Section

Aldehydes and Ketones Experiment #4

Pre-Lab Exercise

1. Describe the difference between an aldehyde and a ketone, and indicate how each differs from an alcohol.

2. Name one aldehyde or ketone that is used widely by consumers. Be sure to give the correct name and indicate its use.

3. Describe what is meant by oxidation and reduction in relation to organic compounds, giving one example of oxidation of an organic compound and one example of reduction of an organic compound. The compound you use for the example may be the same or different for the oxidation and the reduction reactions. Be sure to indicate what oxidizing agent is used and what reducing agent is used for each example.

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Data & Report Sheet

<u>Table 1. Tests for Aldehydes and Ketones.</u> [indicate whether you observed a positive reaction (+) or no reaction (-), in each test].

Unknown # _____

	Tollens Test	Fehling's Test	Chromic Acid Test	Iodoform Test
Acetone				
Benzaldehyde				
Acetaldehyde				
Cyclohexanone				
2-Pentanone				
3-Pentanone				
Unknown #				

Questions

1. After looking at the results in Table 1, to what class of compound would you conclude your unknown belongs? (Aldehyde, ketone, methyl ketone, aromatic aldehyde)

2. Which one of the tests performed in this experiment would be most useful in differentiating butanal and benzaldehyde. Explain your answer.

3. A screening test is common to test for phenylalanine or phenylpyruvic acid in the urine. Show the structures of phenylalanine and phenylpyruvic acid and indicate whether any of the tests you have performed in this experiment would give positive results with this urinary metabolite. See your text for discussion of this disease.

4. Give a brief description of some of the health effects that phenylketonuria (PKU) can have on new born children and what precautions must be taken to prevent these unwanted health effects.