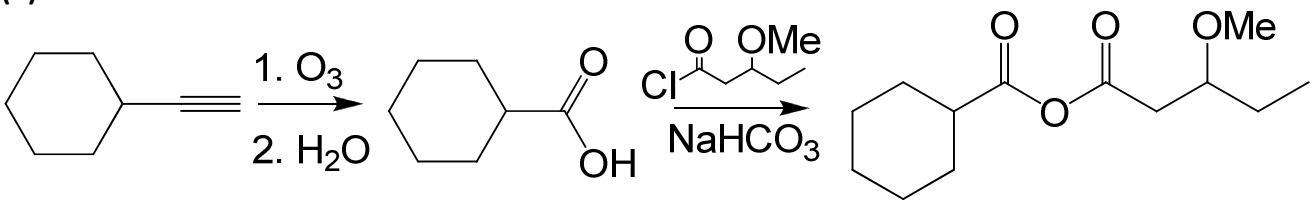
(A)



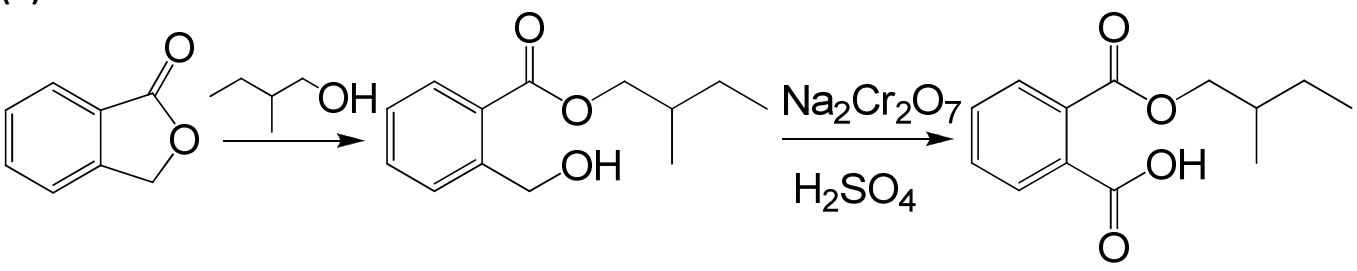
(B)



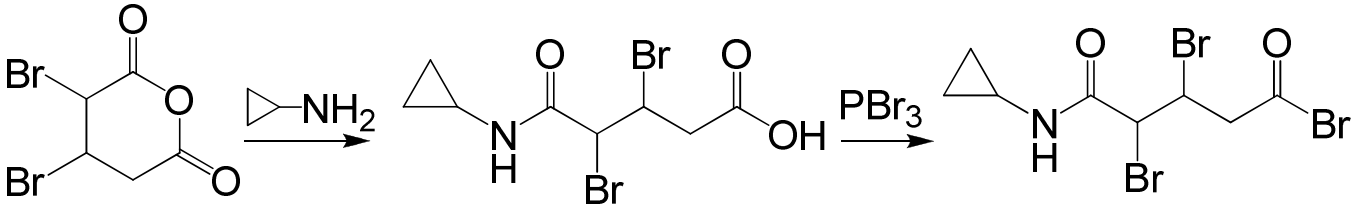
(C)



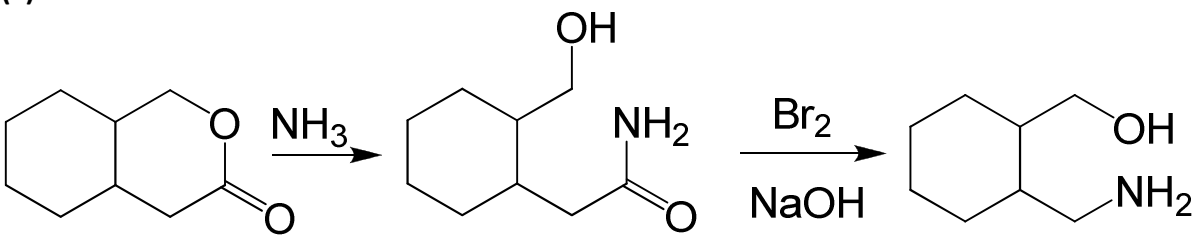
(D)


O
O
OH
O
O
OH
$Na_2Cr_2O_7$
H_2SO_4
O
O
OH
O

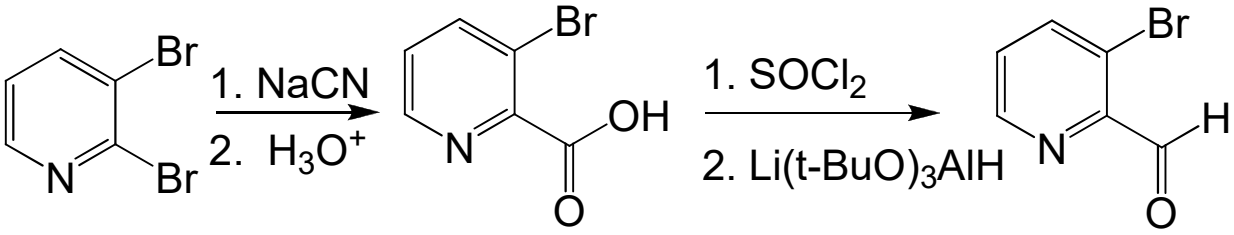
(E)


Br
O
Br
O
NH_2
N
H
O
Br
O
OH
Br
PBr_3
N
H
O
Br
O
Br
Br

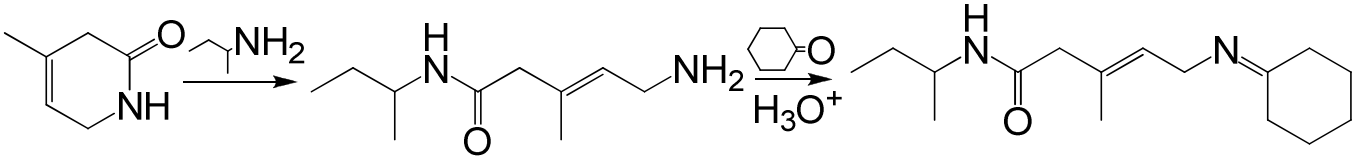
(F)


O
O
NH_3
OH
NH_2
O
Br_2
NaOH
OH
NH_2

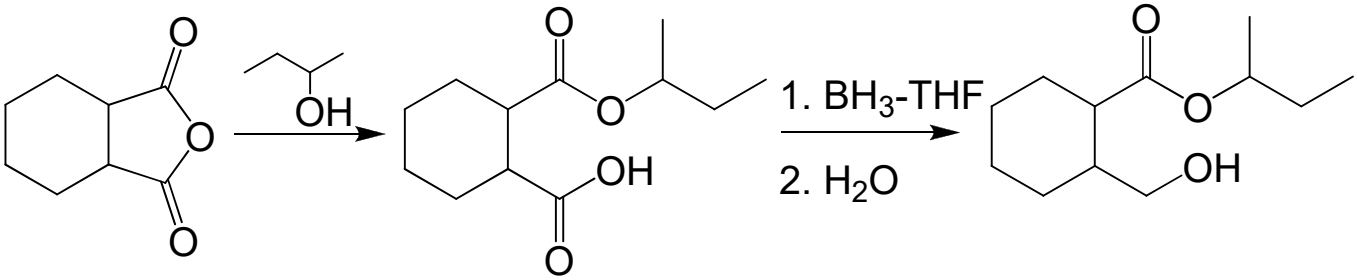
(G)


Br
N
Br
1. NaCN
2. H_3O^+
Br
N
OH
O
1. $SOCl_2$
2. $Li(t\text{-}BuO)_3AlH$
Br
N
H
O

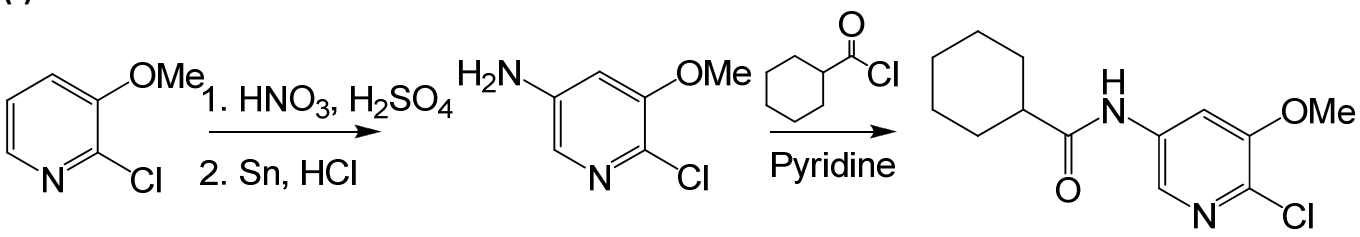
(H)


O
NH
NH_2
H
N
O
NH_2
O
H_3O^+
H
N
O
N

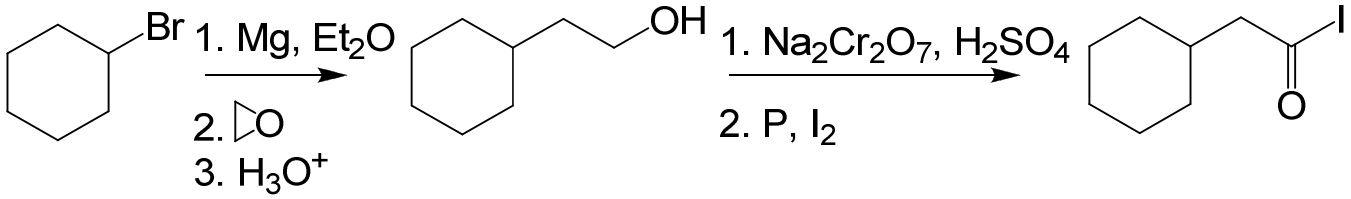
(I)


O
O
O
OH
O
O
OH
O
1. BH_3-THF
2. H_2O
O
O
OH

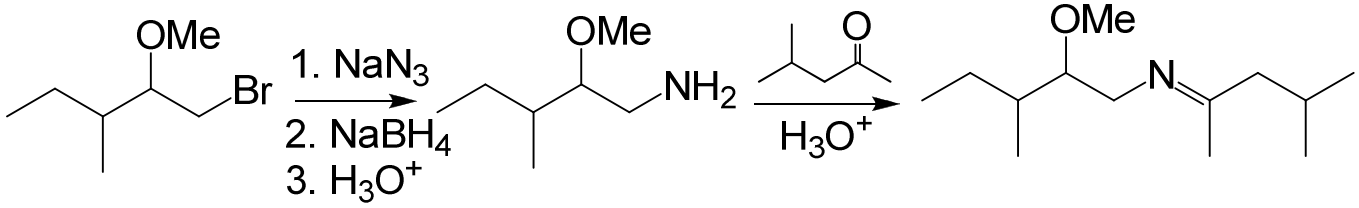
(J)


OMe
N
Cl
1. HNO_3, H_2SO_4
2. Sn, HCl
H_2N
OMe
N
Cl
O
Cl
Pyridine
H
N
OMe
O
N
Cl

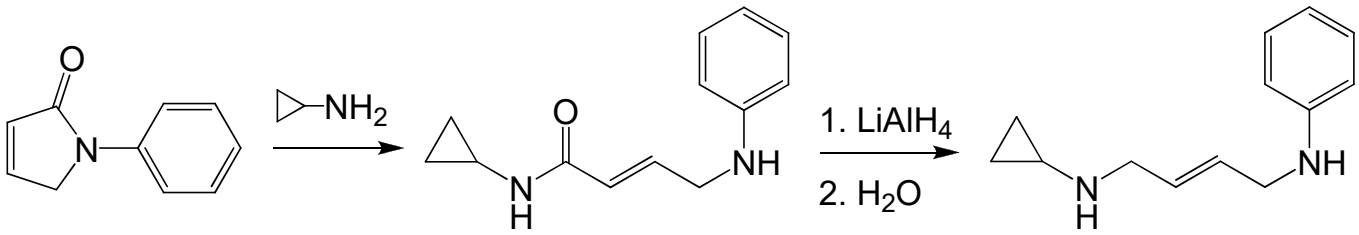
(K)


Br
1. Mg, Et_2O
2. O
3. H_3O^+
OH
1. $Na_2Cr_2O_7$, H_2SO_4
2. P, I_2
I
O

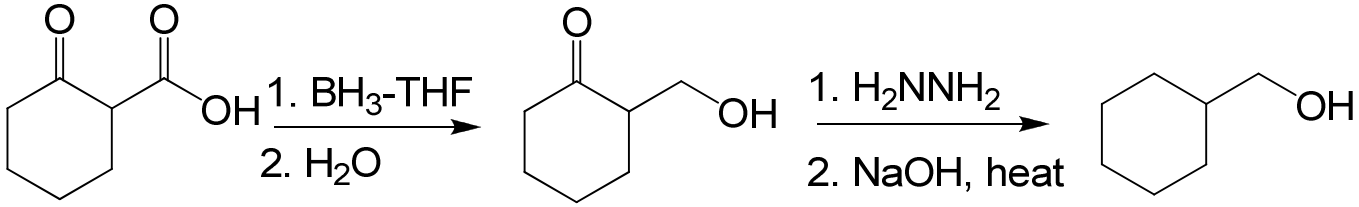
(L)


OMe
Br
1. NaN_3
2. $NaBH_4$
3. H_3O^+
OMe
NH_2
O
H_3O^+
OMe
N

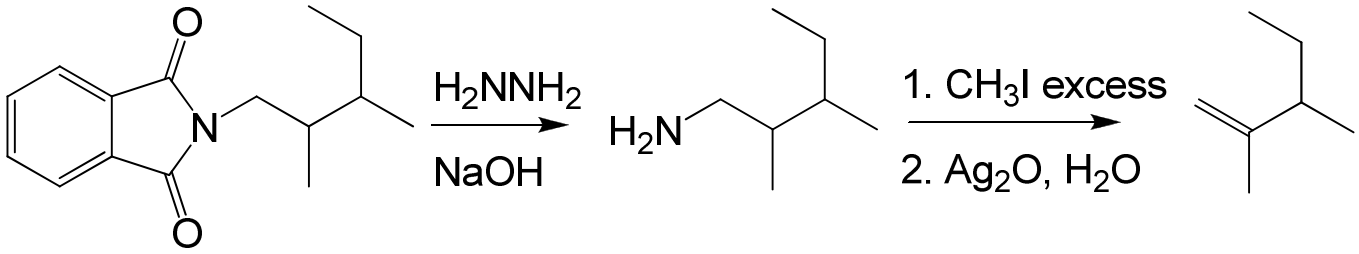
(M)


O
N
NH_2
O
N
H
NH
1. $LiAlH_4$
2. H_2O
N
H
NH

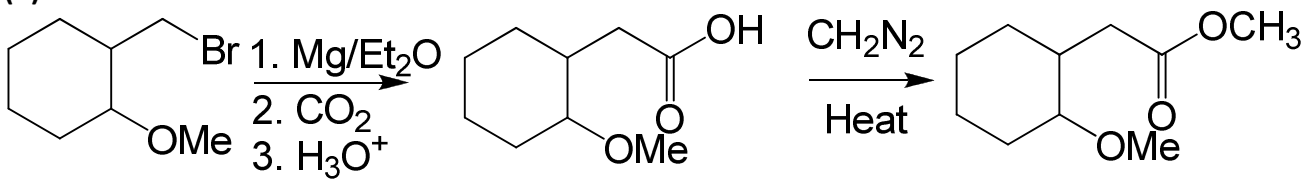
(N)


O
O
OH
1. BH_3-THF
2. H_2O
O
OH
1. H_2NNH_2
2. NaOH, heat
OH

(O)

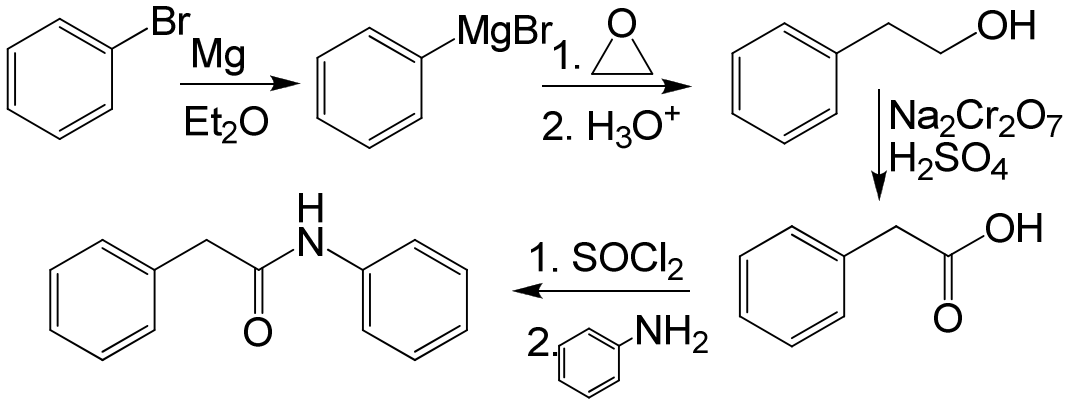

O
N
O
H_2NNH_2
NaOH
H_2N
1. CH_3I excess
2. Ag_2O, H_2O

(P)

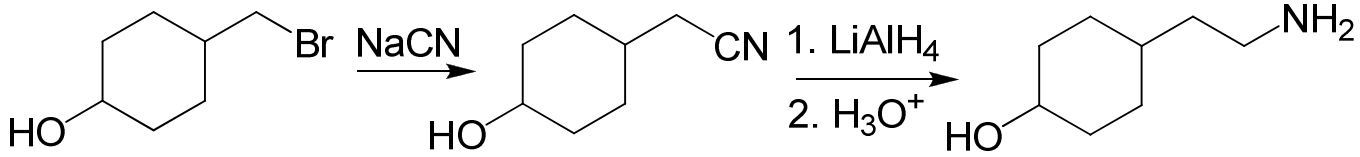


3 Show how you would synthesize each of the following compounds from the given starting materials (6 x 1.5 = 9 pts)

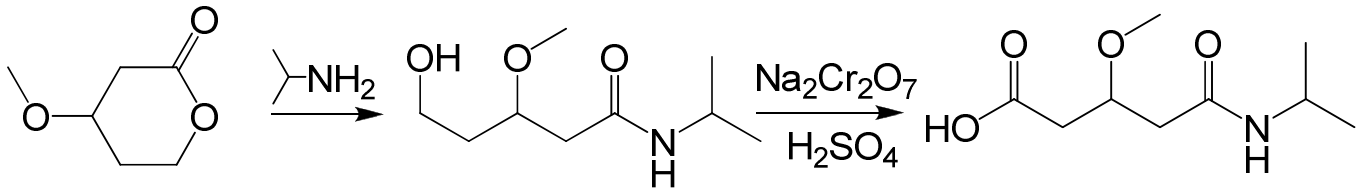
(A)



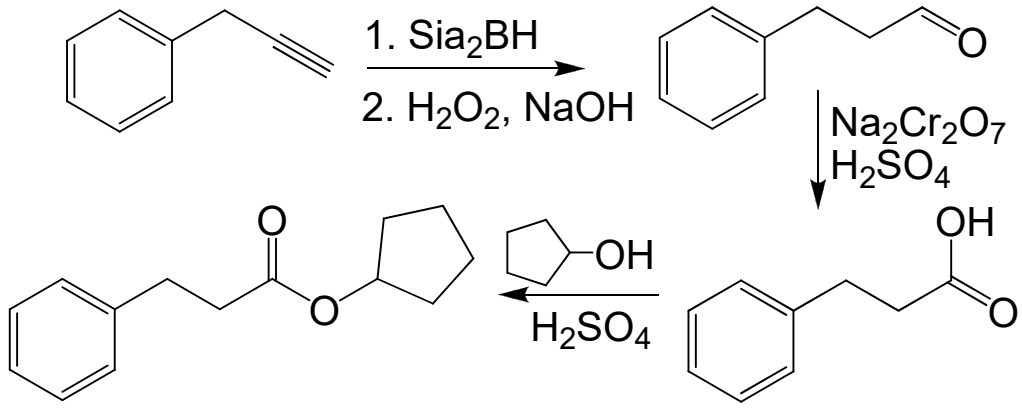
(B)



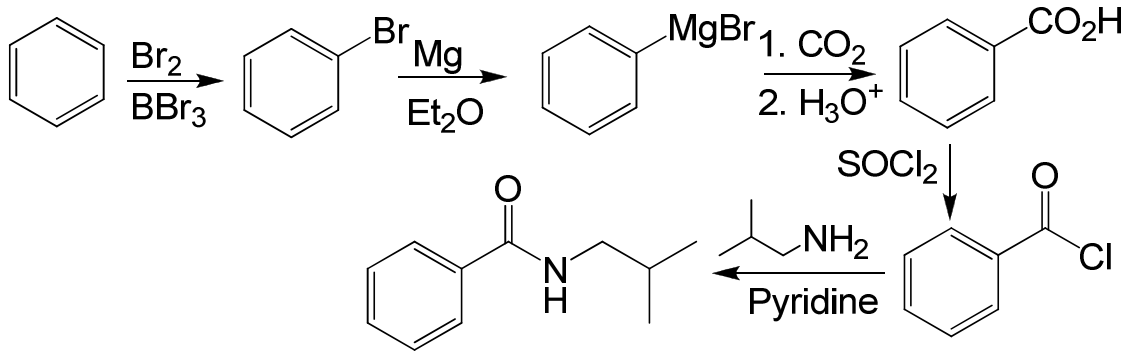
(C)



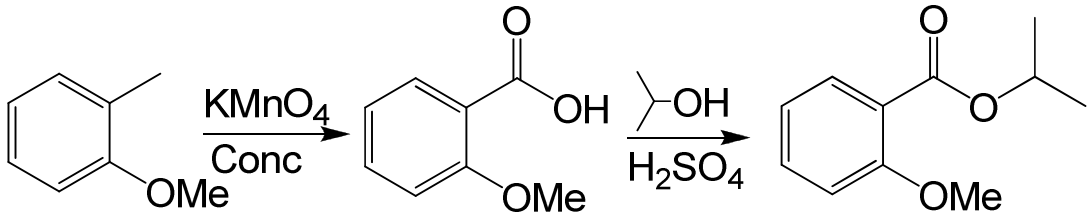
(D)



(E)

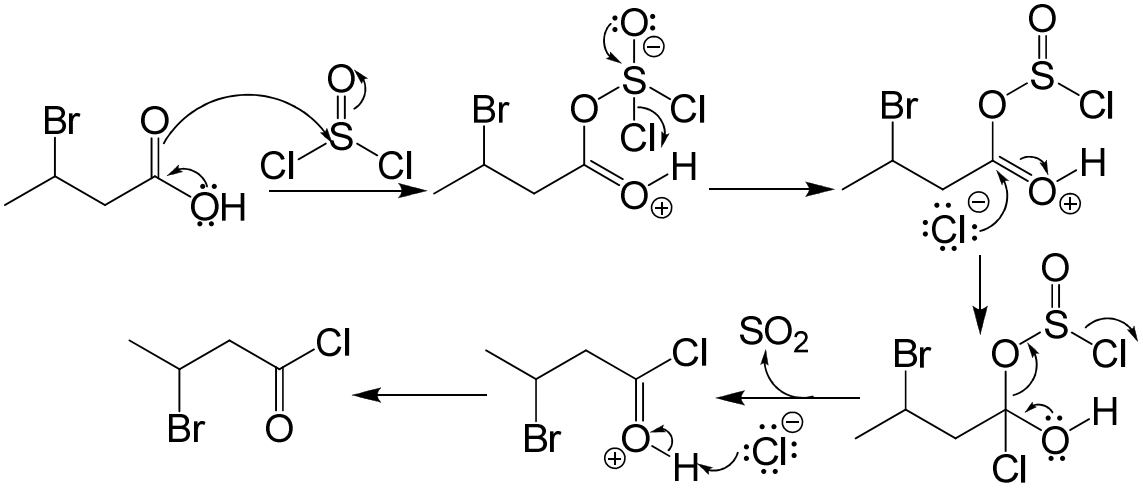


(F)

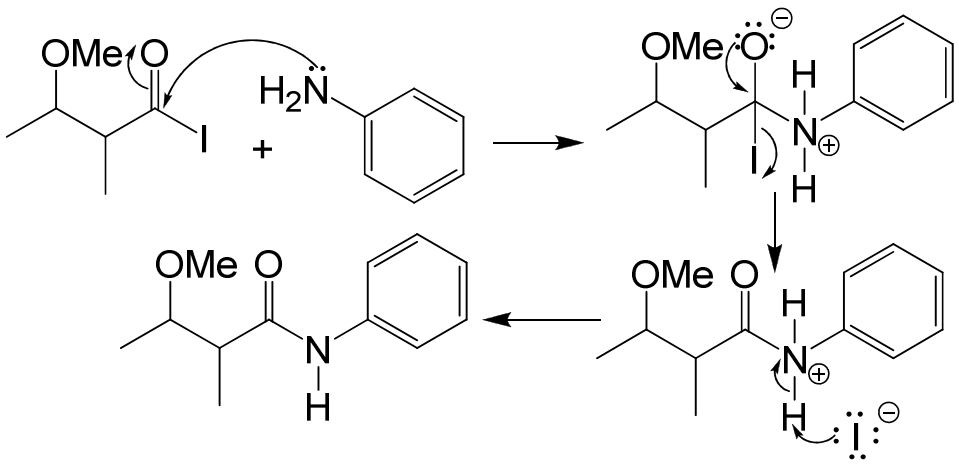


4. Propose a mechanism consistent with the following reactions (you must show all the intermediates to receive full credit) (4 x 1.5 = 6 pts)

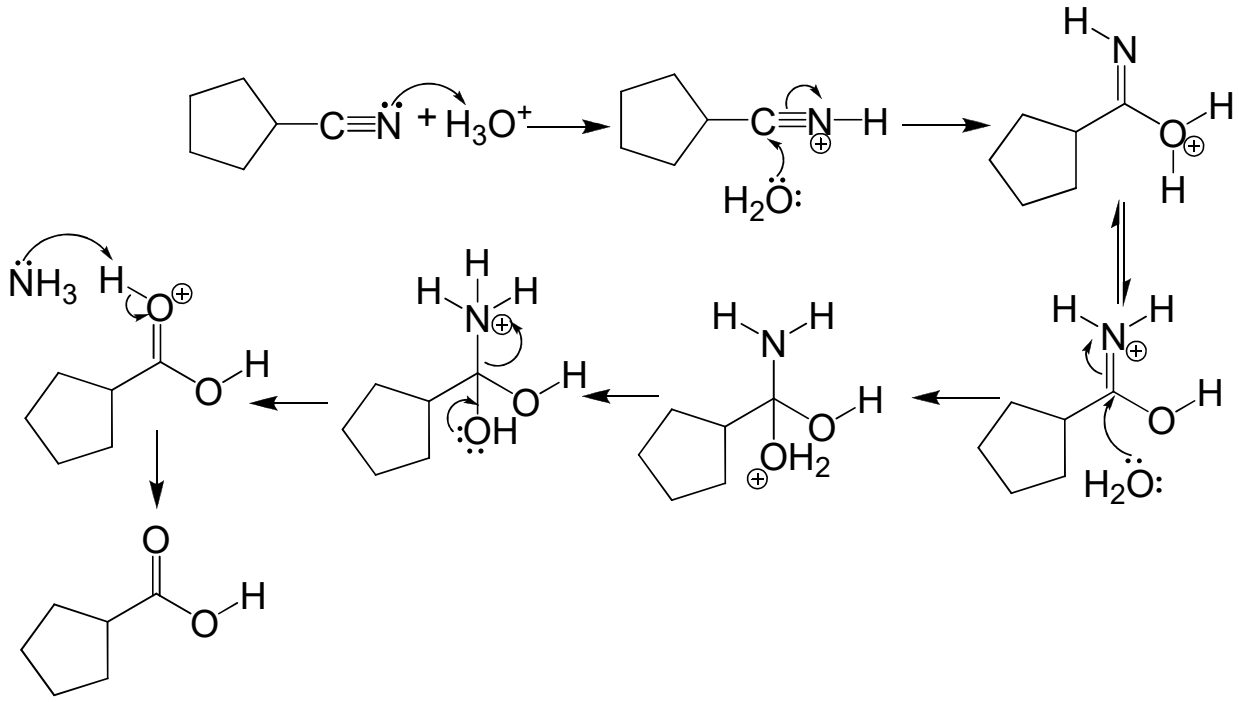
(A)



(B)



(C)



(D)