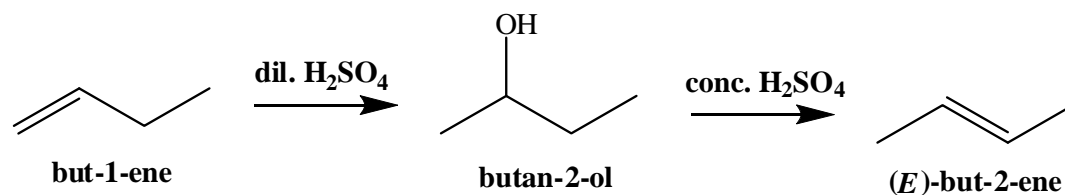
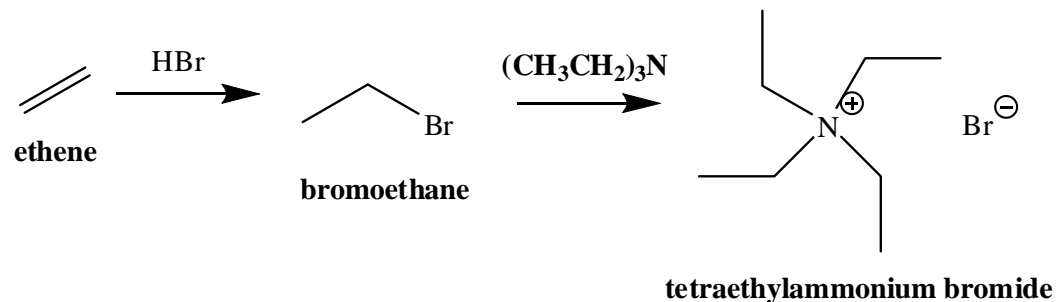


1.

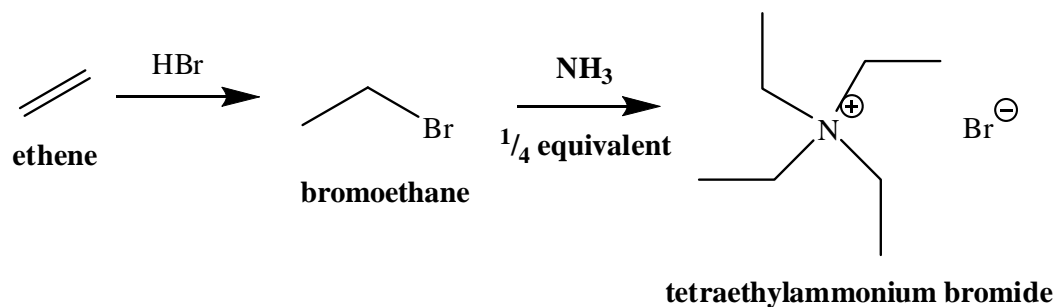
(a)



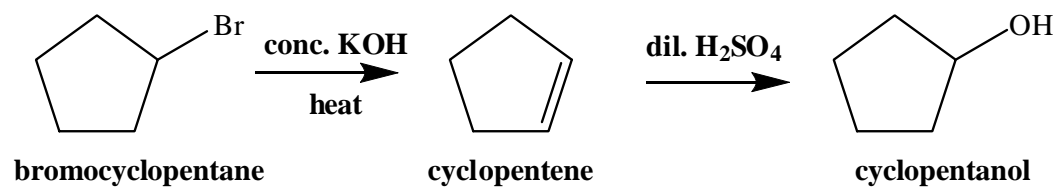
(b)



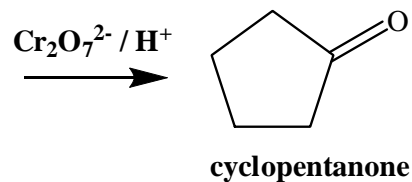
OR



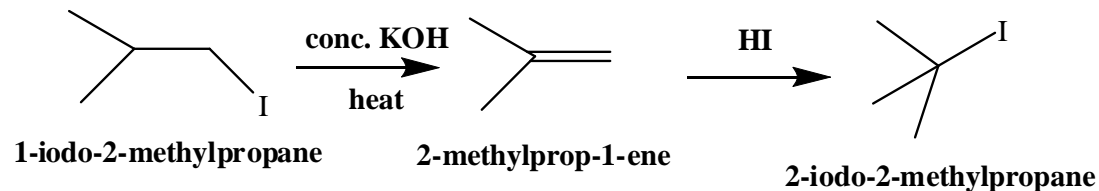
(c)

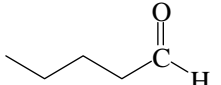
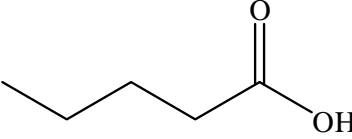
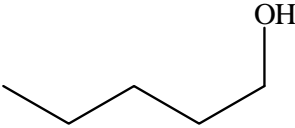
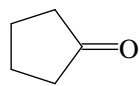
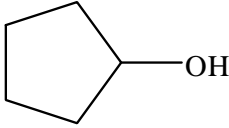
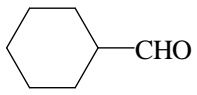
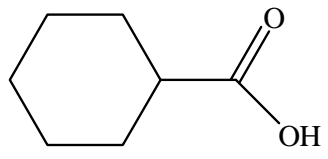
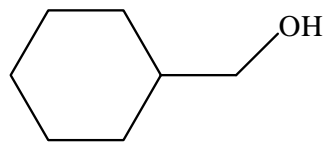
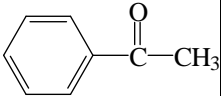
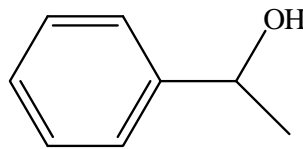
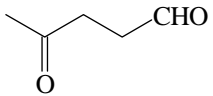
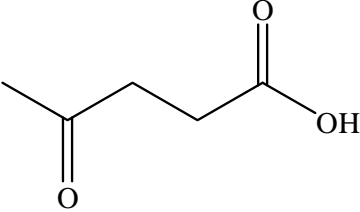
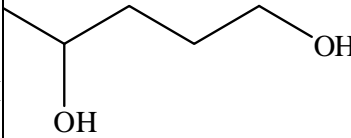


Note: treatment of the starting material with dil. NaOH, hoping for simple substitution to give cyclopentanol, is unlikely to work. This route would probably lead to elimination to give cyclopentene.

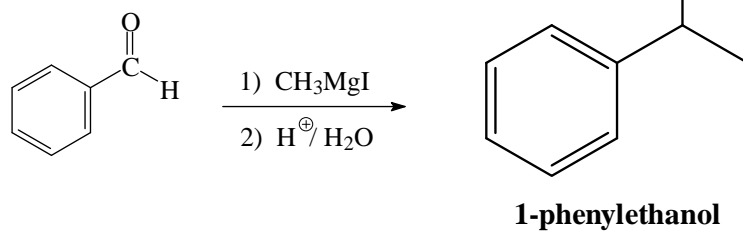


(d)

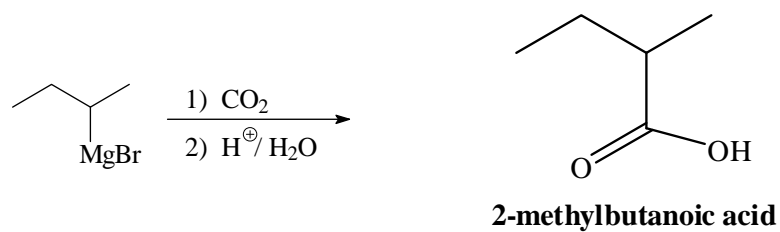


2.	Starting Material	Functional Group	Oxidation Product	Reduction Product
(a)		<b>aldehyde</b>	 <b>pentanoic acid</b>	 <b>1-pentanol</b>
(b)		<b>ketone</b>	<b>no reaction</b>	 <b>cyclopentanol</b>
(c)		<b>aldehyde</b>	 <b>cyclohexylcarboxylic acid</b>	 <b>cyclohexylmethanol</b>
(d)		<b>ketone</b>	<b>no reaction</b>	 <b>1-phenylethanol</b>
(e)		<b>ketone (left) aldehyde (right)</b>	 <b>4-oxopentanoic acid</b>	 <b>1,4-pentanediol</b>

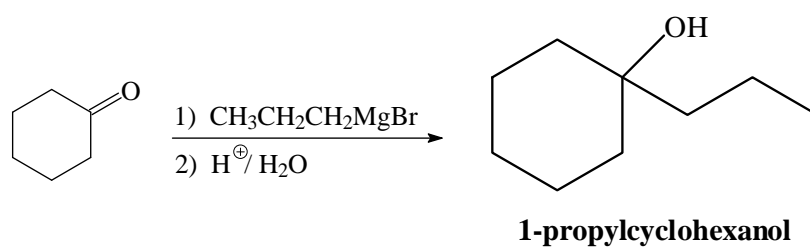
3. (a)



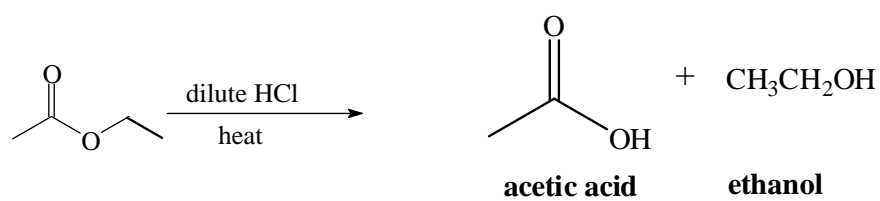
(b)



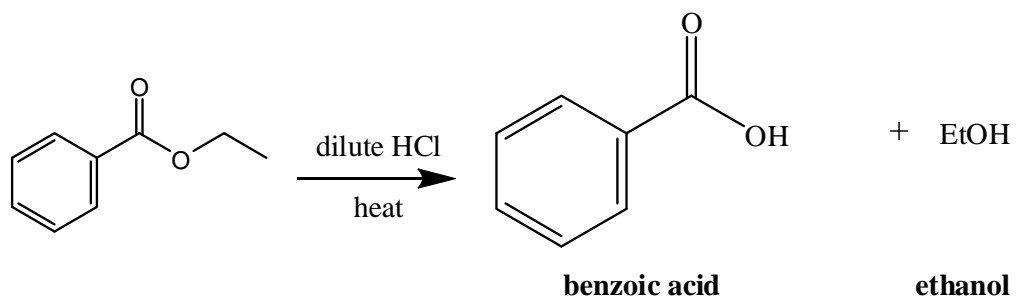
(c)



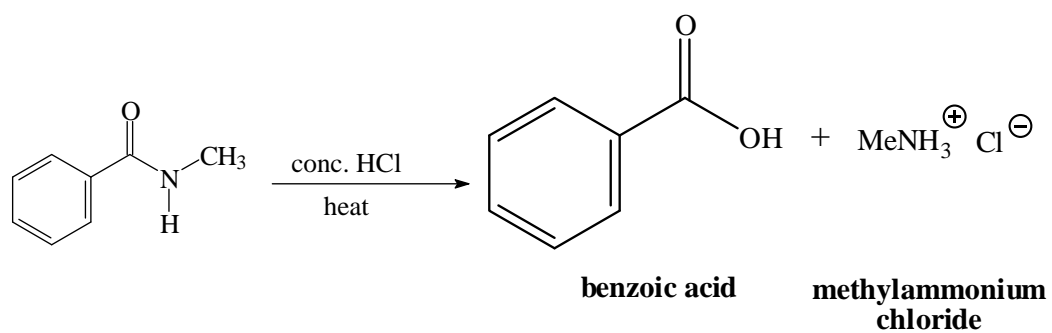
4. (a)



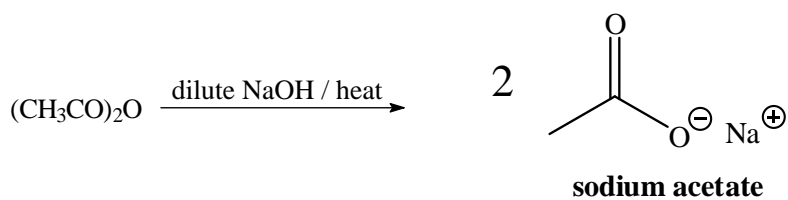
(b)



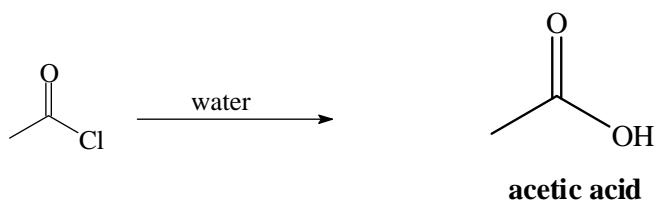
(c)



(d)



(e)



(f)

