

Chemistry 351

Quiz #9

November 6, 2019

Name: _____

Student Number: _____

Section Number: _____

TA: _____

INSTRUCTIONS:

This quiz consists of 3 questions on 3 pages. Please make certain that your quiz is complete.

Write your name, student number, and section number **on both the quiz and answer sheet. Be certain to bubble in your PID digits on the answer sheet. The absence of any of these identification items will result in the deduction of 2 points from your score.**

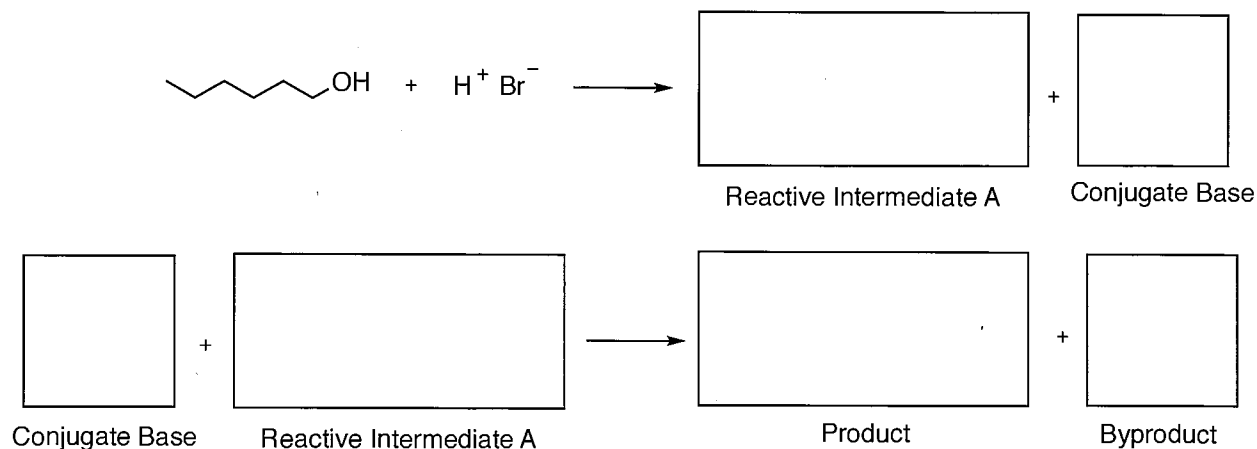
Question 1 and Question 2 are each worth 3 points. Question 3 is worth 4 points.

Write your answers to Questions 1-3 in the space provided on this quiz.

When you complete the quiz, insert your answer sheet into your quiz and then hand both in on the bench in front of the lecture hall in the spot indicated by your section number.

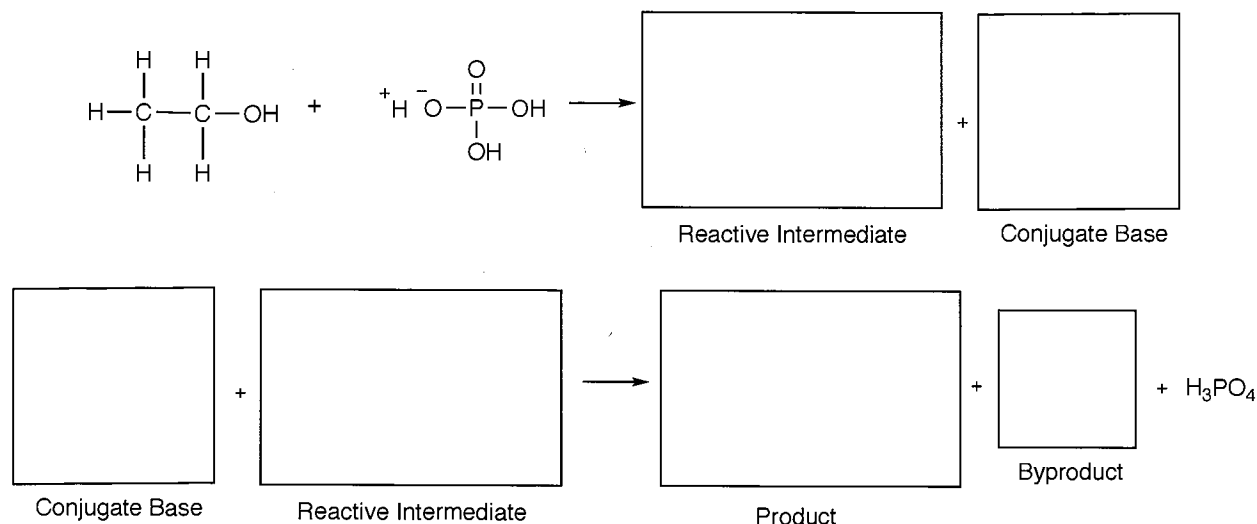
1. (3 pts) For the reaction of 1-hexanol with HBr: CCCCCCO + HBr \longrightarrow

- Provide the arrow(s) showing the flow of electrons in the reaction of 1-hexanol with HBr leading to formation of Reactive Intermediate A and a Conjugate Base.
- In the labeled boxes, provide the structures of Reactive Intermediate A and the Conjugate Base.
- Provide the arrow(s) showing the flow of electrons during the reaction of the Conjugate Base and Reactive Intermediate A.
- In the labeled boxes, provide the structures of the Product and Byproduct.

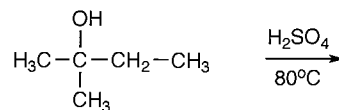


2. (3 pts) When ethanol is heated with phosphoric acid: CCO $\xrightarrow[\text{Heat}]{\text{H}_3\text{PO}_4}$

- Provide the arrow(s) showing the flow of electrons in the reaction of ethanol with phosphoric acid leading to formation of the Reactive Intermediate and a Conjugate Base.
- In the labeled boxes, provide the structures of the Reactive Intermediate and Conjugate Base.
- Provide the arrow(s) showing the flow of electrons during reaction of the Conjugate Base with the Reactive Intermediate leading to the Product and Byproduct.
- In the labeled boxes, provide the structures of the Product and Byproduct.



3. (4 pts) Two products are formed when 2-methyl-2-butanol is heated with sulfuric acid:



- Provide the arrow(s) showing the flow of electrons in the reaction of 2-methyl-2-butanol with sulfuric acid leading to formation of Reactive Intermediate A and a Conjugate Base.
- In the labeled boxes, provide the structures of Reactive Intermediate A and Conjugate Base.
- Provide the arrow(s) showing the flow of electrons during the conversion of Reactive Intermediate A into Reactive Intermediate B and a Byproduct.
- In the labeled boxes, provide the structures of Reactive Intermediate B and the Byproduct.
- Provide the arrow(s) showing the flow of electrons during reaction of the Conjugate Base with Reactive Intermediate B leading to Product A and separately, Product B.
- In the labeled boxes, provide the structures of Product A and Product B.

