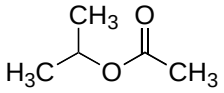
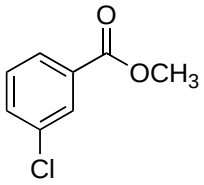
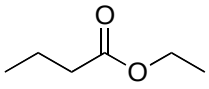
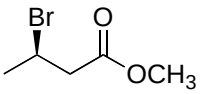
NOTE: THE SOLUTIONS WILL NOT BE PROVIDED

1. Name the following compounds:

a) 

b) 

c) 

d) 

2.

(a) Write the equation for the esterification of 3-pentanol with acetic acid and give a catalyst for the reaction.

(b) Given the equilibrium constant, K = 2.0, calculate how many moles of esters you would obtain, at equilibrium, from 1 mole of 3-pentanol and 1 mole of acetic acid, and express the result in terms of % yield.

(c) What improvement in % yield would result by tripling the amount of acetic acid in this experiment?

3. What is the expected product when 4-hydroxypentanoic acid is subjected to esterification conditions?

4. An alcohol with the general formula ROH can be transformed into an ester with the general formula RO_2CCH_3 by a reaction with acetic anhydride and pyridine (a weak organic base). Give the mechanism of this esterification reaction.

5. Draw the Lewis structures of the following molecules:

(a) acetamide

(b) butanoyl chloride

(c) benzoic anhydride

(d) *N*-ethylpropanamide