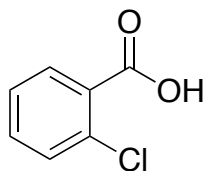
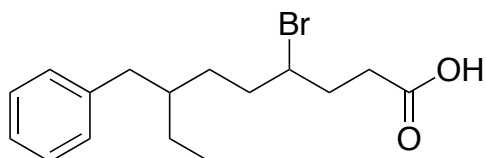
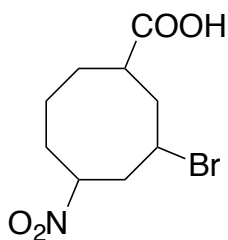


Problem Set #7: Chapter 17 & 18

1. Provide a name or a structure for the following compounds

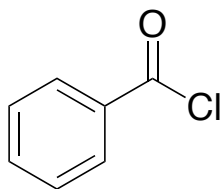


7-benzyl-6-methoxy-3-methyl-octane nitrile

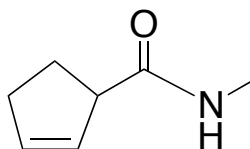
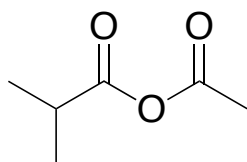


m-bromo-benzonitrile

4-methoxy-3-nitro-cyclohexane carboxylic acid

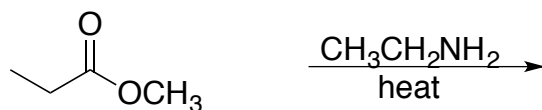
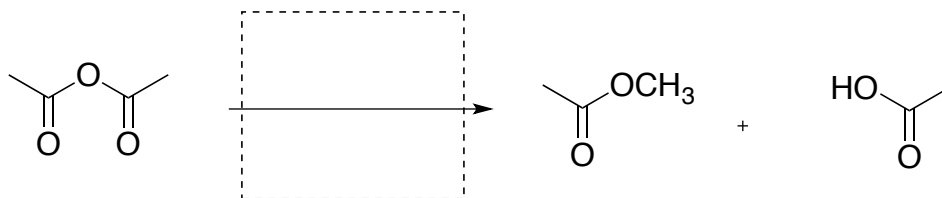
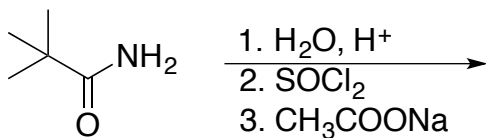
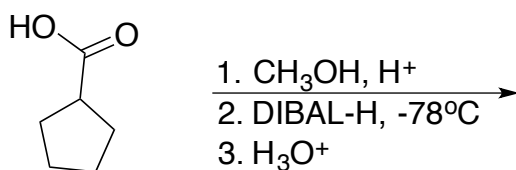
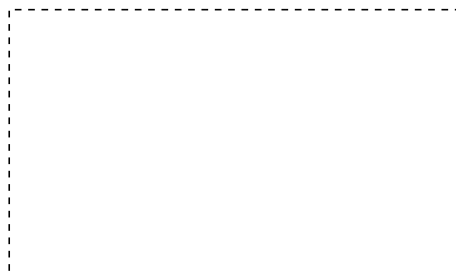
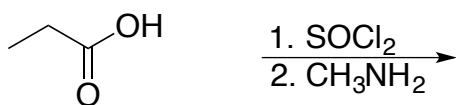
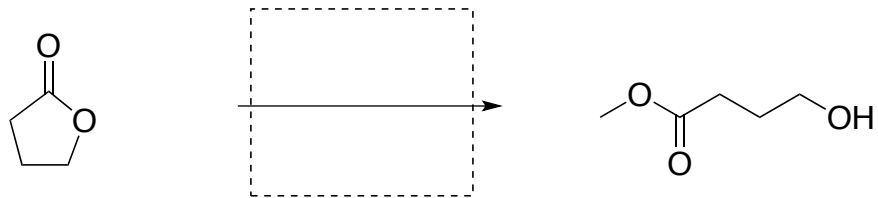


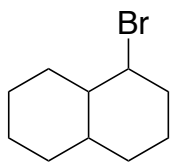
phenyl benzoate



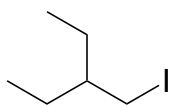
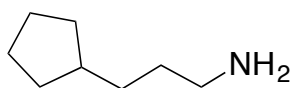
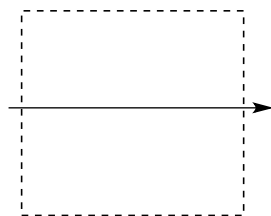
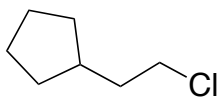
ethyl-cyclopropane carboxylate

2. Complete the following transformations

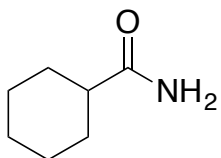
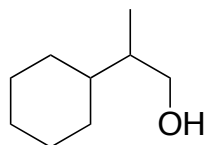
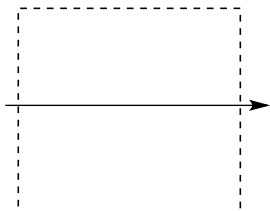
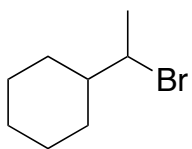




1. Mg, ether
2. CO₂
3. H₃O⁺

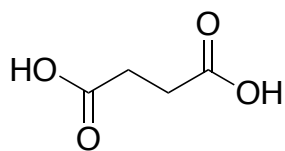


1. NaCN
2. CH₃MgBr
3. H₃O⁺

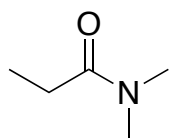


1. SOCl₂
2. H₃O⁺

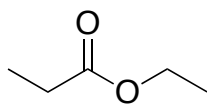
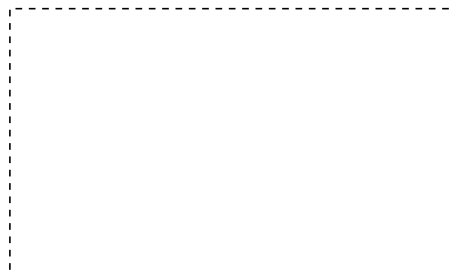




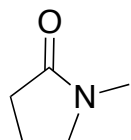
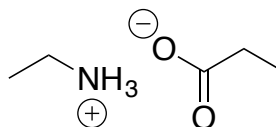
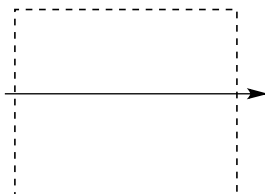
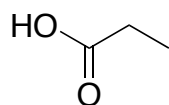
heat



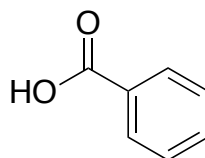
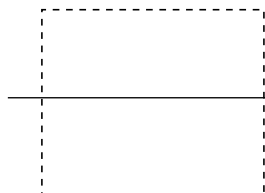
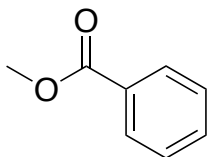
1. H_3O^+
2. $\text{CH}_3\text{OH}, \text{H}^+$

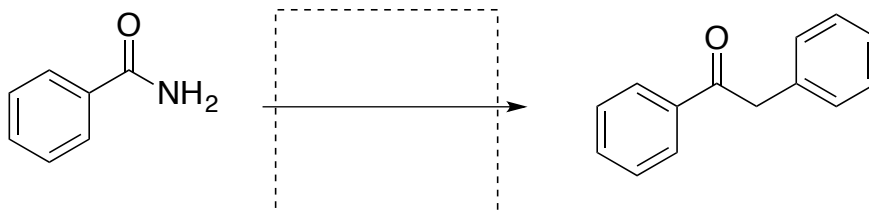
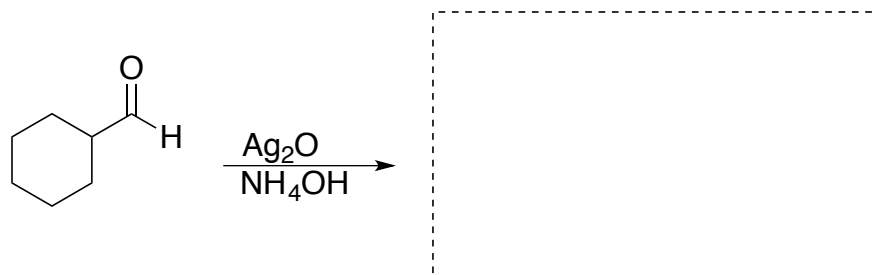
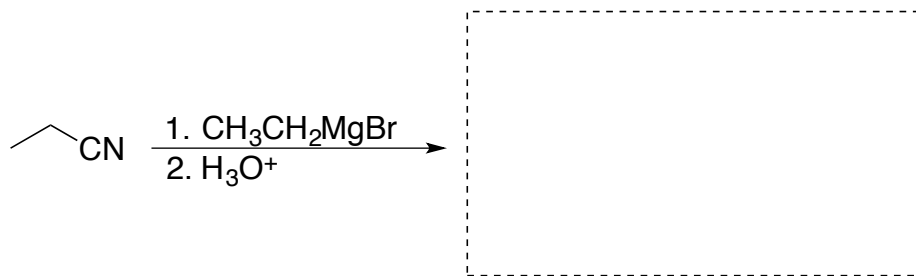
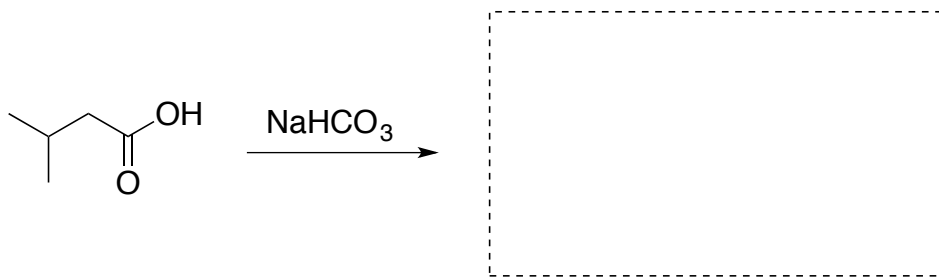
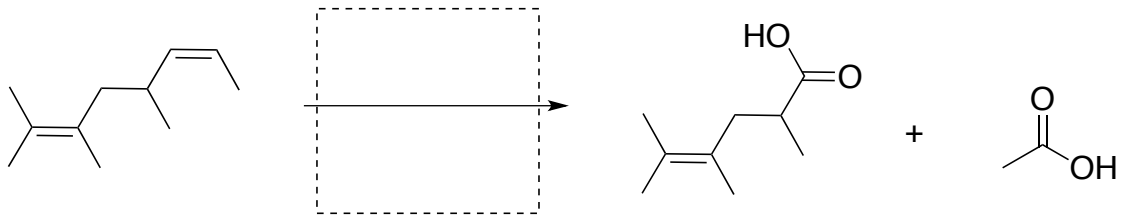


1. $\text{H}^+, \text{H}_2\text{O}$
2. SOCl_2
3. $\text{CH}_3\text{CH}_2\text{CO}_2\text{Na}$

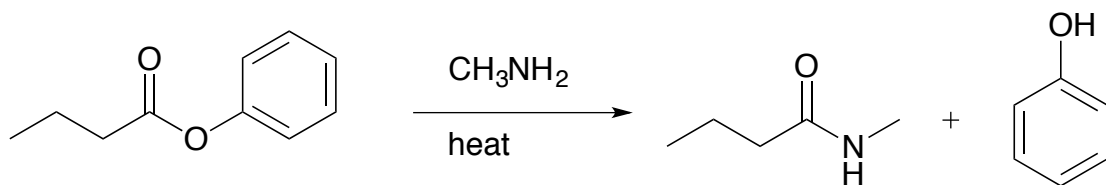
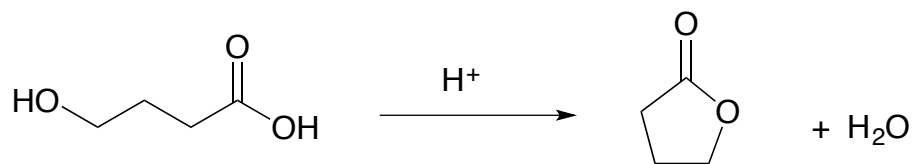


H_3O^+
heat

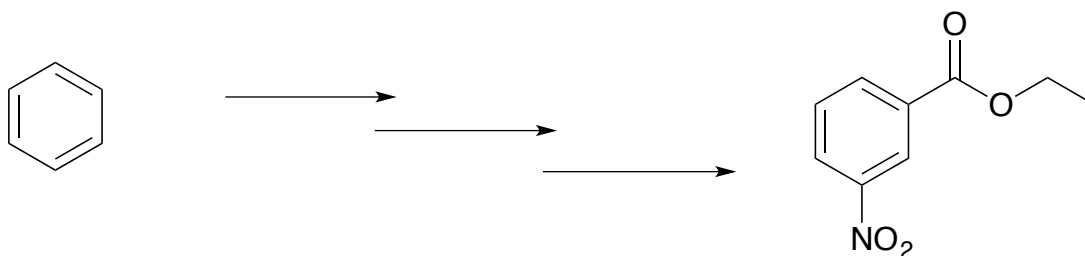
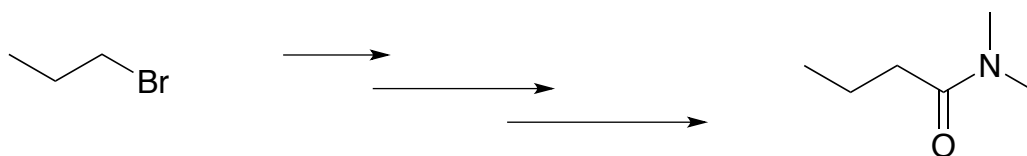


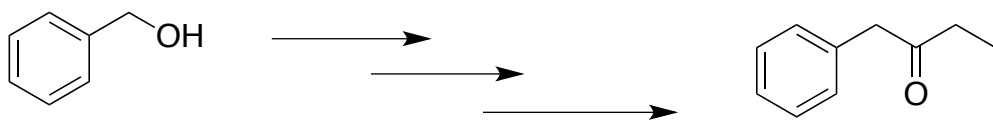
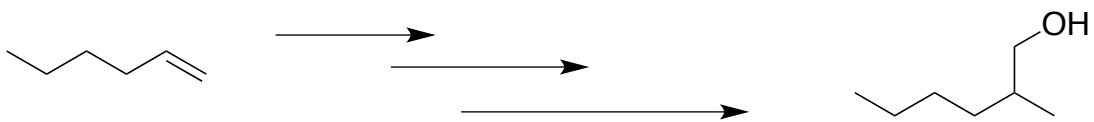


3. Provide a reasonable mechanism for the following transformations:

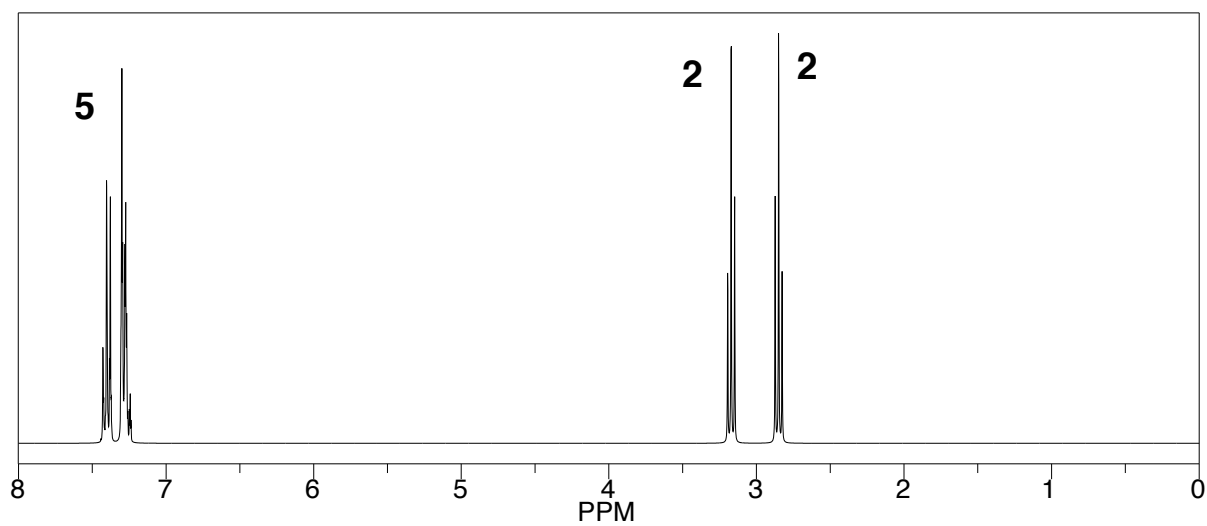
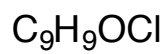


4. Provide a reasonable synthesis for the following molecules using the given starting material and any other carbon containing compound you need with 2C atoms or less.



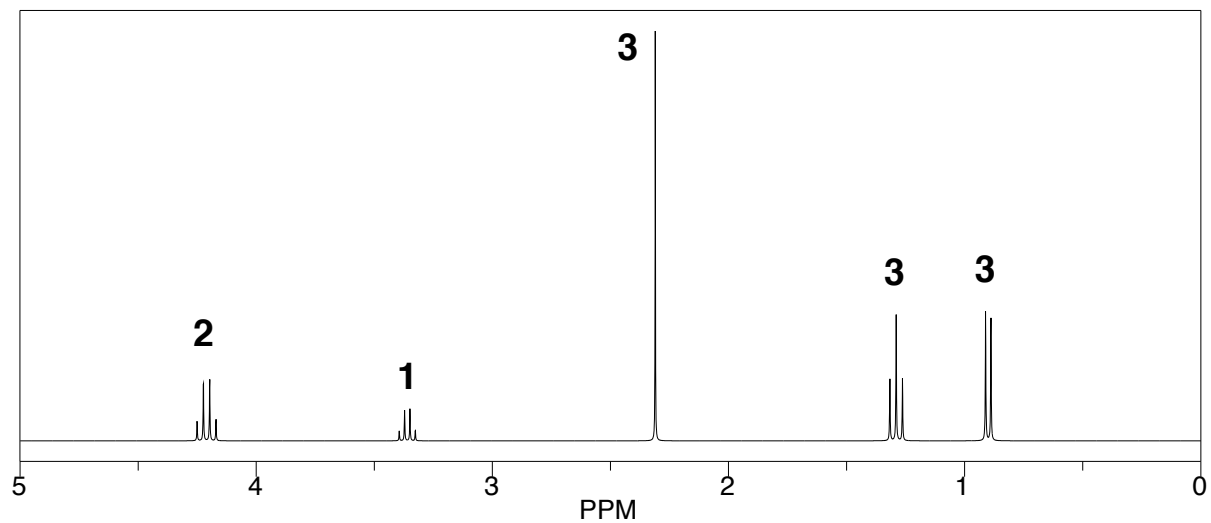
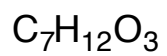


5. Determine the structure of the following compounds based on their $^1\text{H-NMR}$ spectra:



IR: 1800 cm^{-1}

$^1\text{H NMR}$: 7.30-7.40 ppm (multiplet, 5H); 3.17 ppm (d, 2H); 2.95 ppm (d, 2H)



IR: 1720 cm^{-1} ; 1740 cm^{-1} ; 1200 cm^{-1}

1H NMR: 4.21 ppm (q, 2H); 3.36 ppm (q, 1H); 2.31 ppm (s, 3H);
1.29 ppm (t, 3H); 0.90 ppm (d, 3H)