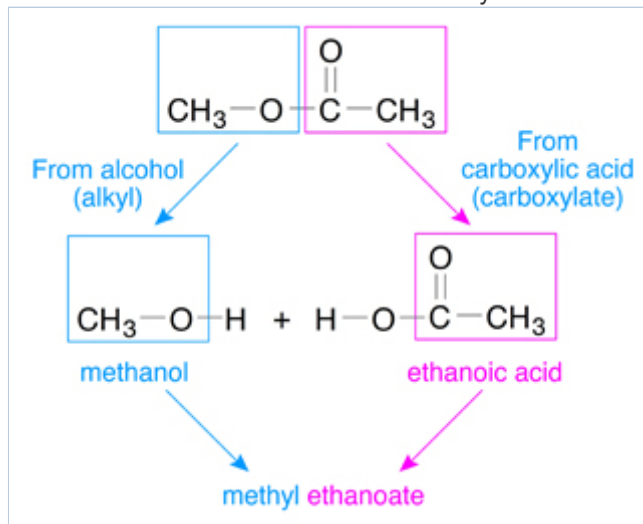


Assignment 4 Task 6

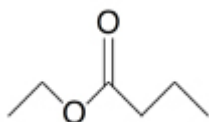
Due: 11:59pm on Friday, October 5, 2018

You will receive no credit for items you complete after the assignment is due. [Grading Policy](#).**Naming Esters**

Esters are generally formed by the reaction of a carboxylic acid and an alcohol. The IUPAC name of an ester consists of an alkyl group and a carboxylate, separated by a space. The alkyl portion comes from the alcohol and the carboxylate name from the carboxylic acid.

**Part A**

Enter the IUPAC name of the ester depicted below.

**Hint 1. How to name an ester**

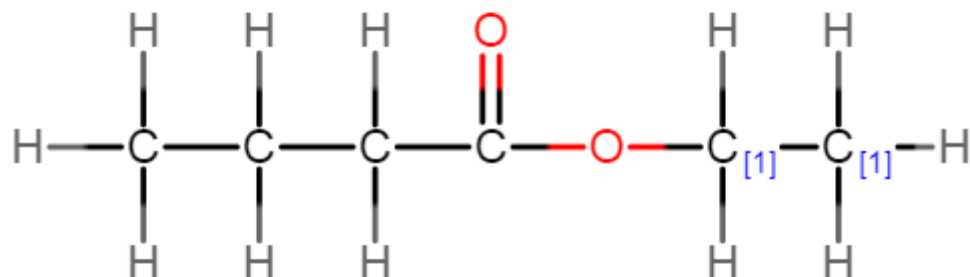
First, identify the alcohol portion of the ester and name it as an alkyl group. Next, identify the carboxylic acid portion of the ester, and name it as a carboxylate.

Hint 2. Identify the alcohol portion of the ester

Identify the *carbon* atoms that come from the original alcohol and that will make up the alkyl portion of the name.

Identify the carbon atoms by selecting each atom and assigning it a map number of 1 until all atoms are mapped. To do this, right-click on an atom and choose Atom Properties. (Mac users: Use an equivalent for right-clicking.) Then, clear the check mark to enable the Map field before entering a value.

ANSWER:



Hint 3. Determine the name of the carboxylate

Select the name of the carboxylic acid portion of the ester, written as a carboxylate.

ANSWER:

- ethanoate
- ethanoic acid
- butanoate
- butanoic acid

ANSWER:

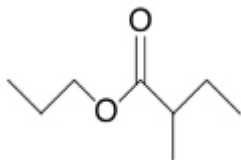
ethyl butanoate

Correct

The common name for this ester is ethyl butyrate.

Part B

Enter the IUPAC name of the ester depicted below.



Hint 1. How to approach the problem

First, identify the alcohol portion of the ester, and name it as an alkyl group. Next, identify the carboxylic acid portion of the ester, and name it as a carboxylate, including the substituent. To number either of the carbon chains, start with the carbon atom nearest to the ester group, and continue out toward the ends.

Hint 2. Determine the name of the alcohol portion

Enter the correct name for the alcohol portion of the ester.

ANSWER:

propyl

Hint 3. Determine the name of the carboxylic acid portion

Choose the correct name for the carboxylic acid portion of the ester, including the substituent.

ANSWER:

- 3-methylpropanoate
- 1-methylpropanoate
- 3-methylpropyl
- 1-methylpropyl
- 2-methylbutanoate
- 3-methylbutanoate
- 2-methylbutyl
- 3-methylbutyl

ANSWER:

propyl 2-methylbutanoate

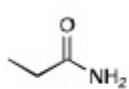
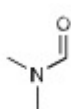
Correct

The common name of this ester is propyl 2-methylbutyrate.

Chapter 21 Reading Quiz Question 2

Part A

Which compound has the highest boiling point?

**A****B****C****D****Hint 1. Boiling points of carboxylic acid derivatives**

Hydrogen bonding and dipolar forces have significant impacts on the physical properties of carboxylic acid derivatives of similar molecular weight. See 21-3.

ANSWER:

- A
- B
- C
- D

Correct

Chapter 21 Reading Quiz Question 3**Part A**

Which type of carboxylic acid derivative undergoes hydrolysis the fastest?

Hint 1. Reactivity of carboxylic acid derivatives

There is a well-established order of reactivity for carboxylic acid derivatives toward nucleophilic acyl substitution. This order may be understood either in terms of the leaving group that is lost upon reaction, or by considering resonance stabilization of the starting material. See 21-5.

ANSWER:

- Amide
- Acid chloride
- Ester
- Acid anhydride

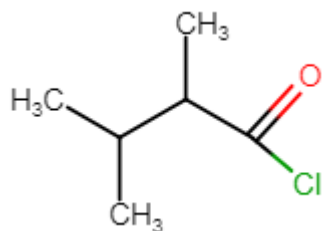
Correct

Problem 21-43

Give appropriate names for the following compounds.

Part A

Interactive 3D display mode



Spell out the full name of the compound.

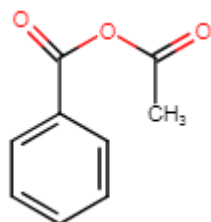
ANSWER:

2,3-dimethylbutanoyl chloride

Correct

Part B

Interactive 3D display mode



Spell out the full name of the compound.

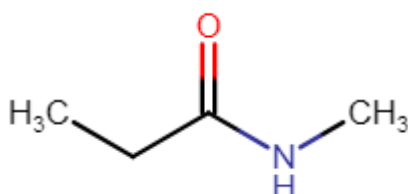
ANSWER:

benzoic ethanoic anhydride

Correct

Part C

Interactive 3D display mode



Spell out the full name of the compound.

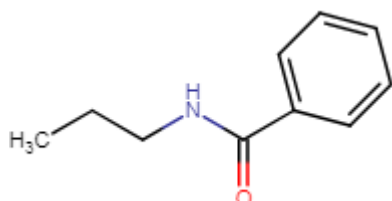
ANSWER:

N-methylpropanamide

Correct

Part D

Interactive 3D display mode



Spell out the full name of the compound.

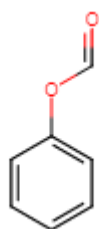
ANSWER:

N-propylbenzamide

Correct

Part E

Interactive 3D display mode



Spell out the full name of the compound.

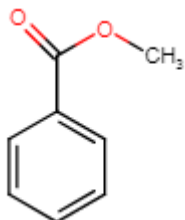
ANSWER:

phenyl methanoate

Correct

Part F

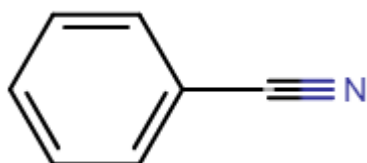
Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Answer Requested**Part G**

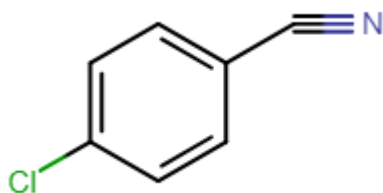
Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Correct**Part H**

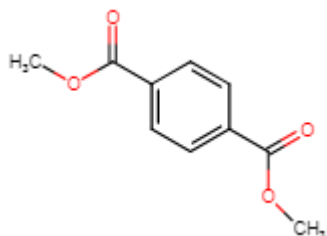
Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Correct**Part I**

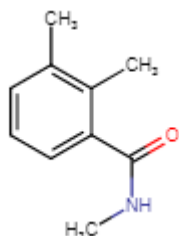
Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Correct**Part J**

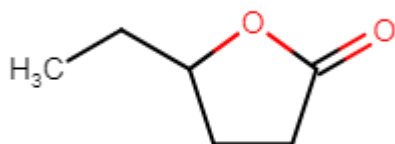
Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Correct**Part K**

Interactive 3D display mode

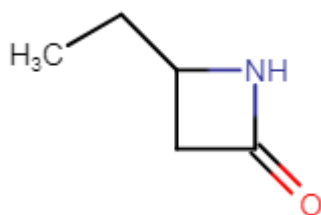
**Spell out the full name of the compound.**

ANSWER:

Correct

Part L

Interactive 3D display mode

**Spell out the full name of the compound.**

ANSWER:

Answer Requested**Score Summary:**

Your score on this assignment is 95.5%.

You received 3.82 out of a possible total of 4 points.