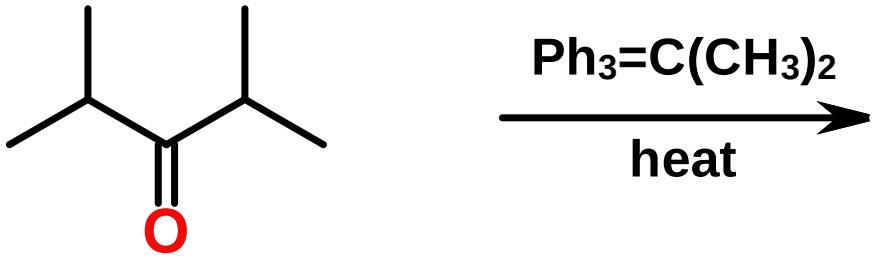
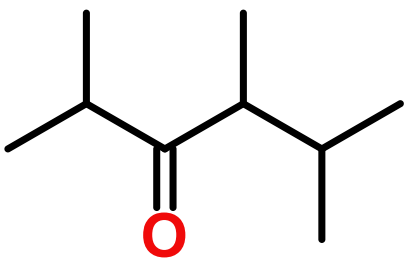
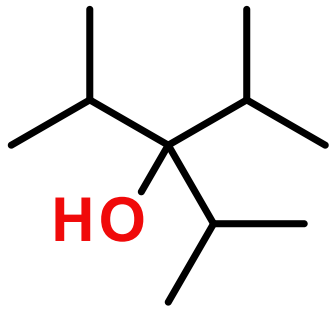
Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx ab)

2016-10-26 Q1

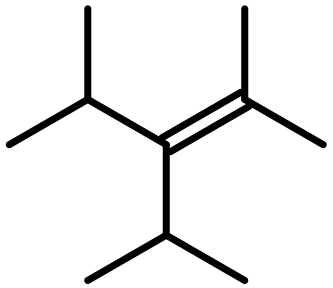




A



B

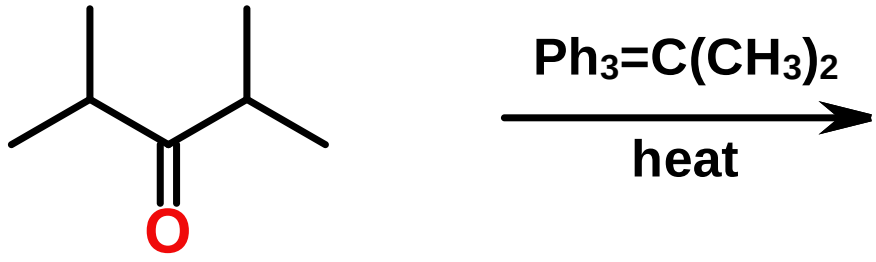


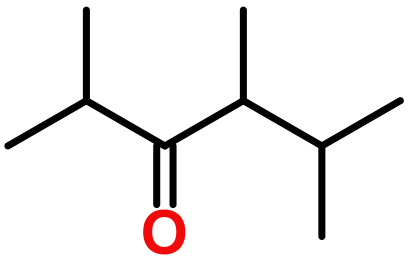
C

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

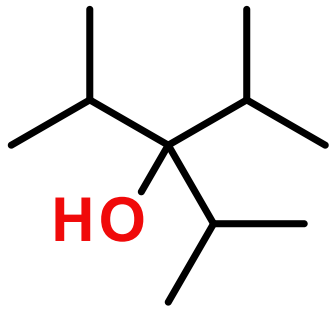
Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx ab)

2016-10-26 Q1

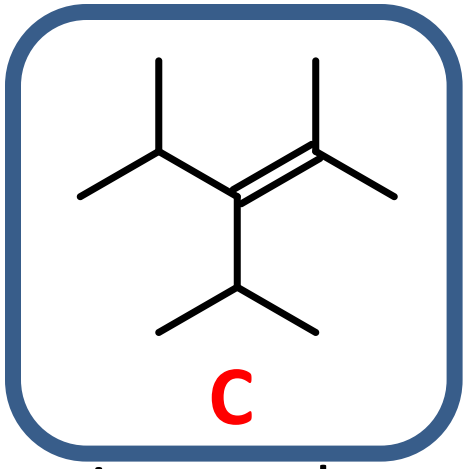




A



B



C

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

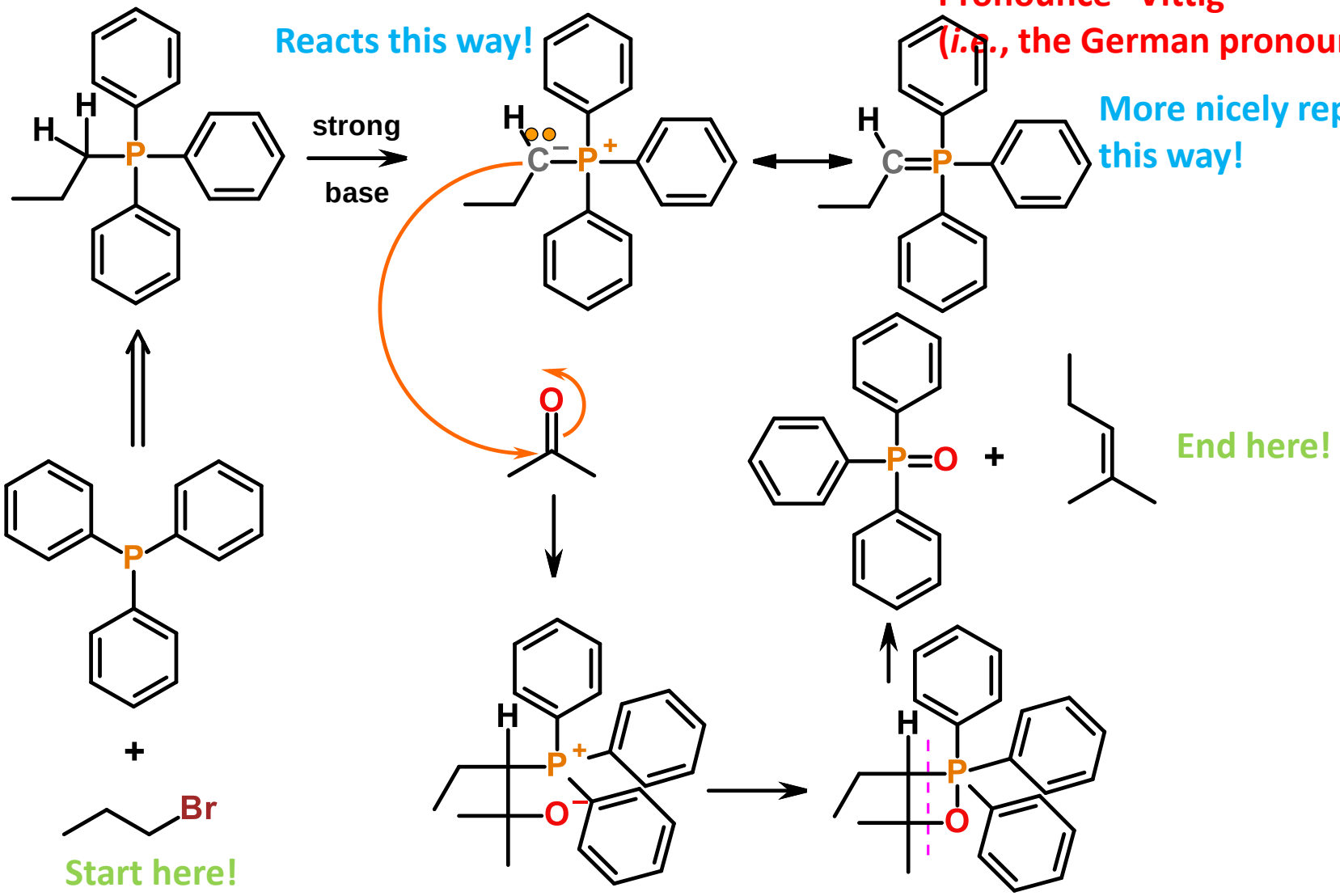
Exam 3

- **Time:**
  - **Tuesday, November 8: 7:00 – 9:00PM OR**
  - **Wednesday, November 9: 7:00 – 9:00PM OR**
  - **Thursday, November 10: 7:00 – 10:00PM**
- **Location – Soc/Anthro Testing Center**
  - Chapters will be covered in this order: Chapter 17, 18
- **Practice Exams are Posted**
  - Ex3A Practice Exam 3A
  - Ex3B Practice Exam 3B
- **Deadline for alternate arrangements is Monday, 11/7/2016 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**

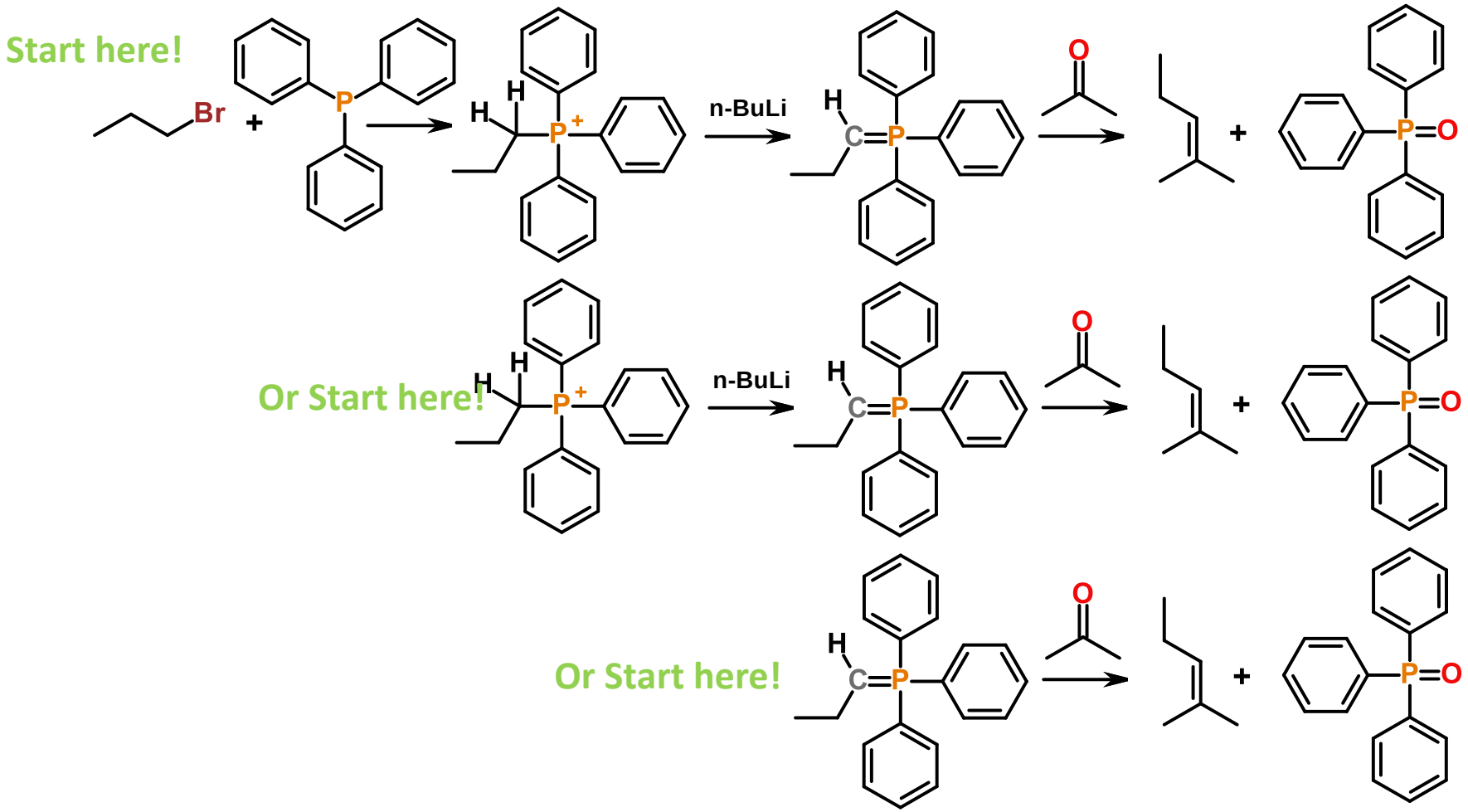
Exam 3 Lecture Planning

Ex3-01-B7-17-01A Ketone Aldehyde Naming	Friday, October 22
Ex3-01-B7-17-01B Aldehyde Ketone Naming	Saturday, October 22
Ex3-02-B7-17-02A Ald Ket Rxns O-Nucl	Saturday, October 23
Ex3-02-B7-17-02B Ald Ket O-Nucleophiles	Sunday, October 24
Ex3-02-B7-17-02C Ald Ket Rxns O-Nucl	Monday, October 25
Ex3-03-B7-17-03A Ald Ket with N-Nucl	Tuesday, October 26
Ex3-03-B7-17-03B Ald Ket with N-Nucl	Wednesday, October 27
Ex3-03-B7-17-03C Ald Ket with N-Nucl	Thursday, October 28
Ex3-04-B7-17-04A Ald Ket with C-Nucl	Friday, October 29
Ex3-04-B7-17-04B Ald Ket with C-Nucl	Saturday, October 29
Ex3-04-B7-17-04C Ald Ket with C-Nucl	Sunday, October 30
Ex3-05-B7-18-01 Tautomers	Sunday, October 30
Ex3-06-B7-18-02B Alpha-Bromination	Monday, October 31
Ex3-06-B7-18-02C Alpha-Bromination	Tuesday, November 1
Ex3-07-B7-18-03B Alkylation Alpha-C=O	Wednesday, November 2
Ex3-07-B7-18-03C Alkylation Alpha-C=O	Thursday, November 3
Ex3-08-B7-18-04B Malonic Ester Synthesis	Friday, November 4
Ex3-08-B7-18-04C Malonic Ester Synthesis	Saturday, November 5
Ex3-09-B7-18-05 Fatty Acids	Sunday, November 6
Exam 3	**November 8, 9, 10**

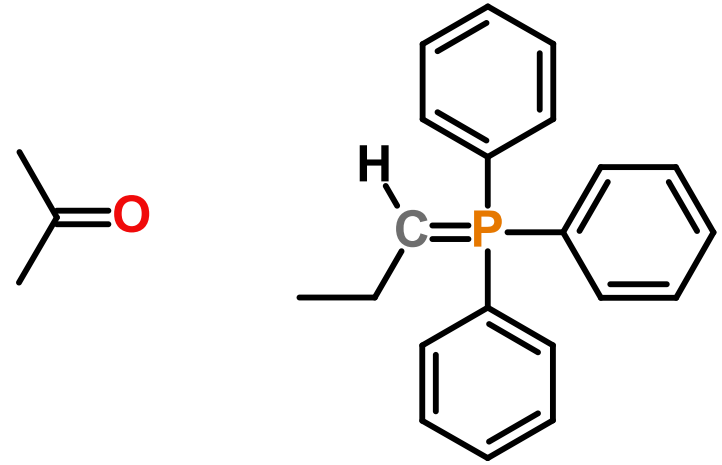
Wittig Reaction



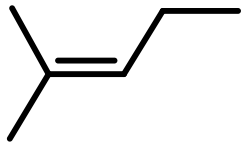
Strong Base (*i.e.*, n-BuLi)

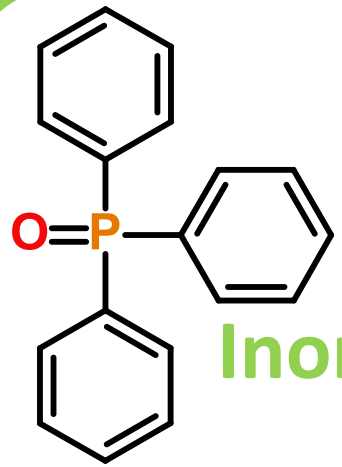


Simplified View of the Wittig Reaction



Trade Ends of the Double Bonds!



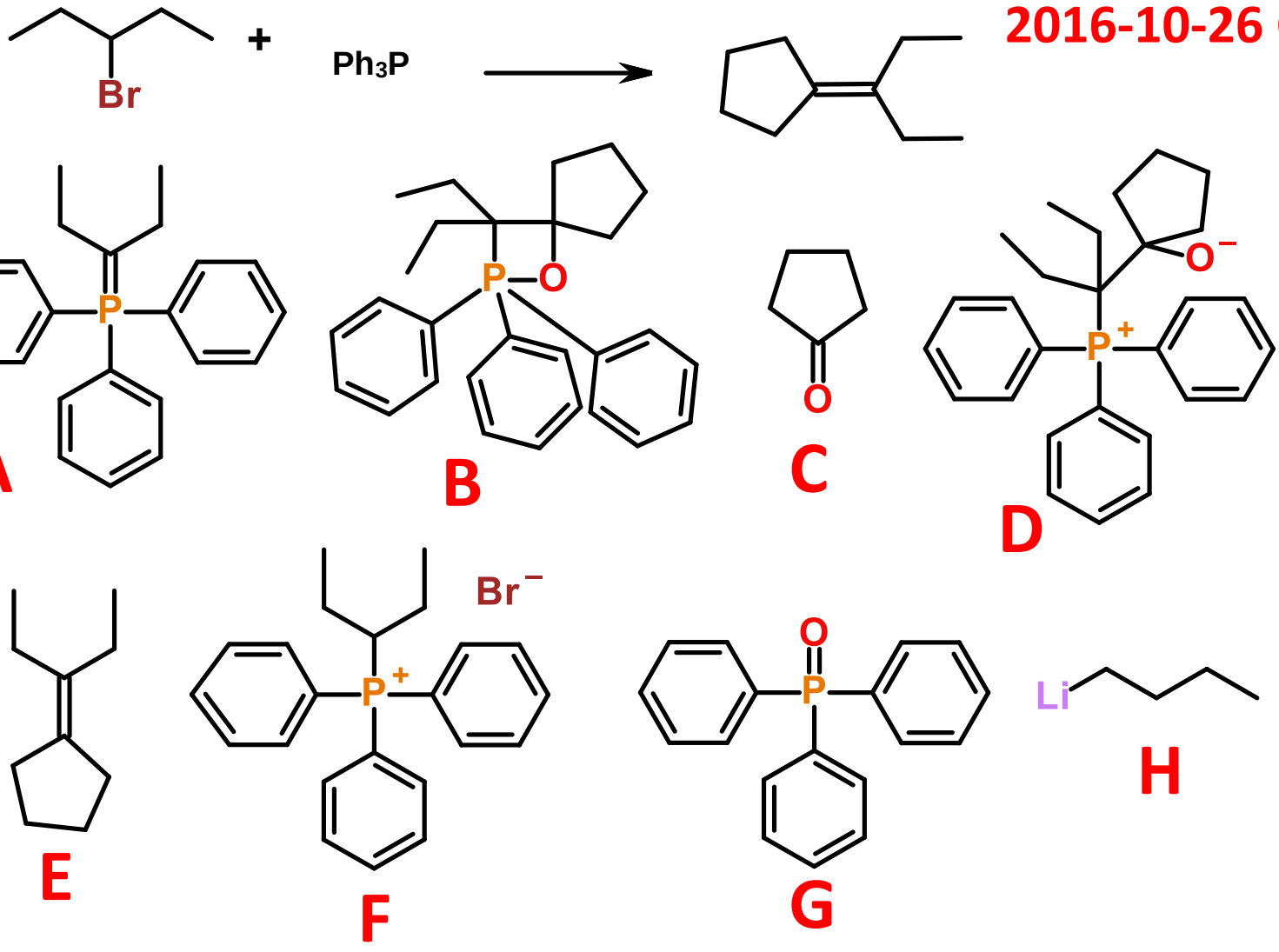


Inorganic Product!
Ignore!

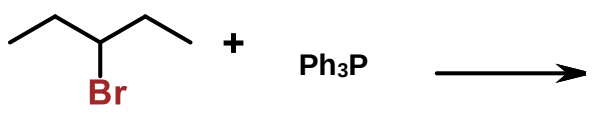
***Cis* preferred, when there is a choice**

Think about this reaction in terms of mechanism. All of the intermediates of the reaction are provided. Give the intermediates in order of their appearance along the reaction coordinate. (Example: xxxx ab)

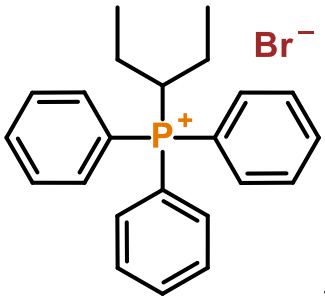
2016-10-26 Q2



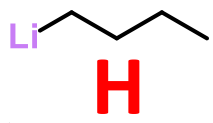
Think about this reaction in terms of mechanism. All of the intermediates of the reaction are provided. Give the intermediates in order of their appearance along the reaction coordinate. (Example: xxxx ab)



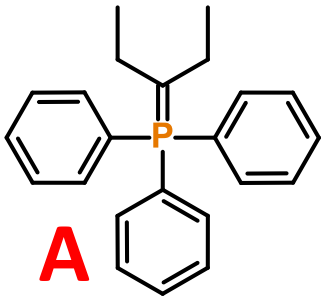
2016-10-26 Q2 correct answer



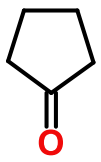
F



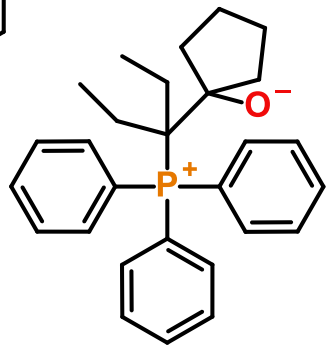
H



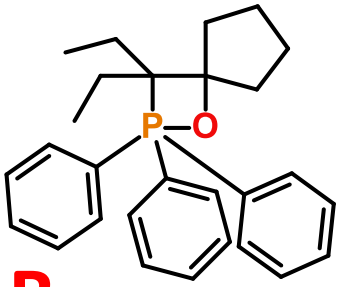
A



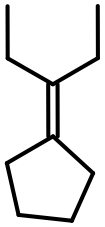
C



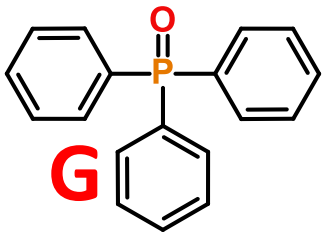
D



B



E



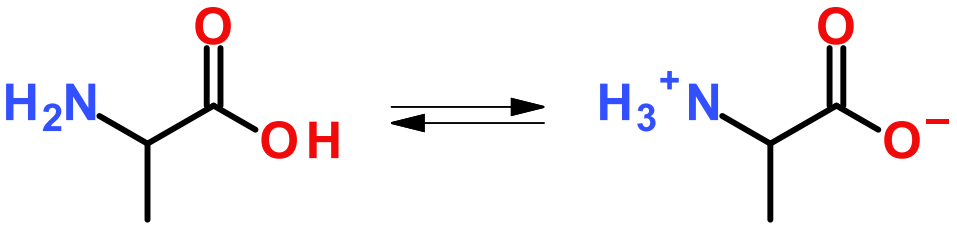
G

Correct answer: FHACDBEG

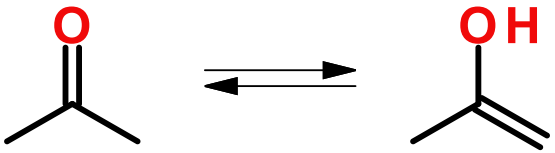
Tautomers

Tautomers are **constitutional isomers** of organic compounds that readily interconvert.

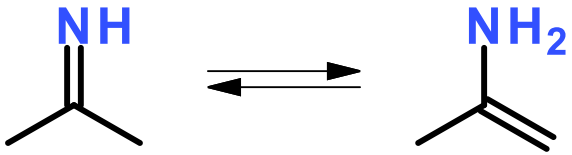
amino acid - ammonium carboxylate



keto - enol

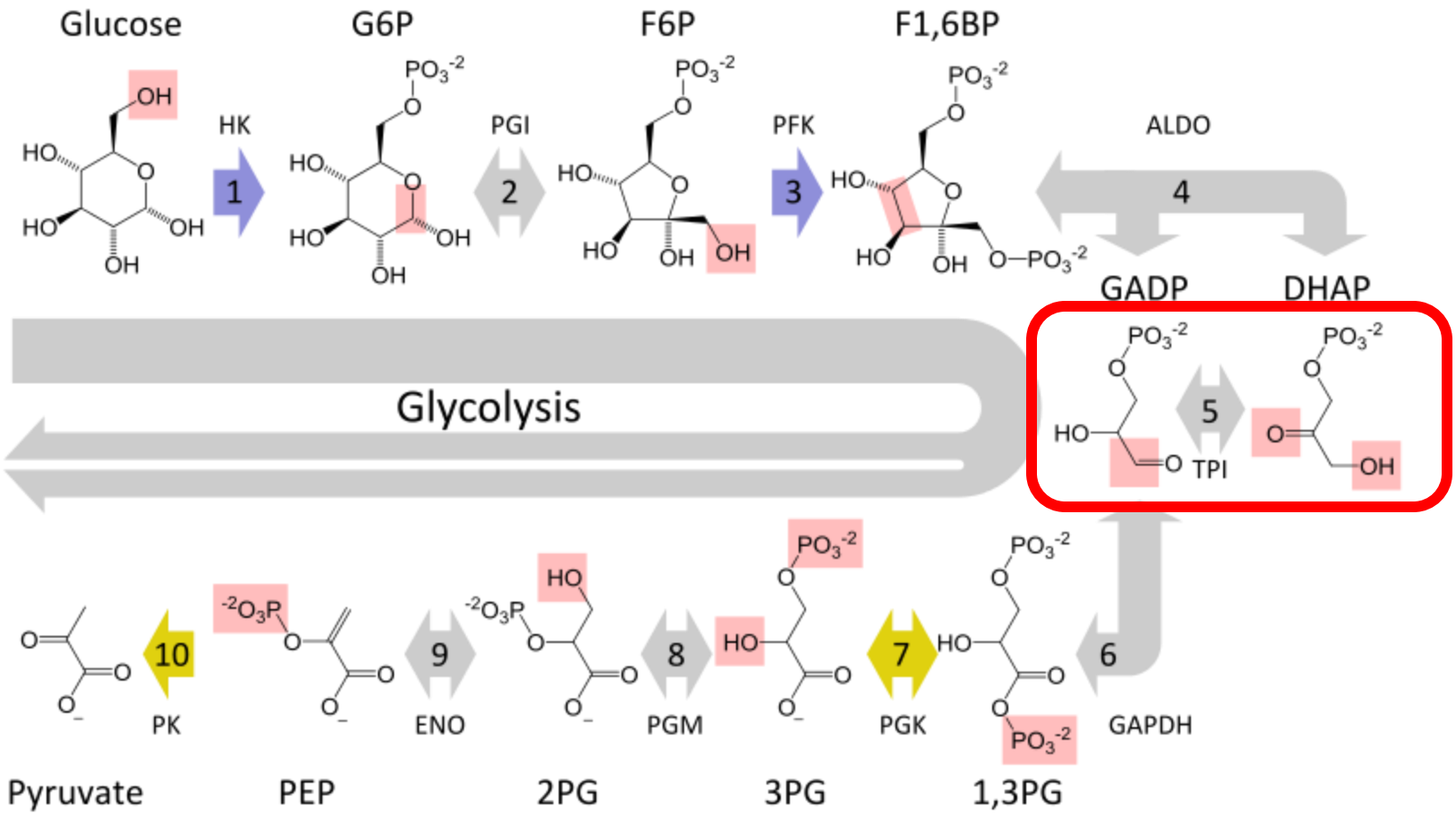


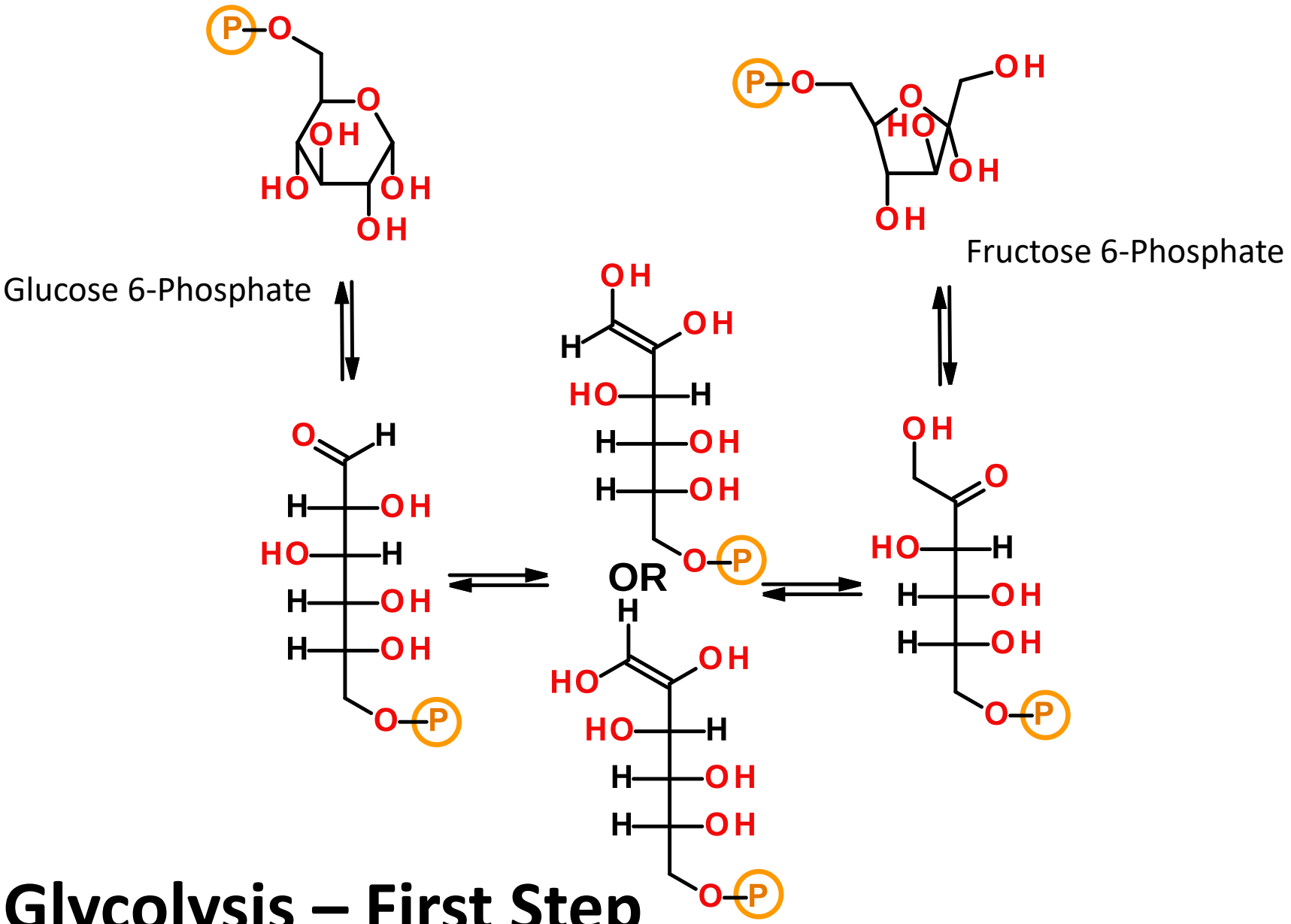
Imine - enamine



The position of the equilibrium depends upon the conditions.

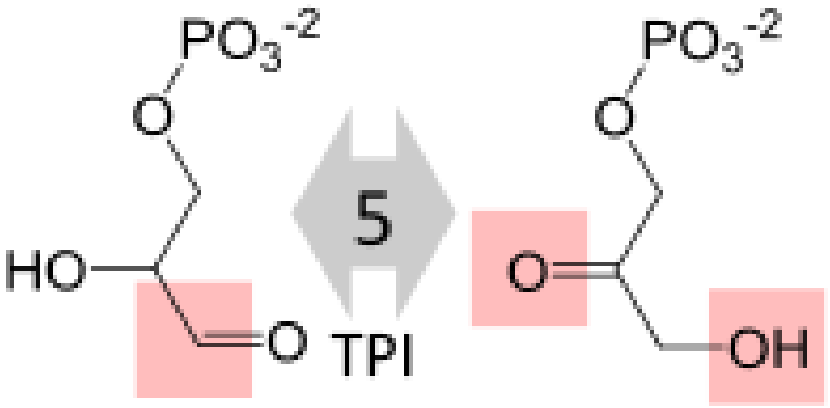
Glycolysis – Glucose to Pyruvate

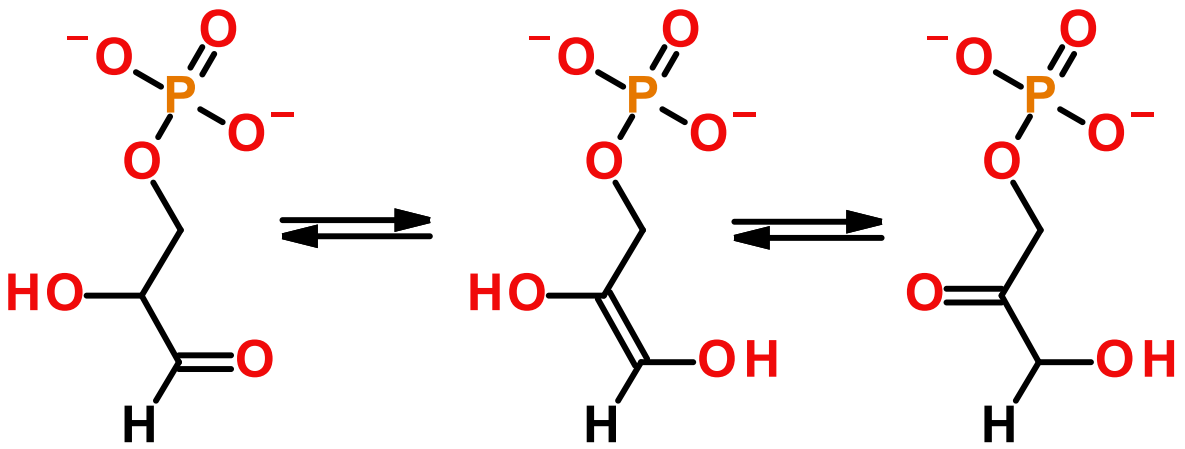




Glycolysis – First Step

Tautomerism in Biochemistry

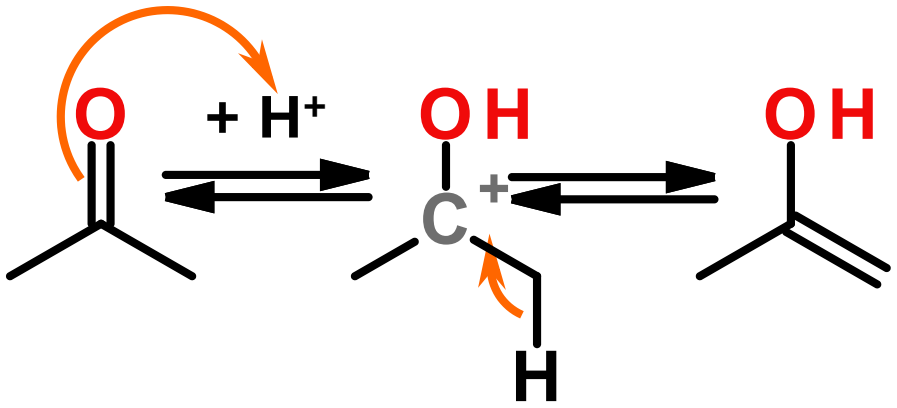




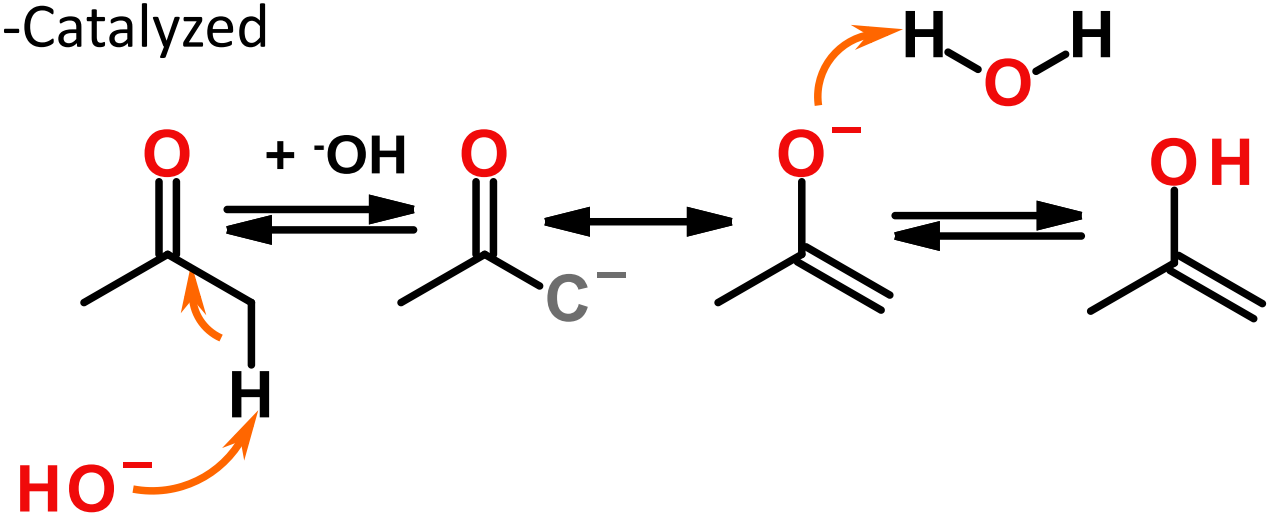
Tautomers

Tautomerization

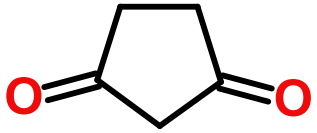
Acid-Catalyzed



Base-Catalyzed

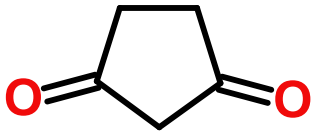


Which of the following compounds are tautomers of 1,3-pentanedione?

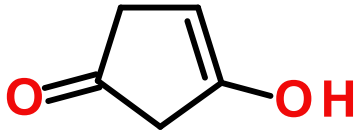


1,3-pentanedione

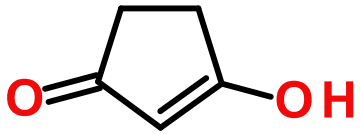
2016-10-26 Q3



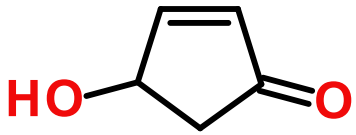
A



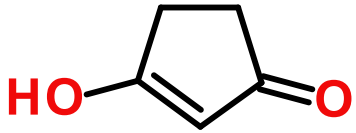
B



C

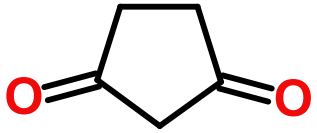


D



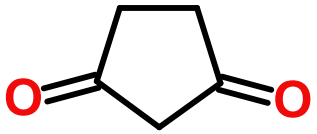
E

Which of the following compounds are tautomers of 1,3-pentanedione?

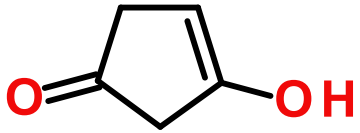


1,3-pentanedione

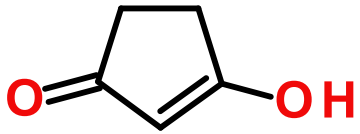
2016-10-26 Q3



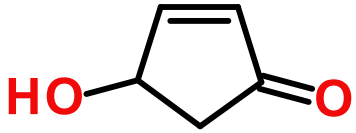
A



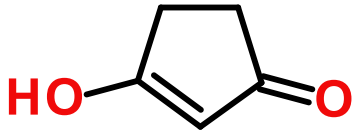
B



C



D

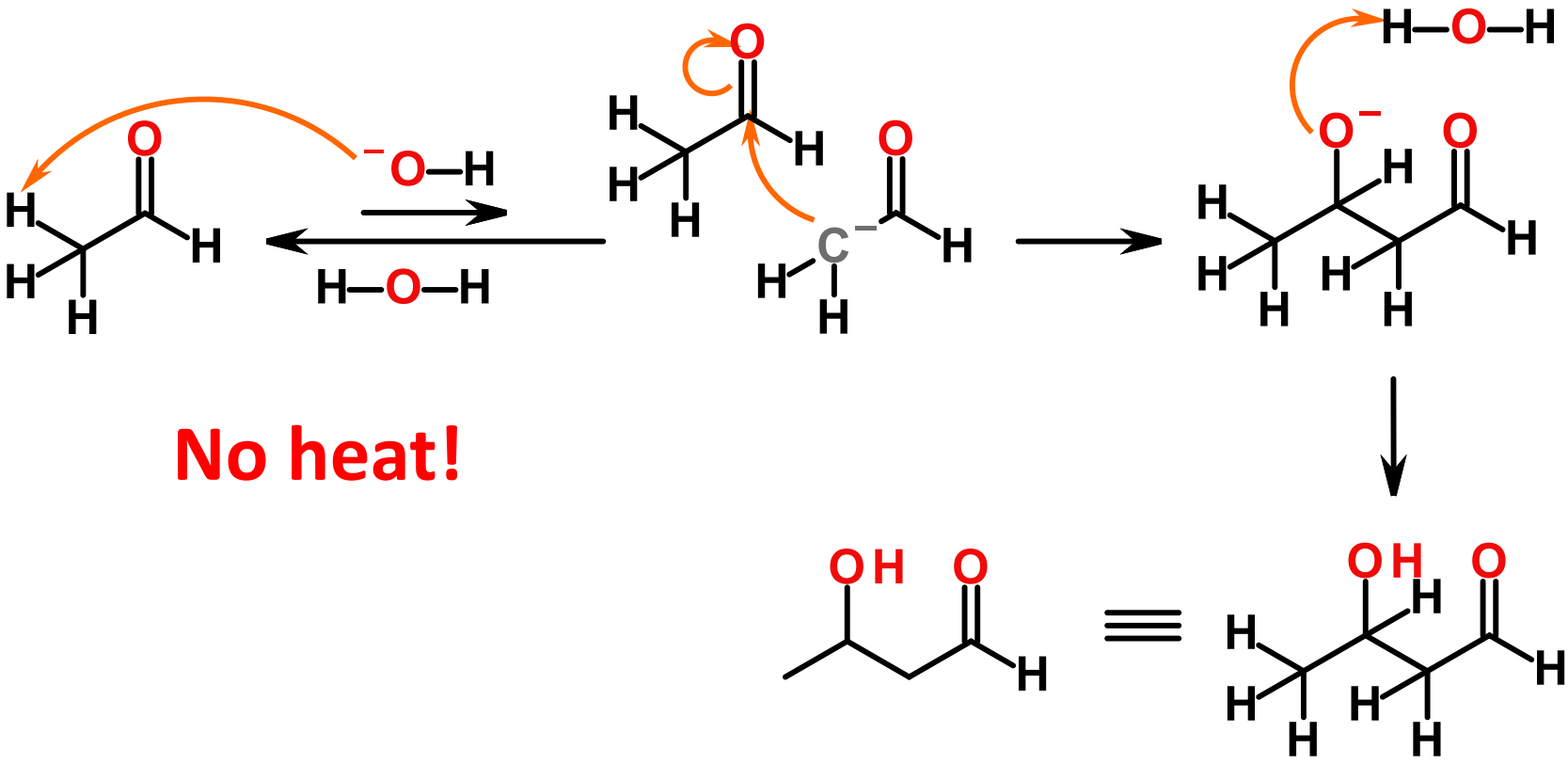


E

Correct Answer = BCE or ABCE

Alkylation α- to a Carbonyl Group

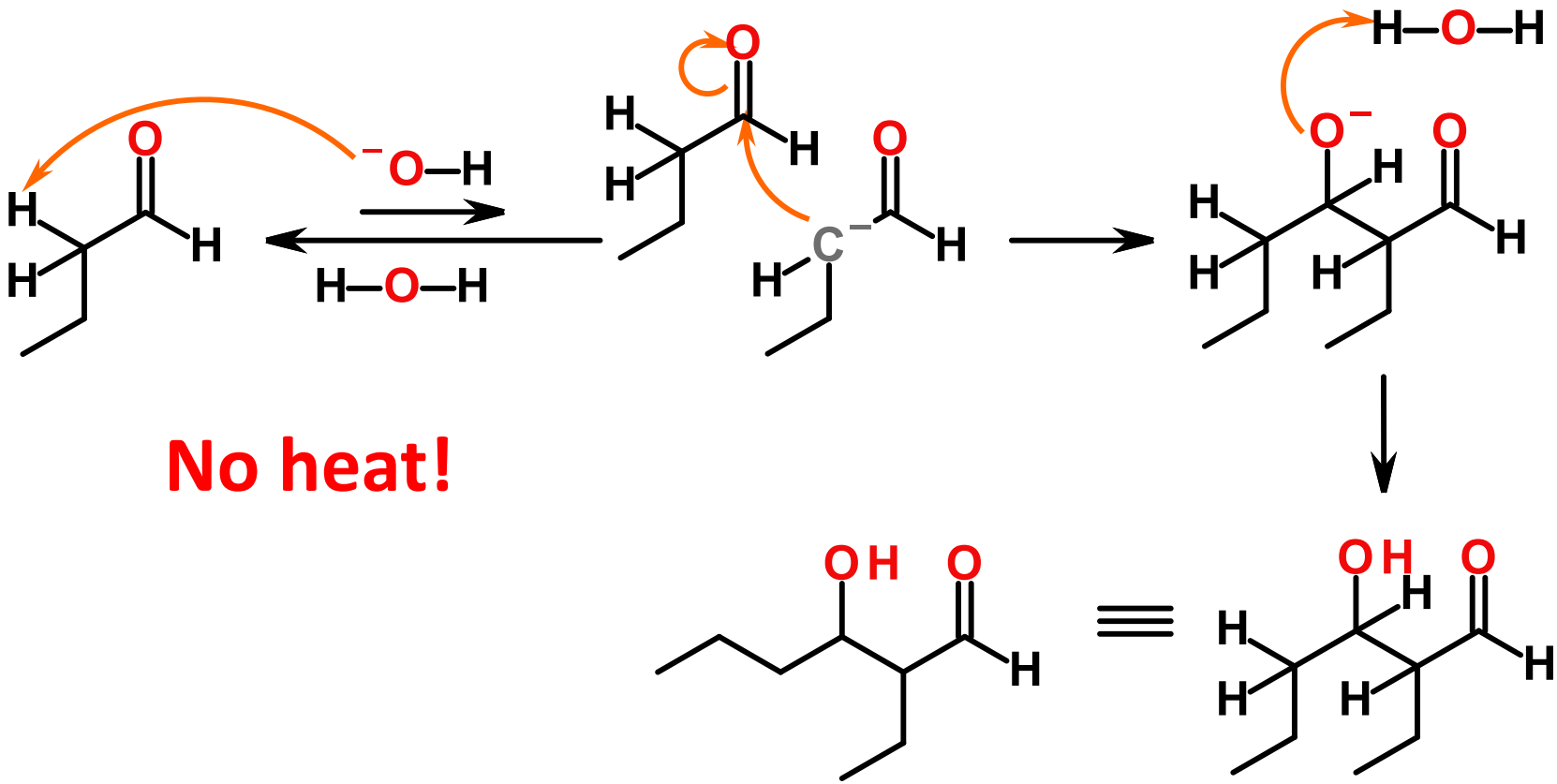
Aldol Reaction



No heat!

Alkylation α- to a Carbonyl Group

Example 2 - Aldol Reaction

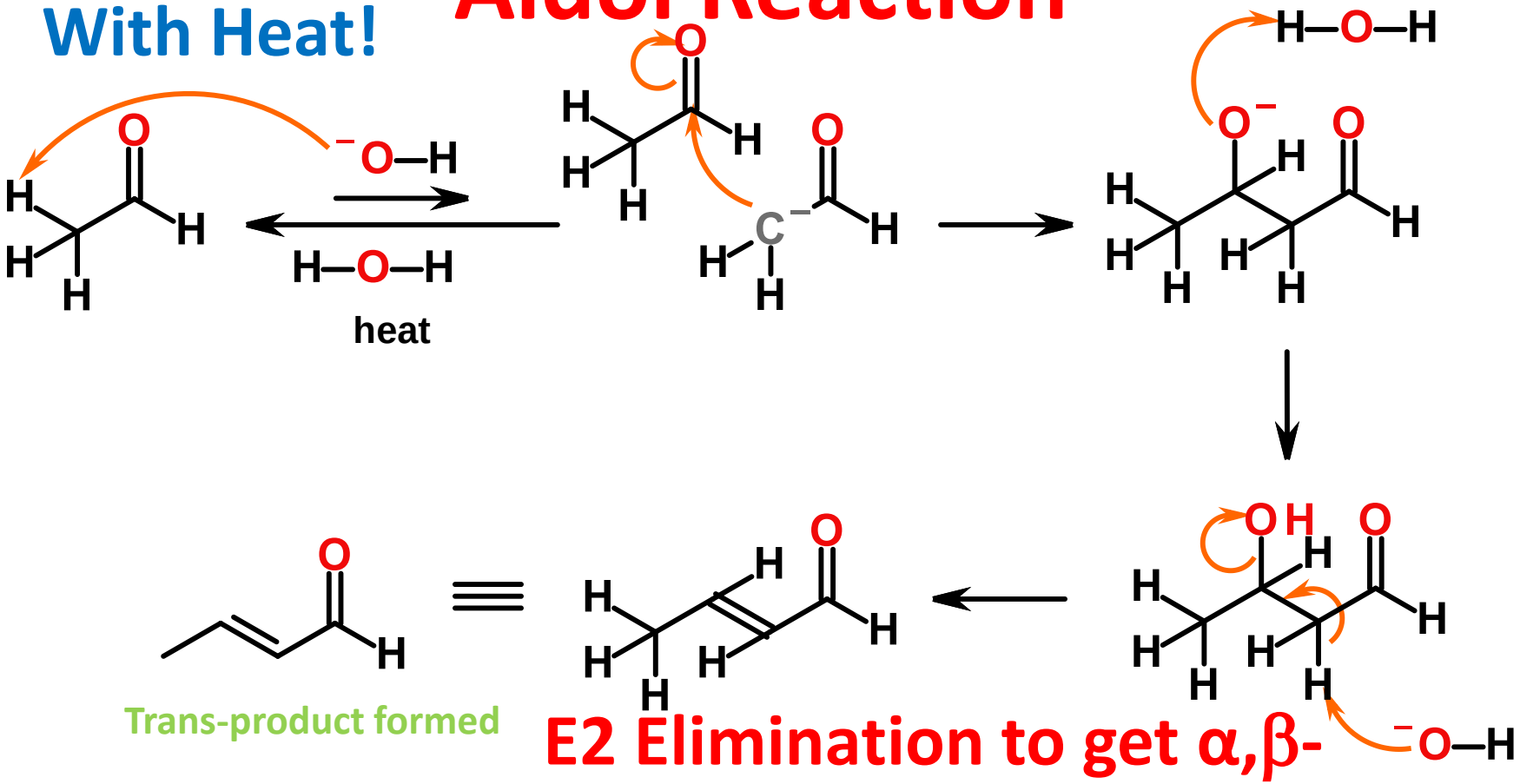


No heat!

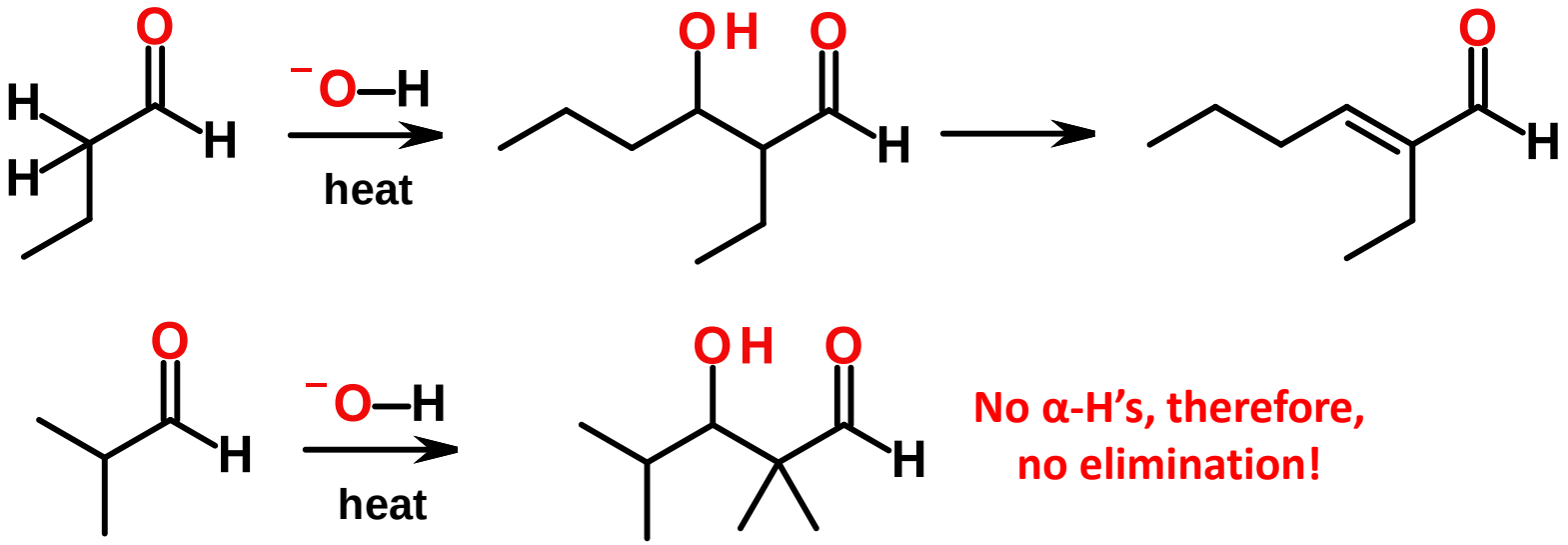
Alkylation α- to a Carbonyl Group

Aldol Reaction

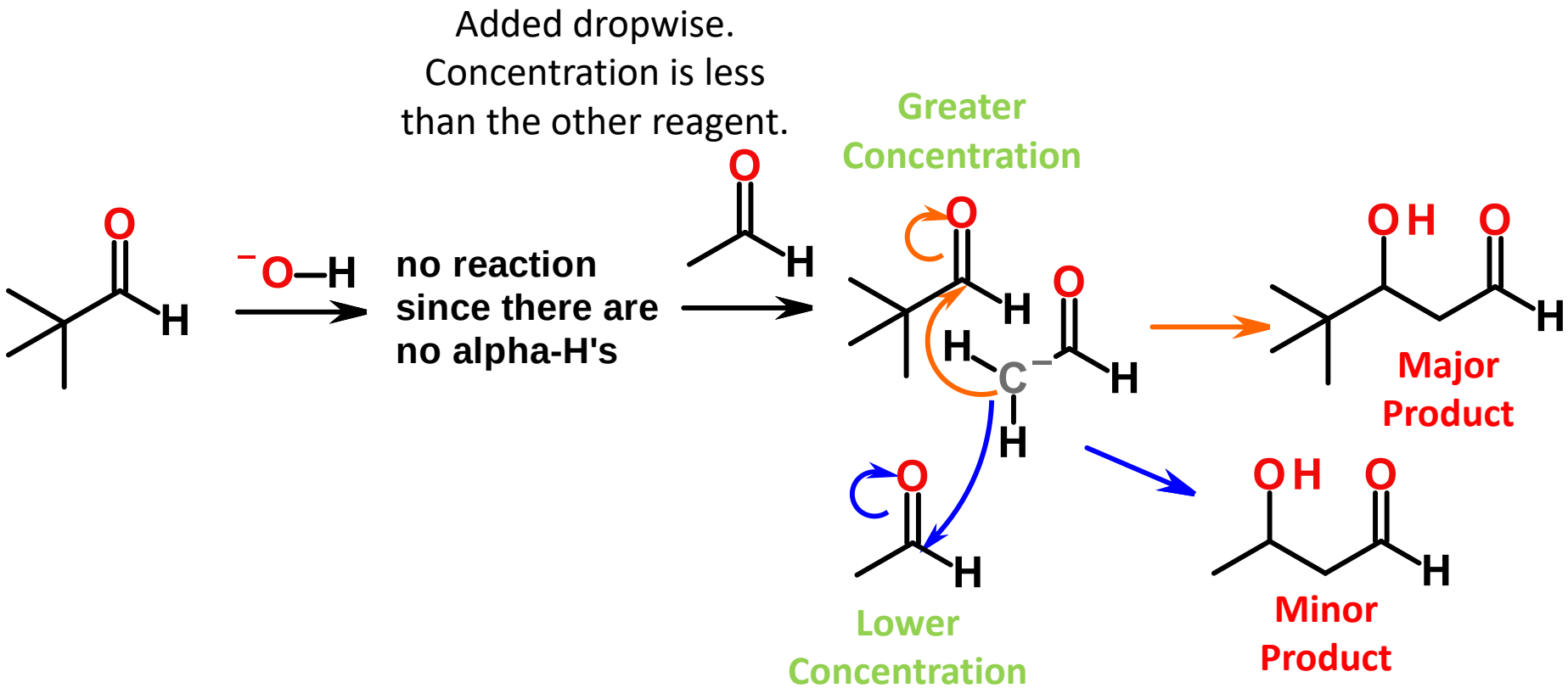
With Heat!



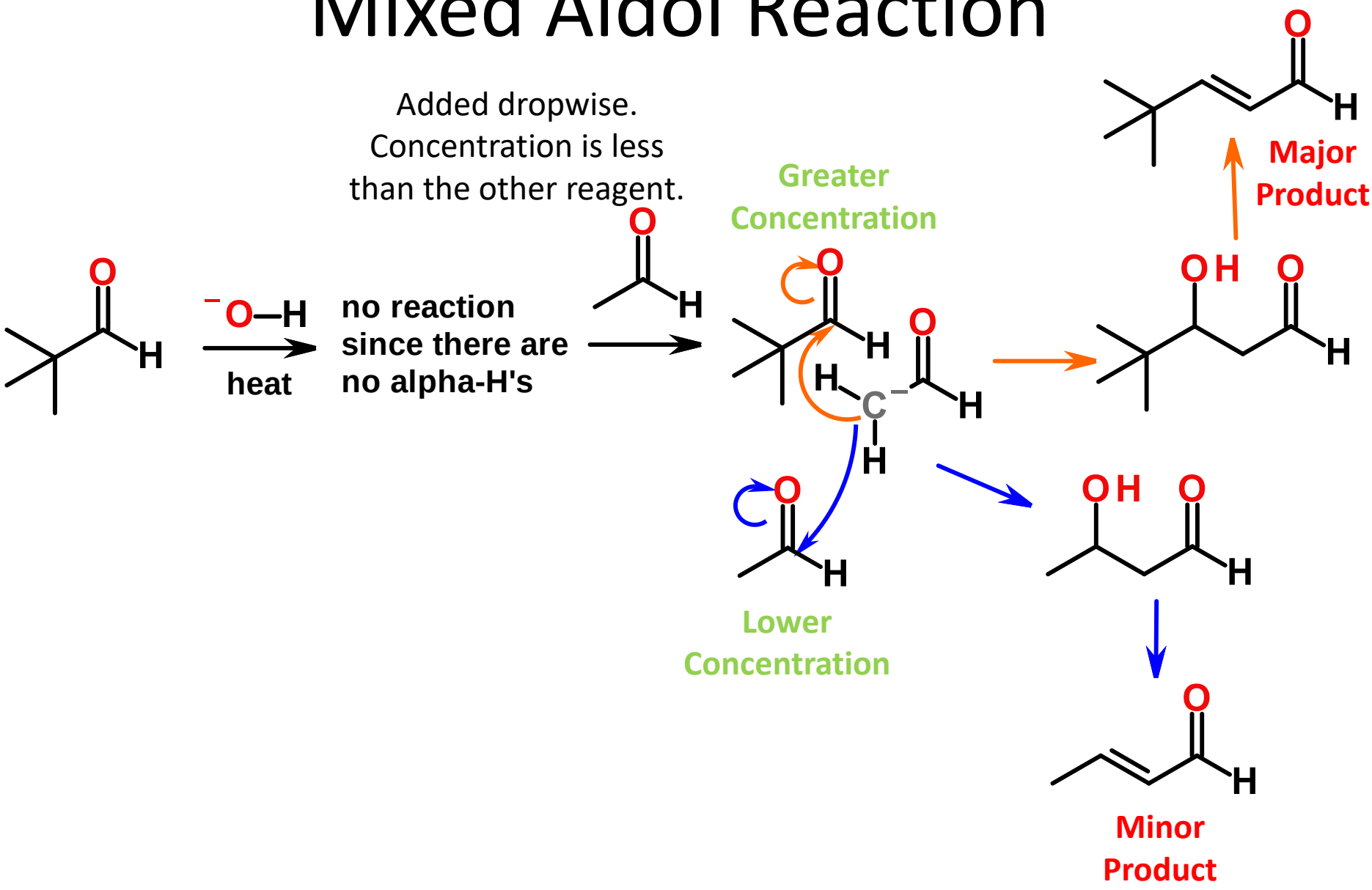
Importance of α-H's on the Elimination Reaction



Mixed Aldol Reaction



Mixed Aldol Reaction



Mixed Aldol Reaction