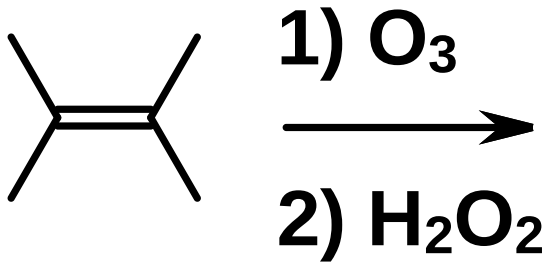
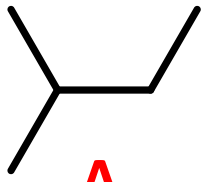
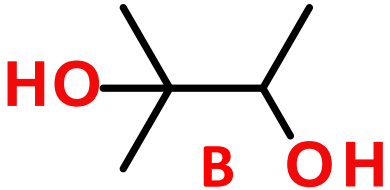
Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx ab)

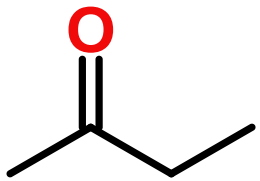


2016-10-03 Q1

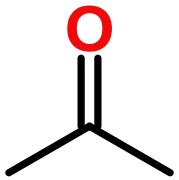

A



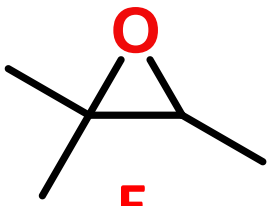
B



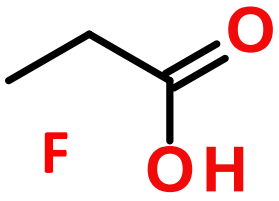
C



D

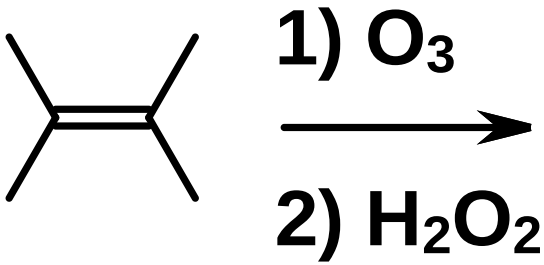


E

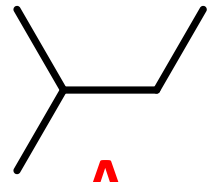


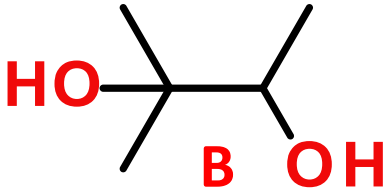
G - None of these products are a major product of the reaction that is shown.

Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx ab)

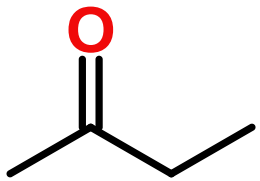


2016-10-03 Q1

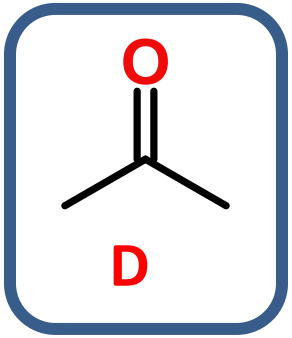

A



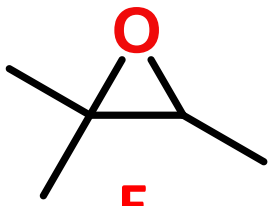
B



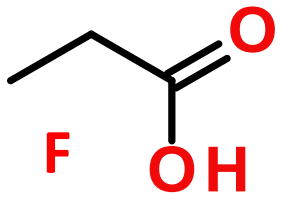
C



D



E



G - None of these products are a major product of the reaction that is shown.

Exam 2

- **Time:**
  - **Tuesday, October 18: 7:00 – 9:00PM OR**
  - **Wednesday, October 19: 7:00 – 9:00PM OR**
  - **Thursday, October 20: 7:00 – 10:00PM**
- **Location – Soc/Anthro Testing Center**
  - Chapters will be covered in this order: Chapter 19, 12
- **Practice Exams are Posted**
  - Ex2-14-98 Practice Exam 2A
  - Ex2-14-98 Practice Exam 2B
- **Deadline for alternate arrangements is Monday, 10/17/2016 at 4:30 PM (i.e., close of business)**
  - **An oral make-up exam will be required for making up the exam for all students not taking the exam on the above dates or having already made prior arrangements**

Order of Coverage (Exam 2)

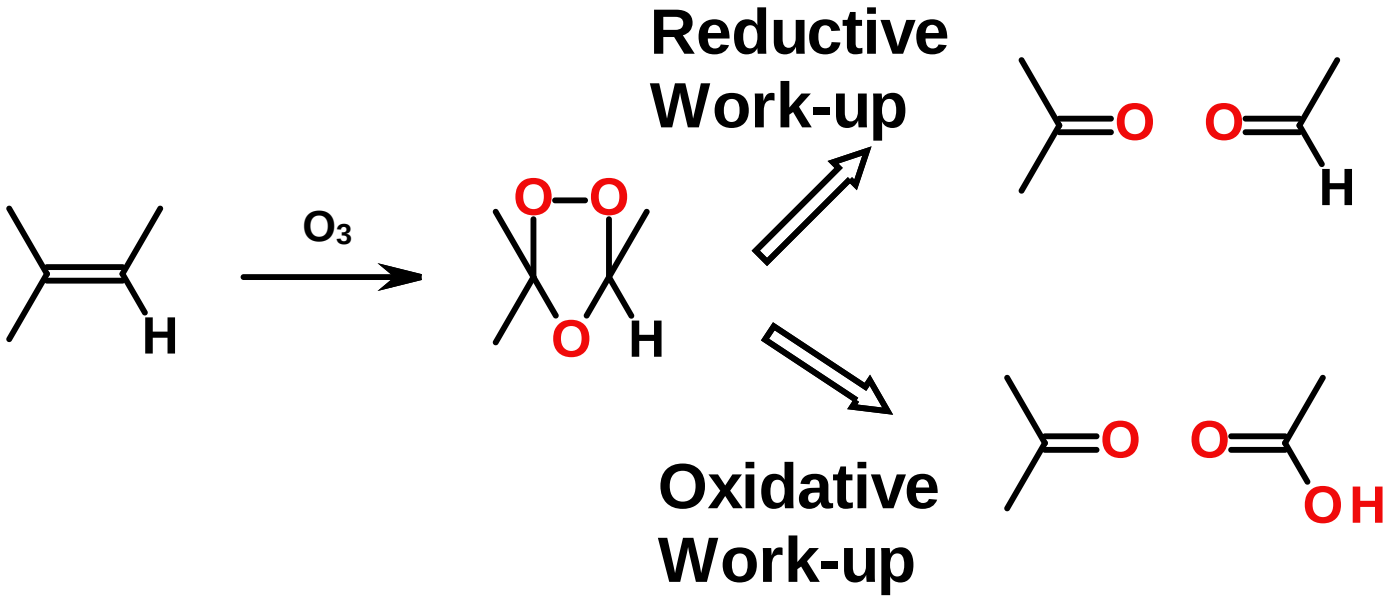
	Homework Assignment	Due Date
1	Ex2-01-B7-19-08A Aryl Side Chain Rxns	Saturday, September 24, 2016
2	Ex2-01-B7-19-08B Aryl Side Chain Rxns	Sunday, September 25, 2016
3	Ex2-02-B7-19-09A Arylamines	Monday, September 26, 2016
4	Ex2-02-B7-19-09B Arylamines	Tuesday, September 27, 2016
5	Ex2-03-B7-12-01A Grignard Rxns	Wednesday, September 28, 2016
6	Ex2-03-B7-12-01B Grignard Rxns	Thursday, September 29, 2016
7	Ex2-04-B7-12-02A Hydride Reductions	Friday, September 30, 2016
8	Ex2-04-B7-12-02B Hydride Reductions	Saturday, October 1, 2016
9	Ex2-05-B7-12-01A Naming Carboxylic Acids	Sunday, October 2, 2016
10	Ex2-05-B7-12-01B Naming Carboxylic Acids	Monday, October 3, 2016
11	Ex2-06-B7-12-02A Prep Carbox Acids	Tuesday, October 4, 2016
12	Ex2-06-B7-12-02B Prep Carbox Acids	Wednesday, October 5, 2016

Order of Coverage (Exam 2)

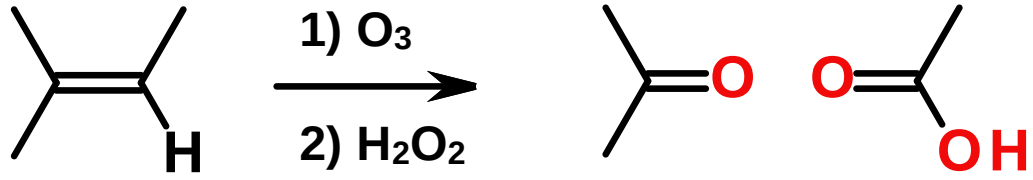
	Homework Assignment	Due Date
13	Ex2-07-B7-12-03A Carbox Acid Rxns	Thursday, October 6, 2016
14	Ex2-07-B7-12-03B Carbox Acid Rxns	Friday, October 7, 2016
15	Ex2-08-B7-12-04A Naming Carbox Acid Derivatives	Saturday, October 8, 2016
16	Ex2-08-B7-12-04B Naming Carbox Acid Derivatives	Sunday, October 9, 2016
17	Ex2-09-B7-12-05A Rxns Acid Chlorides	Monday, October 10, 2016
18	Ex2-09-B7-12-05B Rxns Acid Chlorides	Tuesday, October 11, 2016
19	Ex2-10-B7-12-06A Rxns Esters	Wednesday, October 12, 2016
20	Ex2-10-B7-12-06B Rxns Esters	Thursday, October 13, 2016
21	Ex2-11-B7-12-07A Rxns Amides	Friday, October 14, 2016
22	Ex2-11-B7-12-07B Rxns Amides	Saturday, October 15, 2016
23	Ex2-12-B7-12-08A Step Growth Polymers	Sunday, October 16, 2016
	Exam 2	October 18, 19, 20

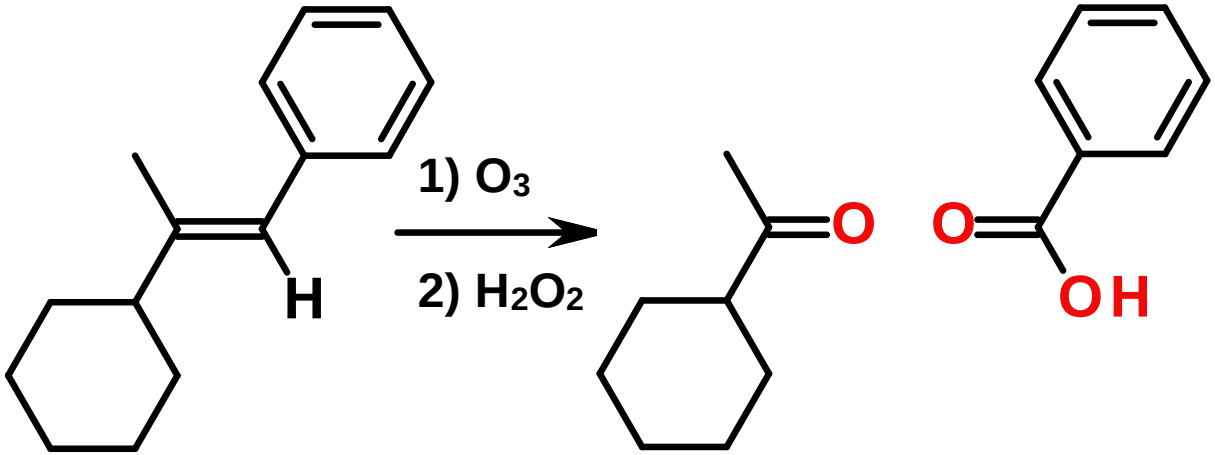
Alkene Oxidation: Ozonolysis

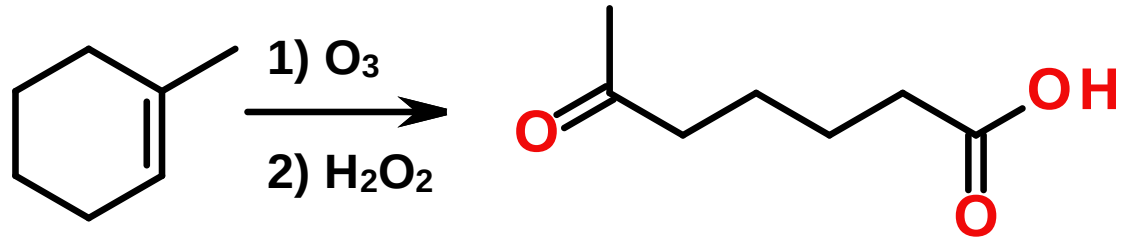
- O_3, followed by work-up cleaves alkenes
  - C-substituents result in C-substituents
  - H-substituents may be changed
    - Reductive work-up results in aldehydes
    - Oxidative work-up results in carboxylic acids



Examples: Alkene Ozonolysis

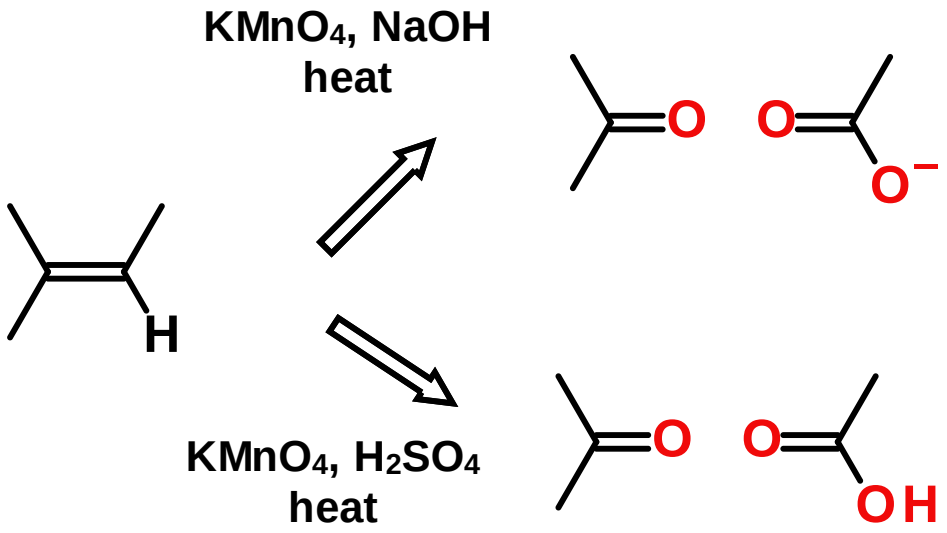




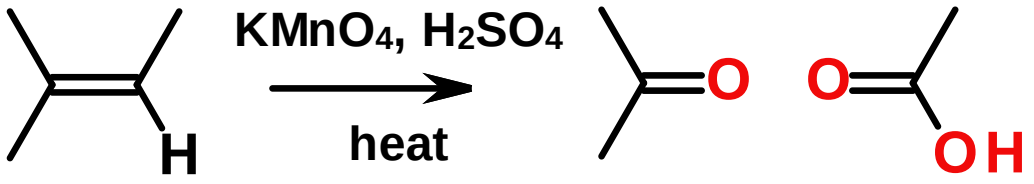


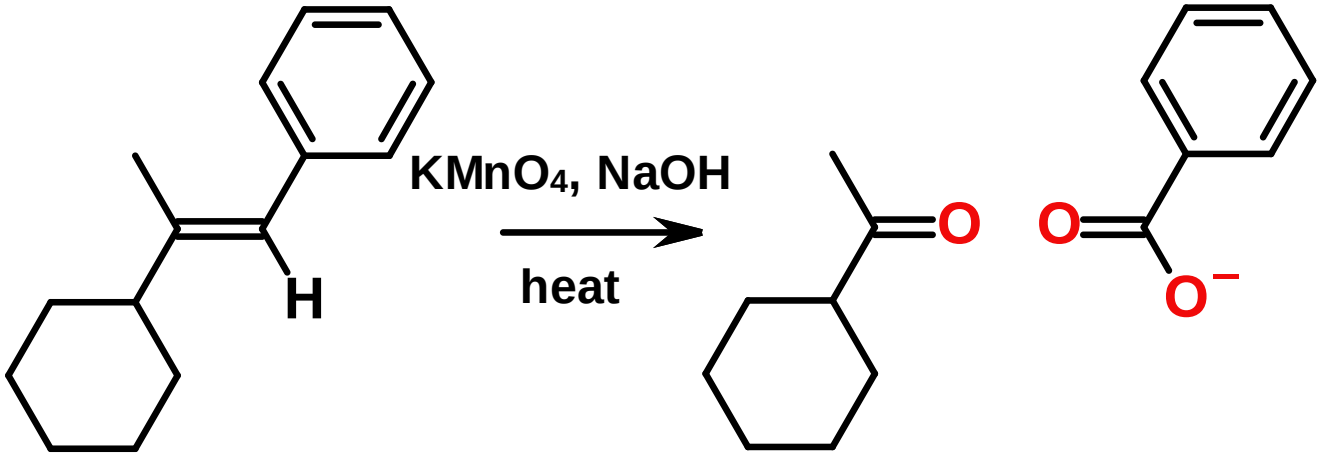
Alkene Lysis by $KMnO_4$

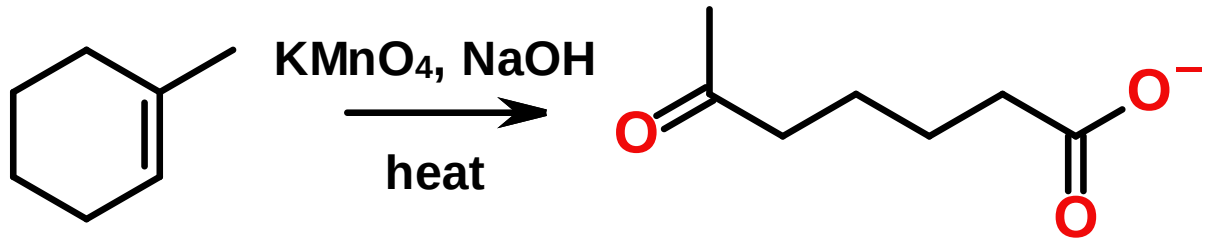
- $KMnO_4$ with heat
  - Acidic reaction results in carboxylic acids
  - Basic reaction results in carboxylates
- Same rules as ozonolysis



Examples: Alkene Lysis by $KMnO_4$

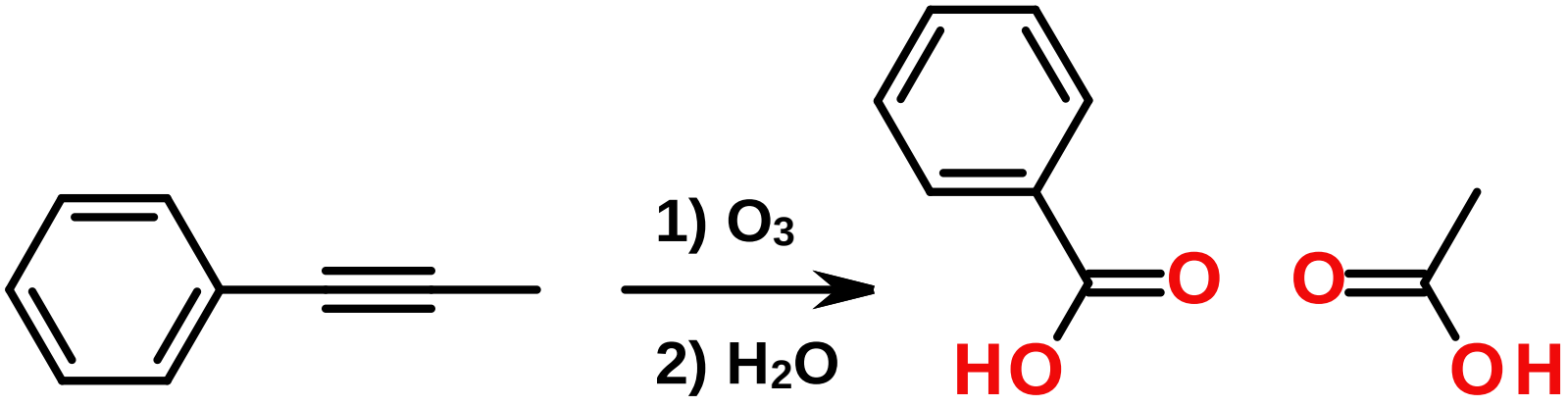






Alkyne Ozonolysis

- O_3, followed by H_2O
  - Alkynes are already oxidized, therefore, no further oxidant needed



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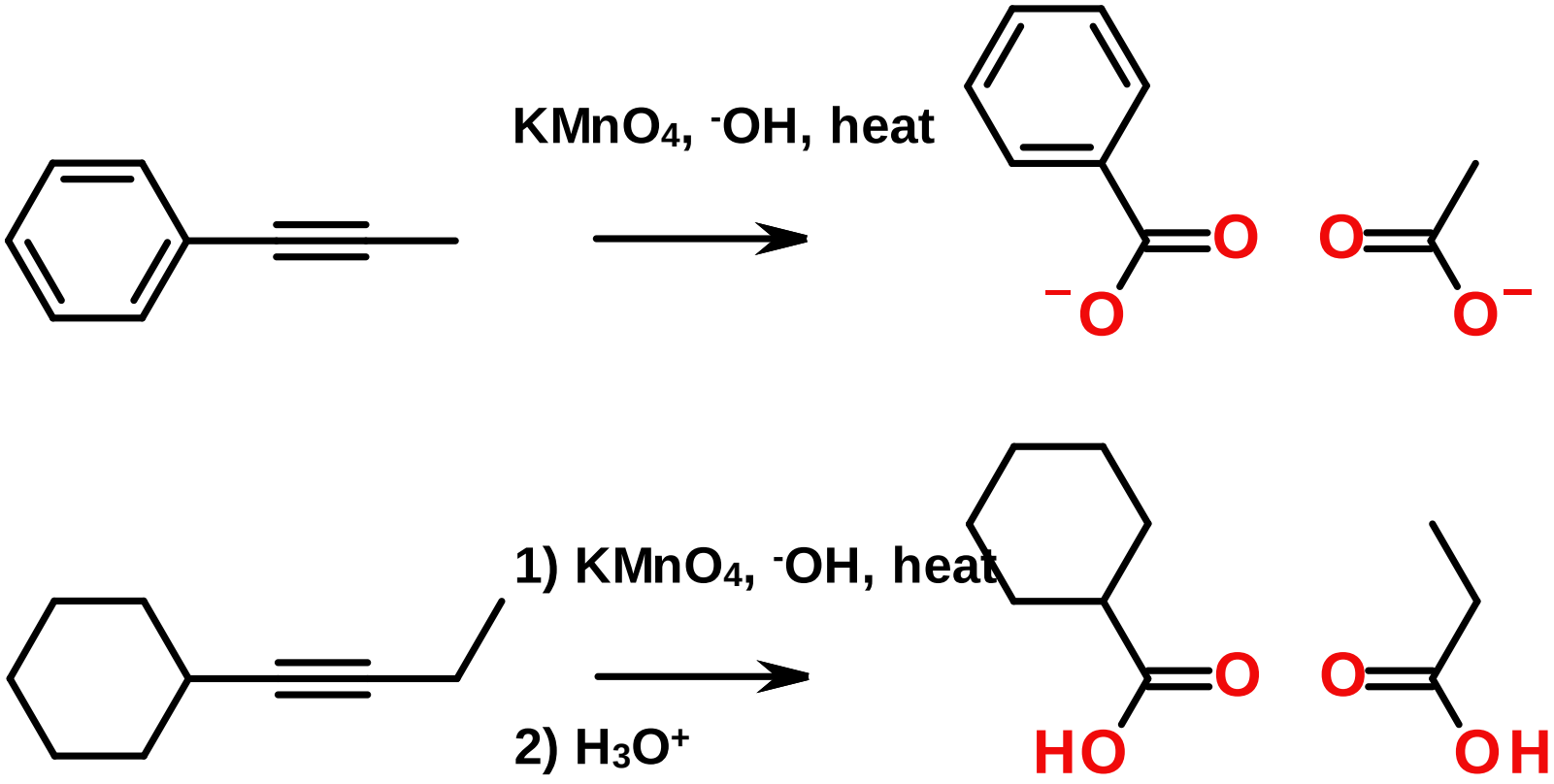
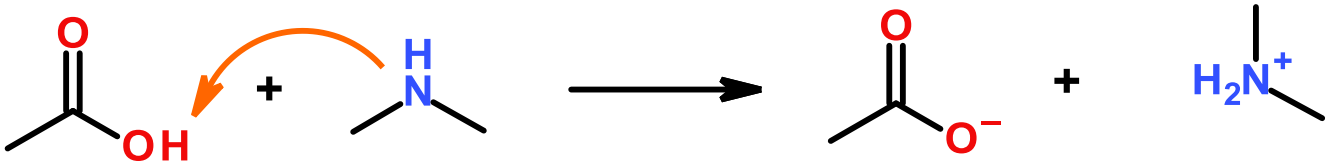
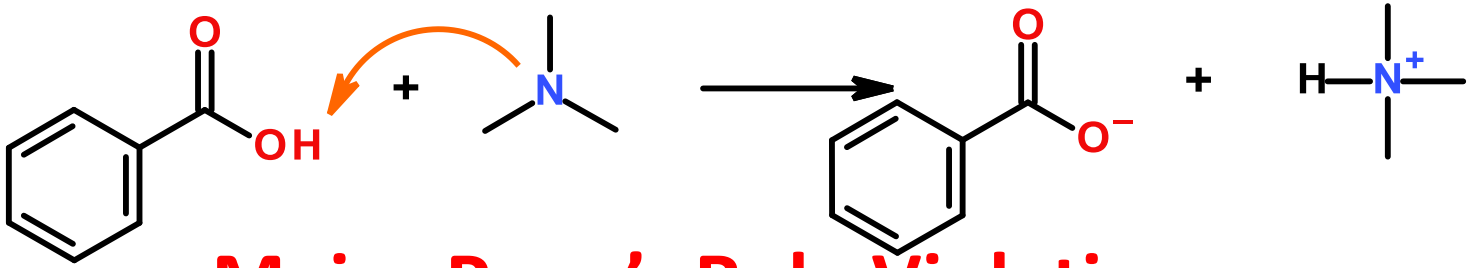


Reactions of Carboxylic Acids

- Pay attention to reaction conditions!
- Carboxylic acids react with amines to form carboxylates and ammonium ions



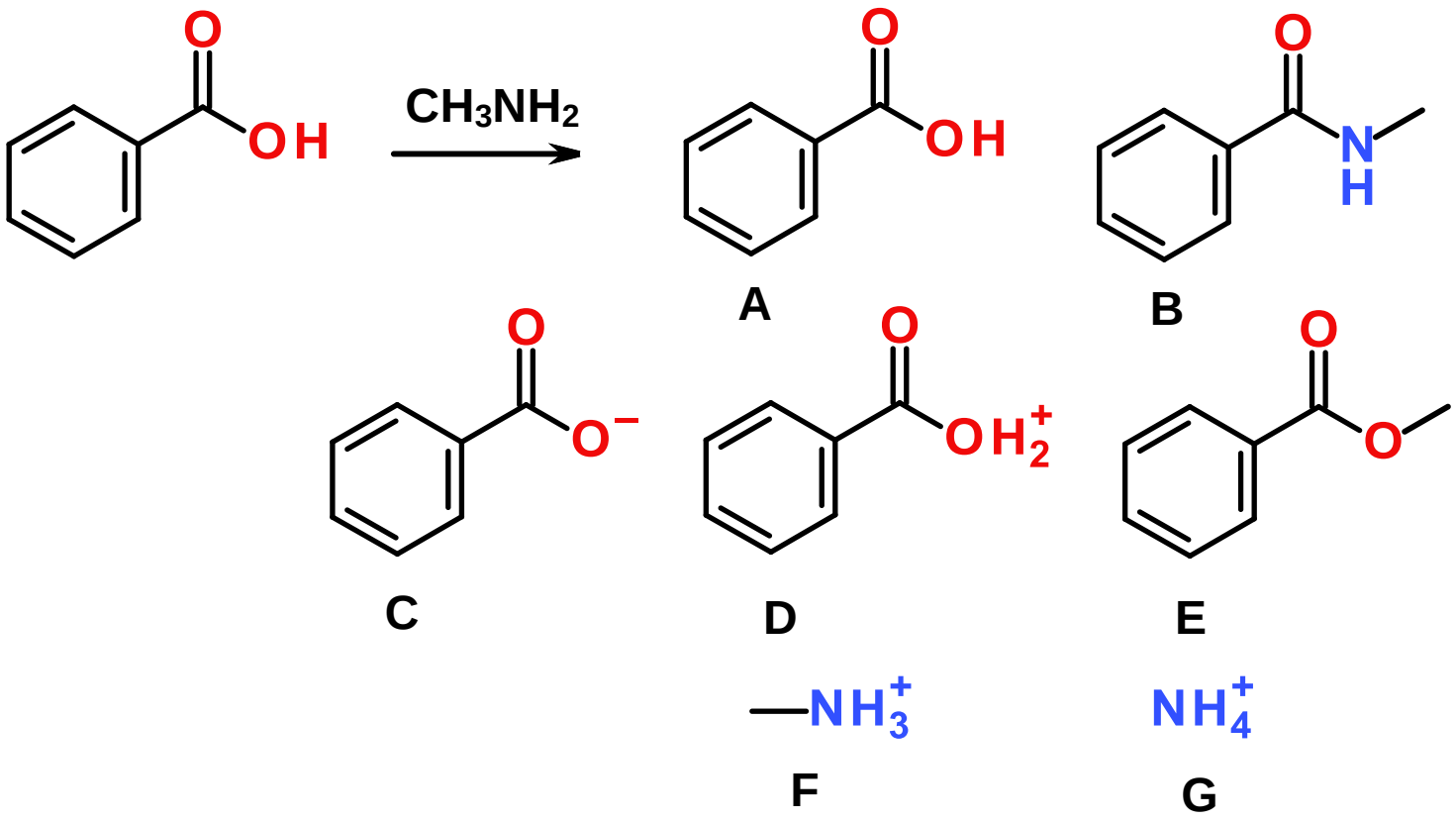


Major Penn's Rule Violation

~~All compounds prefer to be neutral in charge~~.

Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

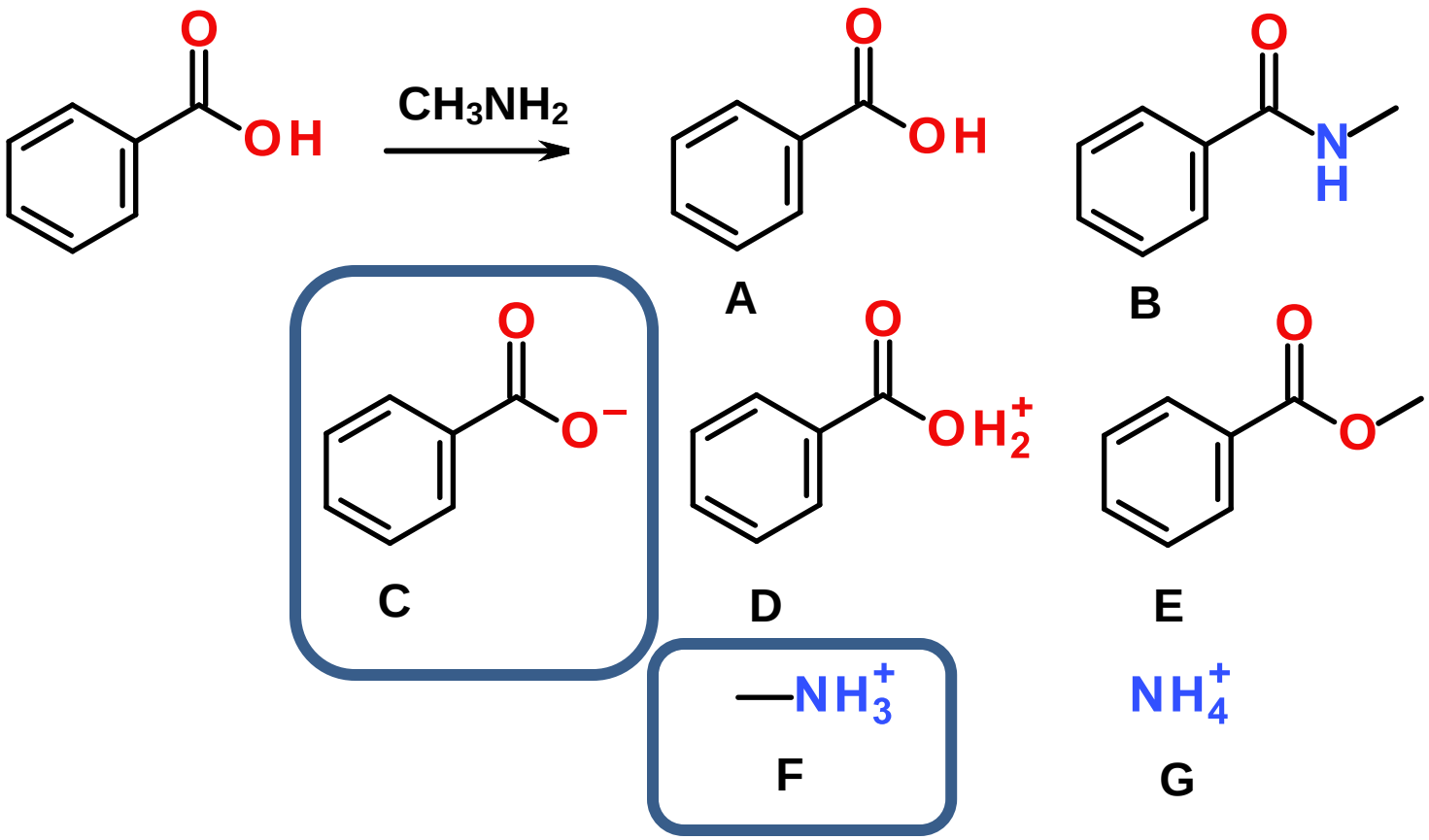
2016-10-03 Q2



H - None of these products are a major product of the reaction that is shown.

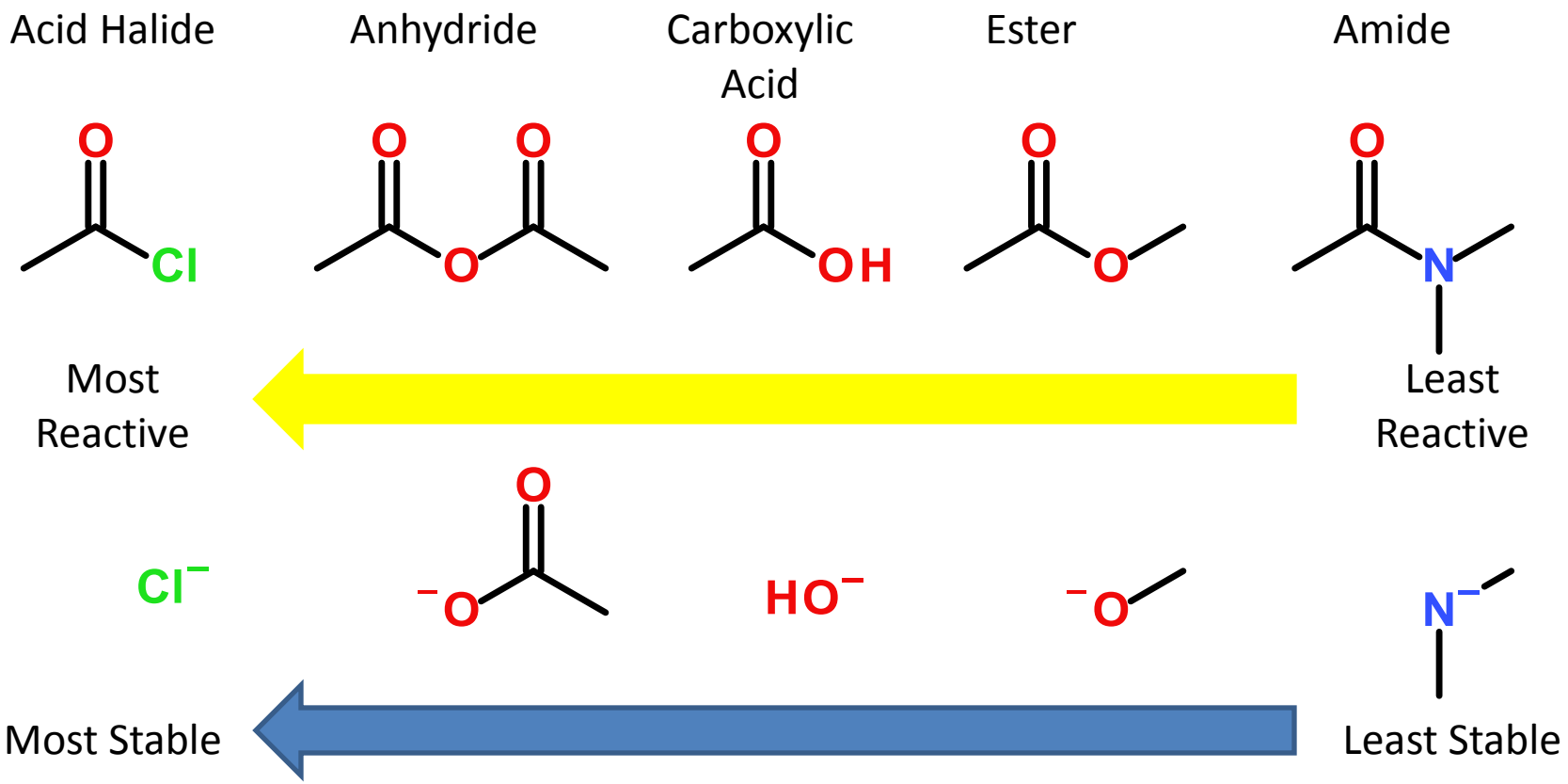
Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

2016-10-03 Q2

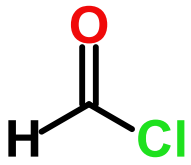
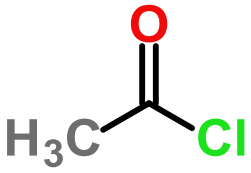
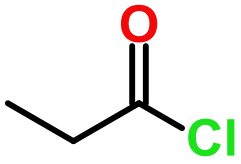
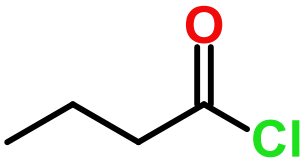
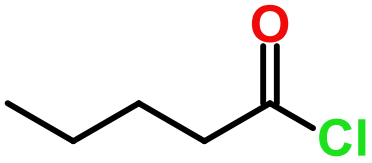
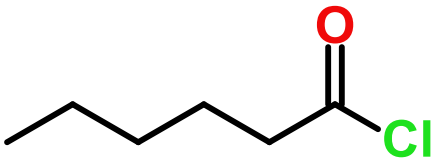


H - None of these products are a major product of the reaction that is shown.

Carboxylic Acid Derivatives

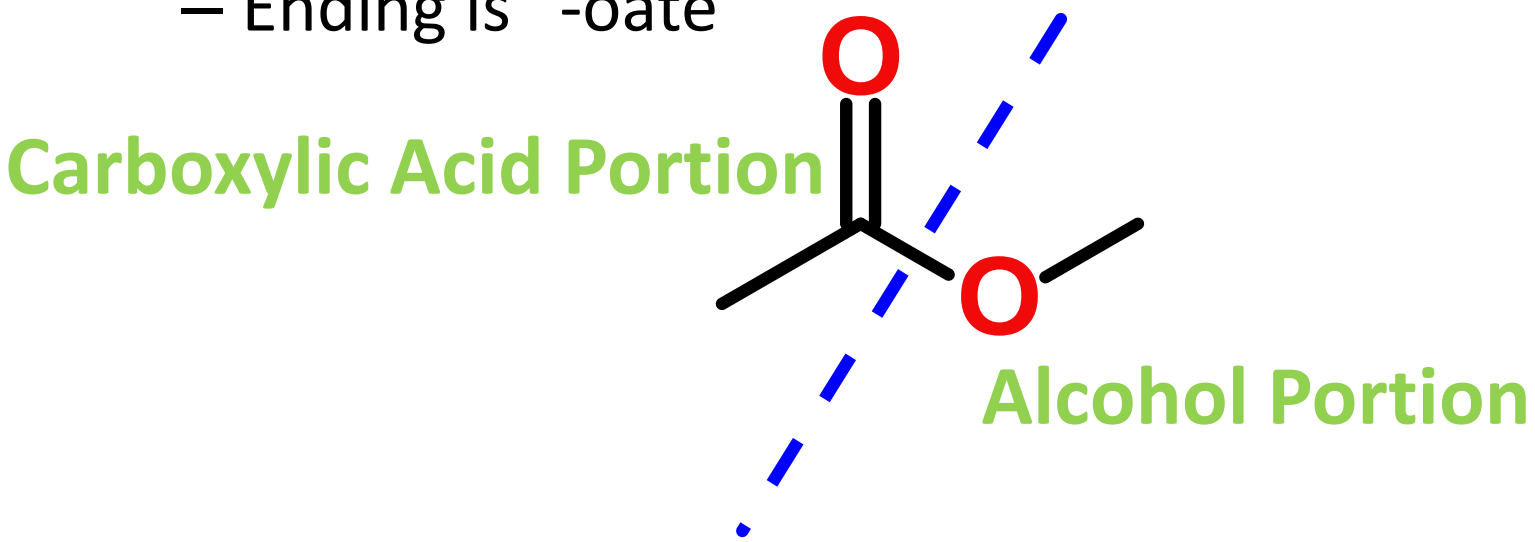


Nomenclature of Acid Halides

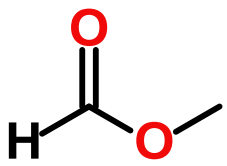
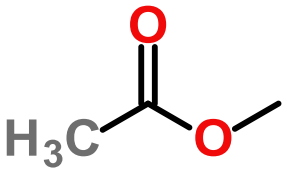
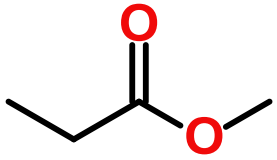
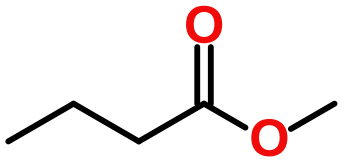
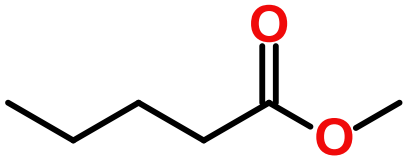
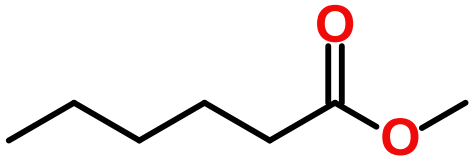
	IUPAC Name	Common Name
	Methanoyl chloride	Formyl chloride
	Ethanoyl chloride	Acetyl chloride
	Propanoyl chloride	Propionyl chloride
	Butanoyl chloride	Butyryl chloride
	Pentanoyl chloride	Valeryl chloride
	Hexanoyl chloride	Caproyl chloride

Nomenclature of Esters

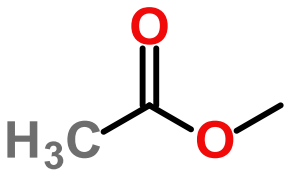
- Alcohol portion of the molecule is named as a substituent (e.g., methyl, ethyl)
- Carboxylic acid portion of the molecule is named as the anion of a carboxylic acid
  - Ending is “-oate”



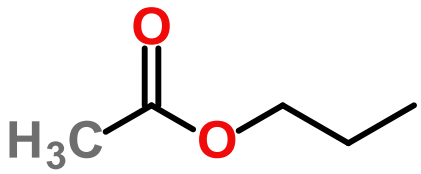
Nomenclature of Esters

	IUPAC Name	Common Name
	Methyl methanoate	Methyl formate
	Methyl ethanoate	Methyl acetate
	Methyl propanoate	Methyl propionate
	Methyl butanoate	Methyl butyrate
	Methyl pentanoate	Methyl valerate
	Methyl hexanoate	Methyl caproate

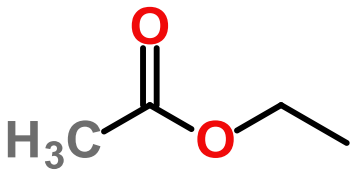
Nomenclature of Esters



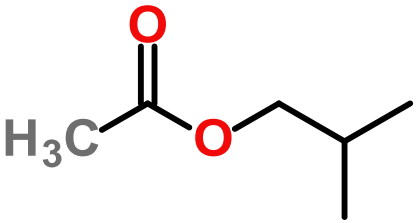
IUPAC: Methyl ethanoate
Common name: Methyl acetate



IUPAC: Propyl ethanoate
Common name: Propyl acetate

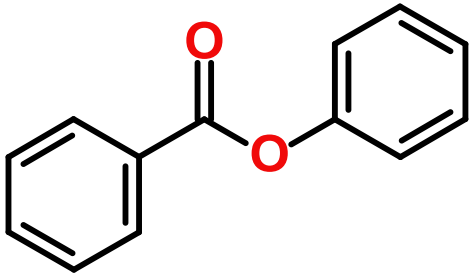


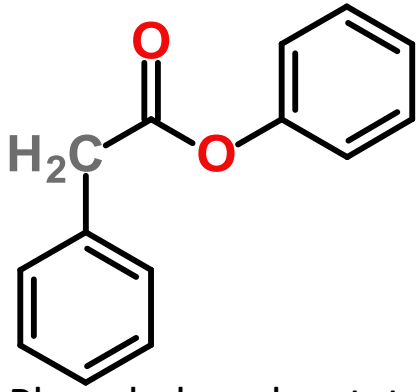
IUPAC: Ethyl ethanoate
Common name: Ethyl acetate



IUPAC: Isobutyl ethanoate
Common name: Isobutyl acetate

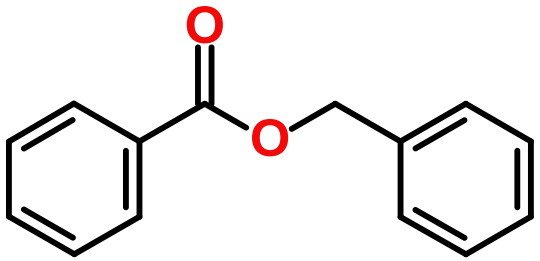
Nomenclature of Esters

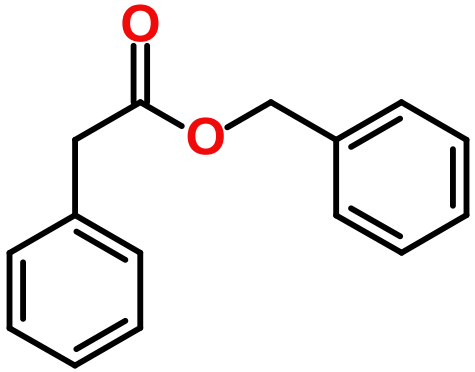




Common name Phenyl benzoate

Phenyl phenylacetate

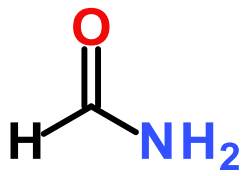
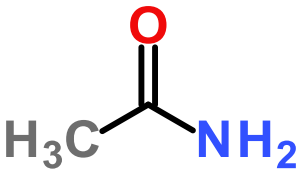
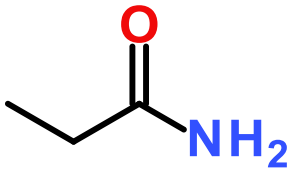
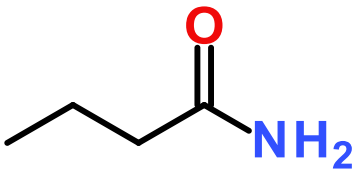
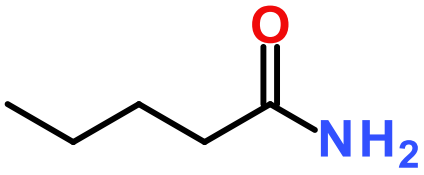
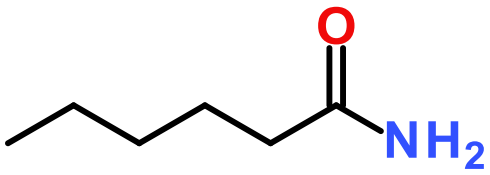




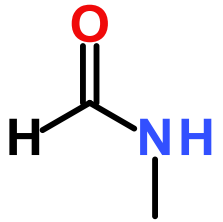
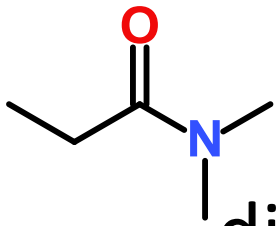
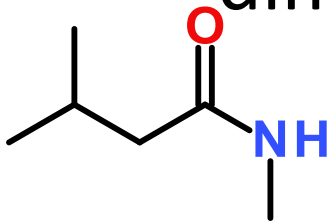
Common name Benzyl benzoate

Benzyl phenylacetate

Nomenclature of Amides

	IUPAC Name	Common Name
	Methanamide	Formamide
	Ethanamide	Acetamide
	Propanamide	Propionamide
	Butanamide	Butyramide
	Pentanamide	Valeramide
	Hexanamide	Caproamide

Nomenclature of Amides

	IUPAC Name	Common Name
	N-methylmethanamide	N-methylformamide
	N,N-dimethylpropanamide	N,N-dimethylpropionamide
	3-methyl-N-methylbutanamide	β-methyl-N-methylbutyramide

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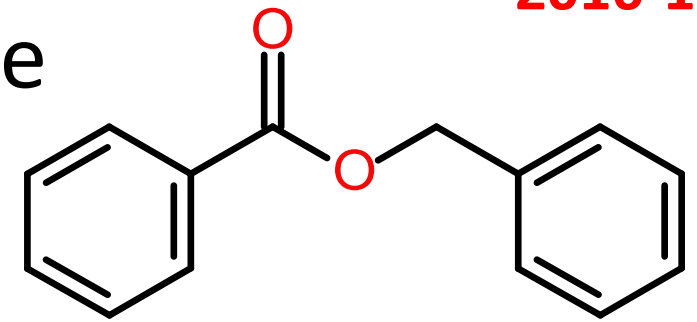
Give an IUPAC name for the following compound.



A. Benzyl Phenoate
B. Phenyl Phenoate
C. Benzyl Benzoate
D. Phenyl Benzoate