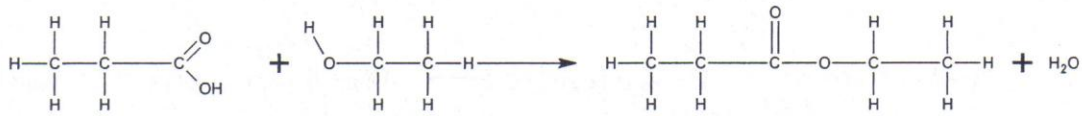
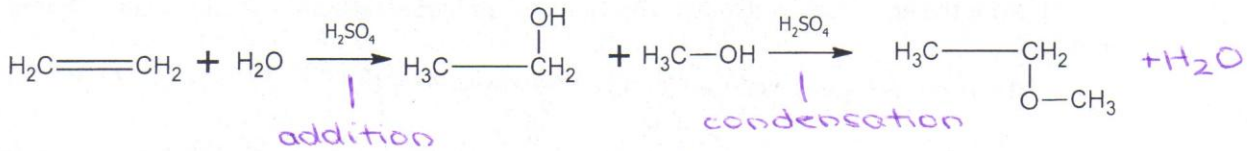
Types of Organic Reactions – Worksheet #11

1. Identify the type(s) of organic reaction represented by each of the following equations and name the compound produced.

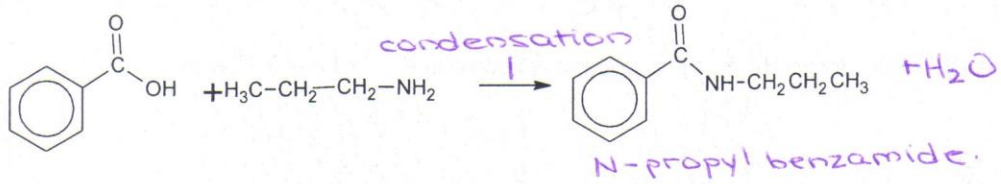
a. condensation ethyl propanoate



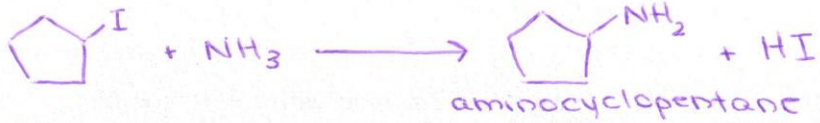
b.



c.

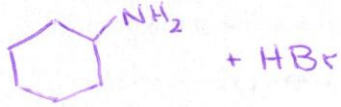


2. Write the formula for the primary amine produced from the reaction of iodocyclopentane and ammonia.



3. Complete the following equations by writing the structures of the products that form OR the reactants required. If no reaction occurs, write "no reaction".

a.

ammonia + bromocyclohexane ⟶  + HBr

b.

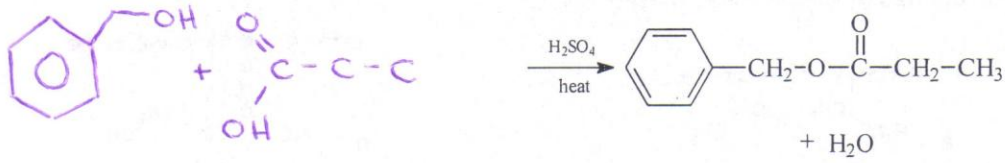
ethanol + 2-propanol $\xrightarrow{H_2SO_4}$ C-C-O-C-C + H_2O (C)

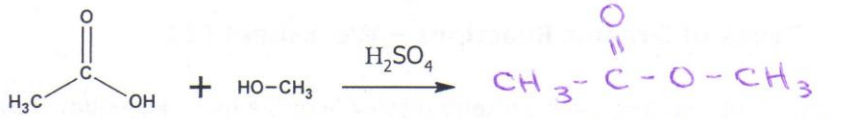
2-ethoxypropane

c.

$H_3C—O—CH_2-CH_3$ + H_2O ⟶ no reaction

d.



e. 

methyl methanoate

4. a) Write the equation for the condensation of 1-butanol. Name the product.

1-butanol + 1-butanol → butoxybutane + water

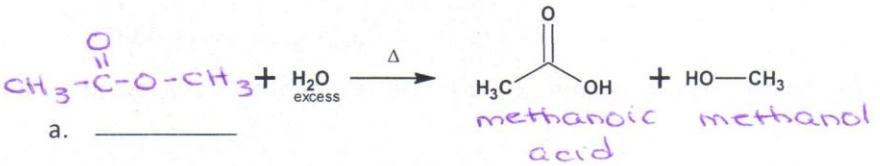
C-C-C-C-OH HO-C-C-C-C C-C-C-C-O-C-C-C-C

b) Write the equation for the condensation of 1-aminopentane and butanoic acid. Name the product.

1-aminopentane + butanoic acid → N-pentyl butanamide

C-C-C-C-C-N HO-C(=O)-C-C-C C-C-C-C-C-N(-)-C(=O)-C-C-C

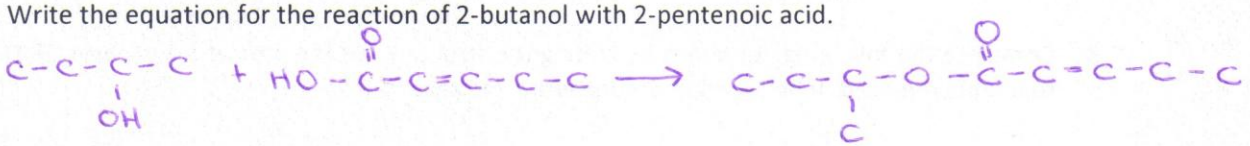
5. What is the structure of the missing organic reactant in each of the following:



a. _____

methanoic acid methanol

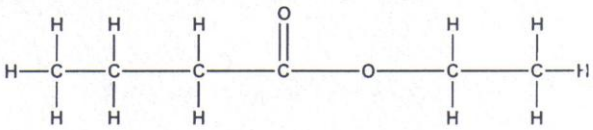
6. a) Write the equation for the reaction of 2-butanol with 2-pentenoic acid.



b) What is the name of the product?

1-methylpropyl-2-pentenoate

7. Write the structural formulas of the alcohol and the carboxylic acid from which the following ester can be made.

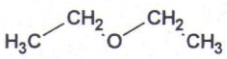


ethanol butanoic acid

CH_3-CH_2-OH $CH_3-CH_2-CH_2-C(=O)-OH$

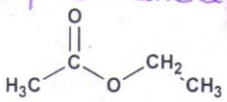
8. Which of the following will be split apart by hydrolysis (reaction with water), and what are the structures of the products that form?

ethoxyethane

a. 

no reaction

ethyl ethanoate

b. 

→ ethanol CH_3-CH_2-OH

→ ethanoic acid

$CH_3-C(=O)-OH$