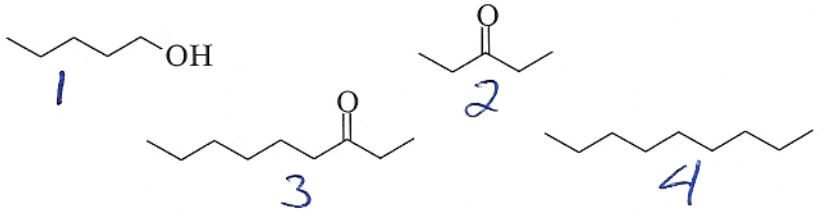
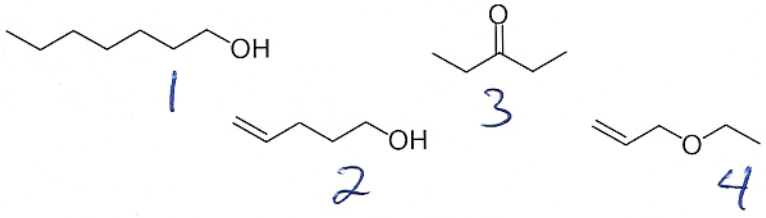
Jasperse
Chem 360
Test 3
Version 3
Answers

JASPERSE CHEM 360 TEST 3 VERSION 3
Ch 18 Ketones and Aldehydes
Ch 22 Additions and Conensations of Enols and Enolate Ions

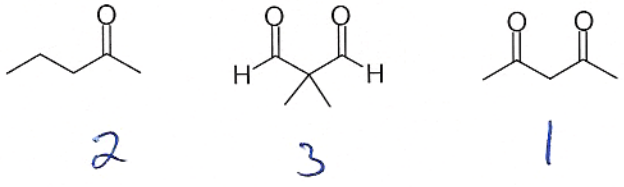
1. Physical Properties.
   a. Rank the following according to solubility in water, 1 being most soluble, 4 being least soluble.



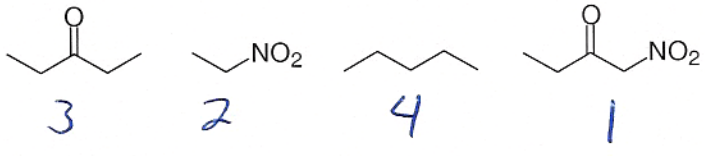
b. Rank the following according to boiling point, 1 being highest boiling, 4 lowest boiling.



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

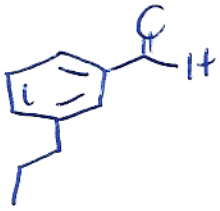


d. Rank the following according to acidity, 1 being most acidic and 4 least acidic.

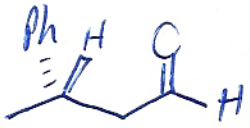


2. **Nomenclature**. Provide Either the Name or the Structure for the Following Chemicals. (10 points)

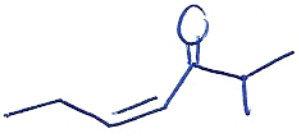
a. 3-propylbenzaldehyde



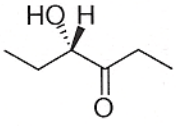
b. (S)-3-phenylbutanal



c. (Z)-2-methyl-4-hepten-3-one
(Z)-2-methylhept-4-en-3-one



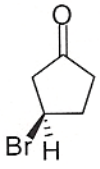
d.



(S)-4-hydroxy-3-hexanone

(S)-4-hydroxyhexan-3-one

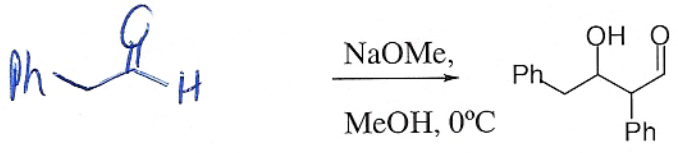
e.



(R)-3-bromocyclopentanone

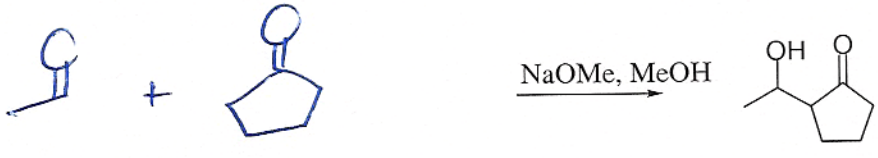
3. Identify the starting carbonyl compound or compounds from which the following aldol-type reaction products are formed. (12 points)

a.

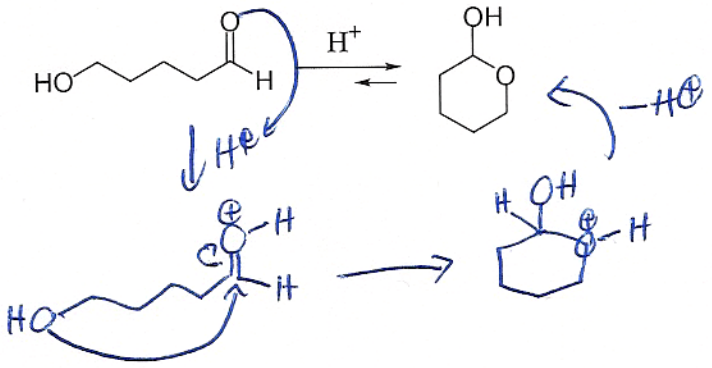


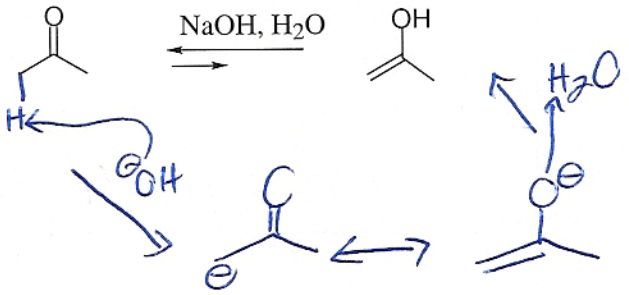
b.

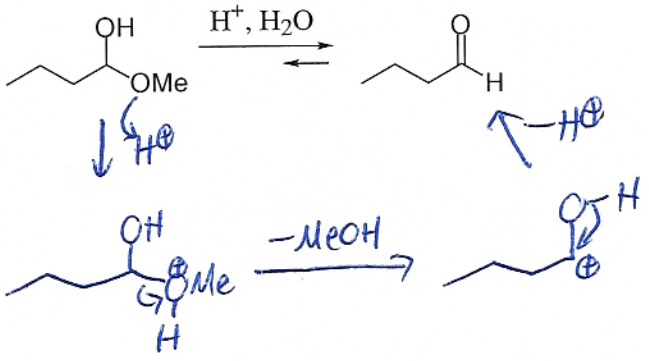
c.

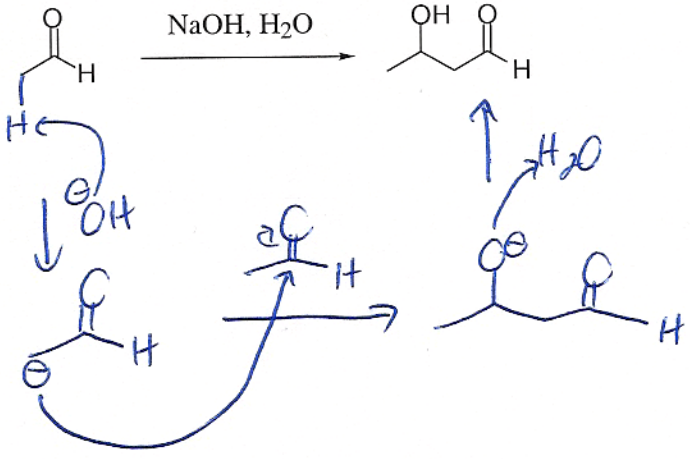


4. Draw the mechanisms for the following transformations.

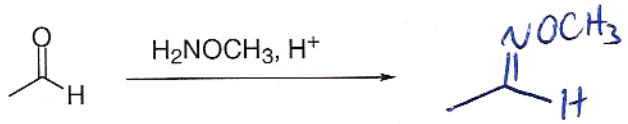


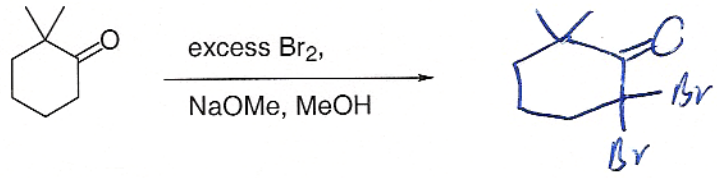


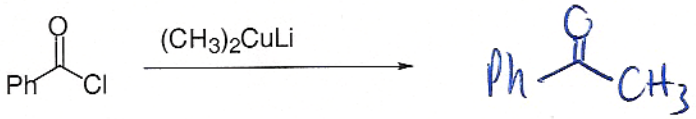


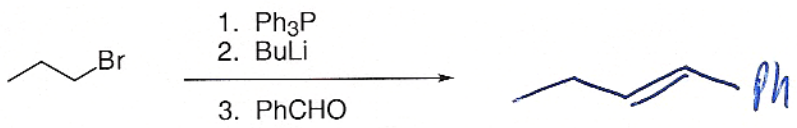


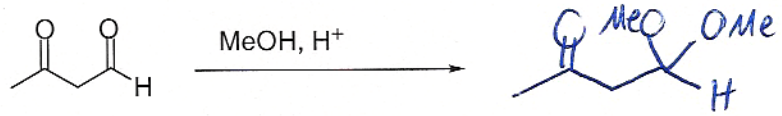
5. Draw the products for the following reactions. (2 points each)

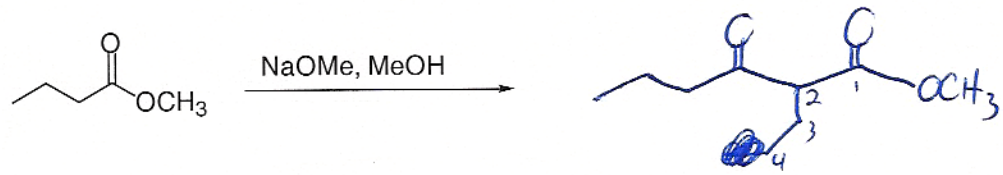


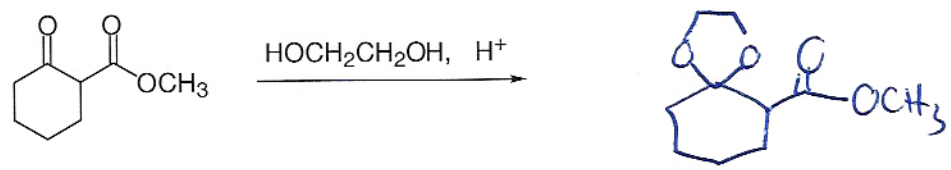


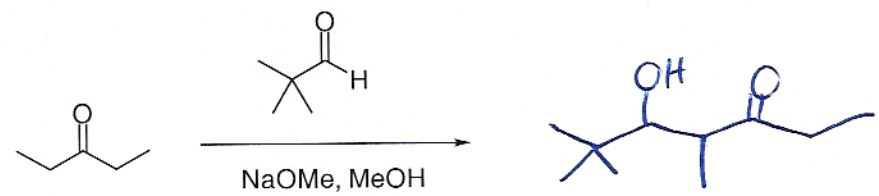


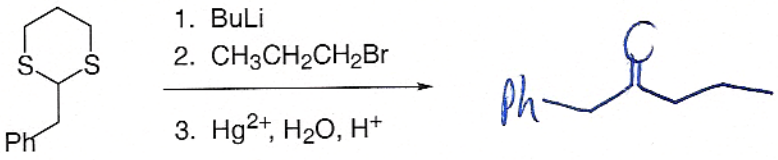




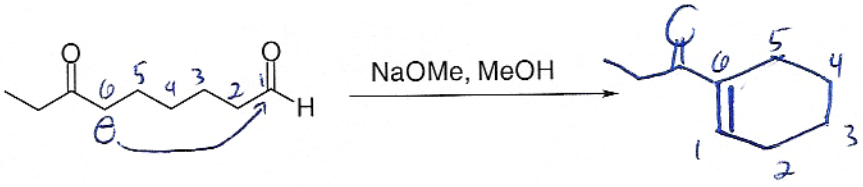




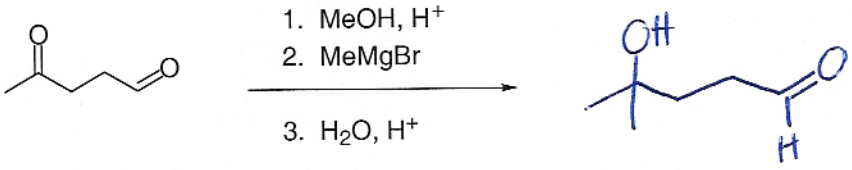


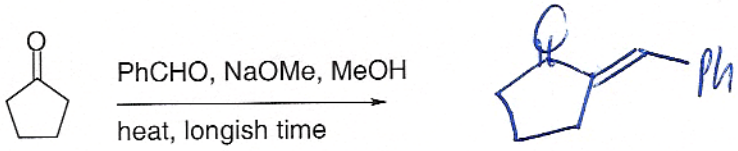


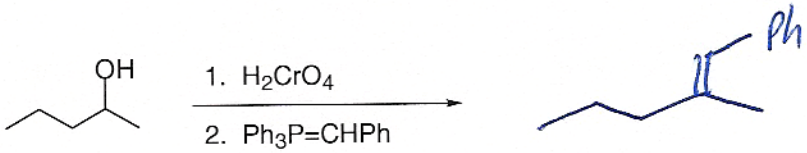
Not responsible.

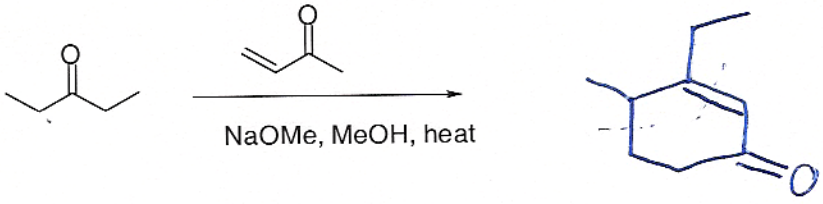


Oops, with no heat listed this answer shuold really show an OH on carbon 1, rather than alkene.









Not responsible

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