JASPERSE CHEM 360 TEST 3

VERSION 3

Ch 18 Ketones and Aldehydes

Ch 22 Additions and Conensations of Enols and Enolate Ions

- 1. Physical Properties.
 - a. Rank the following according to <u>solubility in water</u>, 1 being most soluble, 4 being least soluble.

b. Rank the following according to boiling point, 1 being highest boiling, 4 lowest boiling.

c. Rank the following according to <u>equilibrium enol content</u>, 1 having the most and 3 the least enol.

d. Rank the following according to acidity, 1 being most acidic and 4 least acidic.

$$NO_2$$
 NO_2

- 2. <u>Nomenclature</u>. Provide Either the Name or the Structure for the Following Chemicals. (10 points)
- a. 3-propylbenzaldehyde
- b. (S)-3-phenylbutanal
- c. (Z)-2-methylhept-4-en-3-one

3. Identify the starting carbonyl compound or compounds from which the following aldol-type reaction products are formed. (12 points)

b.
$$\begin{array}{c} 1. \text{ NaOH,} \\ H_2\text{O, } 0^{\circ}\text{C} \\ \hline 2. \text{ heat} \end{array} \quad \text{Ph}$$

4. Draw the mechanisms for the following transformations.

$$\begin{array}{c}
\text{OH} & \xrightarrow{\text{H}^+, \text{H}_2\text{O}} \\
\text{OMe} & \xrightarrow{\text{H}^+}
\end{array}$$

5. Draw the products for the following reactions. (2 points each)

$$\begin{array}{c} & 1. \text{ NaCN} \\ \hline & 2. \text{ PhMgBr} \\ \hline & 3. \text{ H}_3\text{O}^+ \end{array}$$

6. Provide the needed reagents for the following transformations. You may use anything you wish. The transformations can be completed within 2-4 steps.