

54 =

2

Name: _____

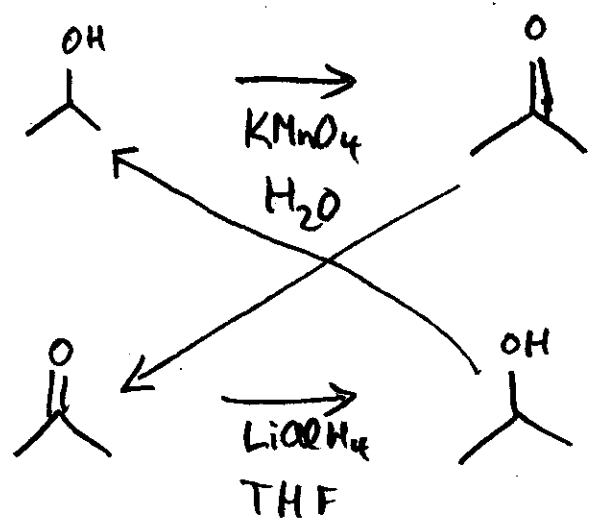
SCH 4U - Organic Test #2

1. Oxidations and Reductions are common reactions in organic chemistry. Whether an oxidation or reduction has occurred is often described in terms of loss or gain of oxygen or hydrogen. Fill in the blanks in the following table with either the word "loss" or "gain" as appropriate. If you do not remember this information from the reaction package, you may wish to write out an oxidation or reduction reaction to help with this determination (see below). Which is more important to consider, hydrogen or oxygen?

	oxygen	hydrogen
oxidation	gain	loss
reduction	loss	gain

3

Oxidations and reductions are often reversible reactions. Illustrate this point with an oxidation sequence and reduction sequence, both of which involve a second degree alcohol (could even be the same alcohol!!)



5

18

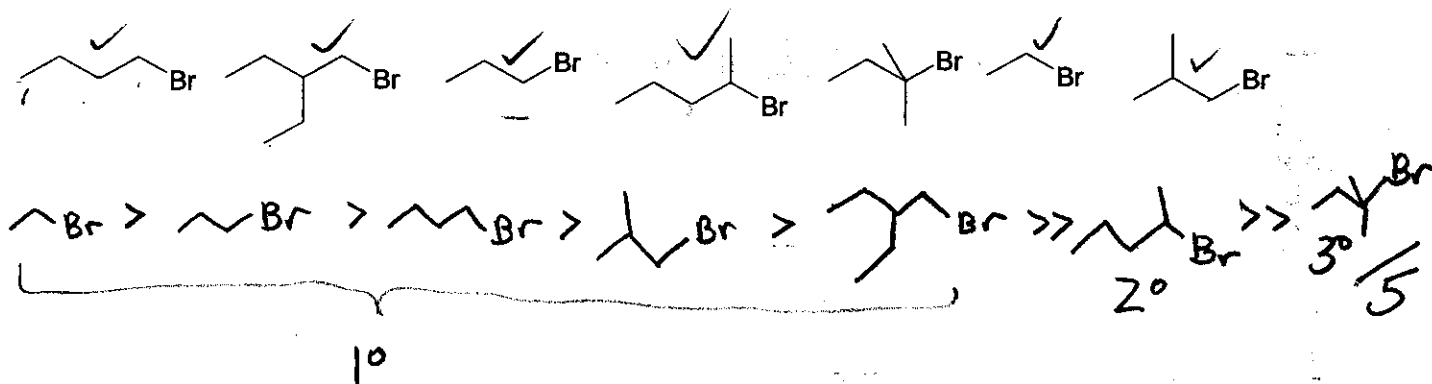
2. Briefing explain what each of the following mean:

conjugated double bond ring system	alternate double bonds in a (six membered) ring
electronic resonance	π bond in the double bonds can flip position without breaking valency rules
resonance stability	lowering of energy provided by electronic resonance
delocalized electrons	e^- that can move from one location to another

What effect does the above have on the relative reactivity of aromatic ring compounds? Why?

- lowers reactivity because e^- are lower energy and more stable (due to resonance stabilization)
- bonds are not true double bonds - more like bond and a halfs

3. Organize the following structures (write the structures out in order) in order of decreasing reactivity toward nucleophilic attack of the halogen. The "degree" of each alkyl bromide may be of interest in the is question. Label the degrees (i.e. 1° , 2° , 3°)



Name of property you have used: steric hindrance

Definition: non-reactive portion of a molecule blocks a reactive site

Primary Factor: degree of reactive center

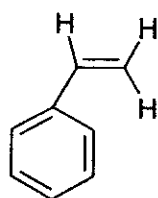
Secondary Factor length of carbon side-chains

4. Would you expect naphthalene ($C_{10}H_8$) to be soluble in hexane? Why? Would you expect naphthalene to be soluble in water? Why?

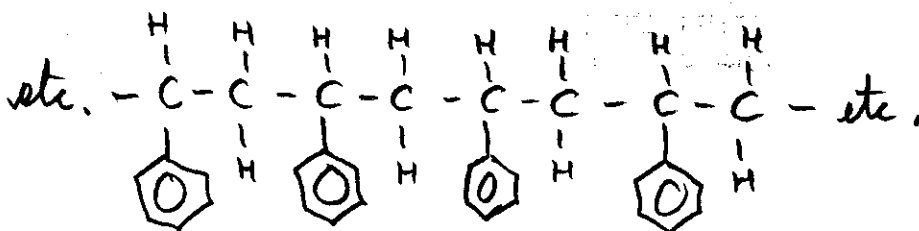
	solubility (yes or no)	explanation
hexane	yes	both non-polar, like dissolves like
water	no	water polar, $C_{10}H_8$ non-polar unlike

5. For the following monomers, write:
- whether the monomer will undergo and addition or condensation polymerization
 - a polymer structure that is at least four monomer units long
 - necessary reaction condition for addition reactions
 - stable by-product for condensation reactions

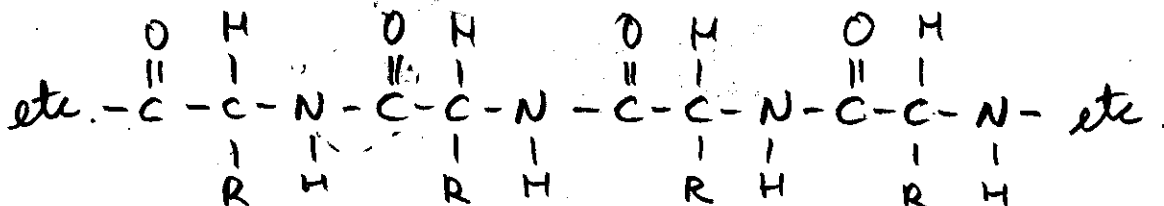
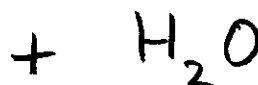
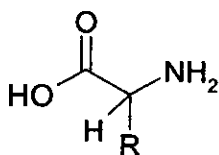
Type: addition



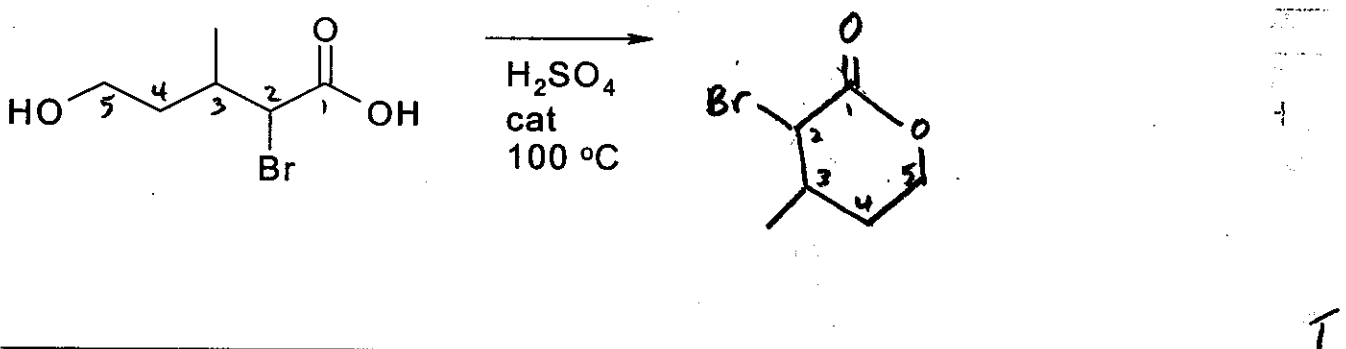
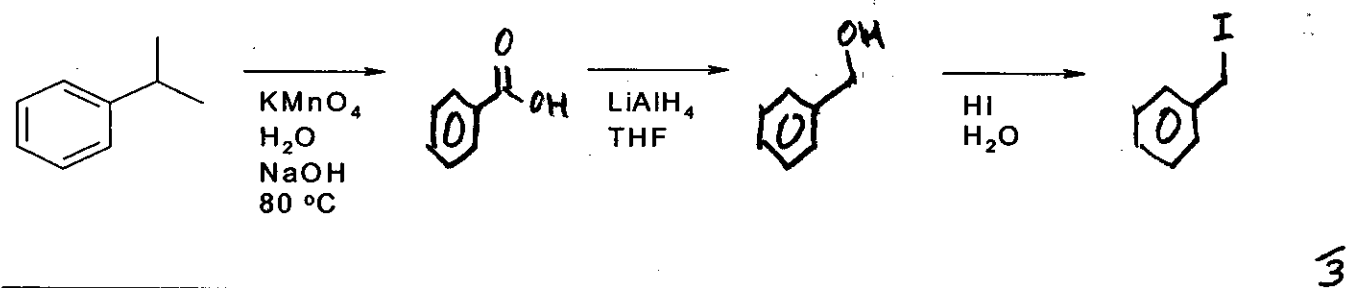
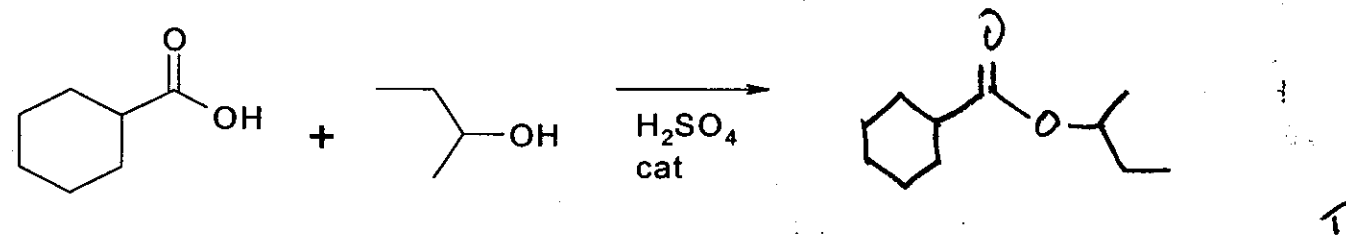
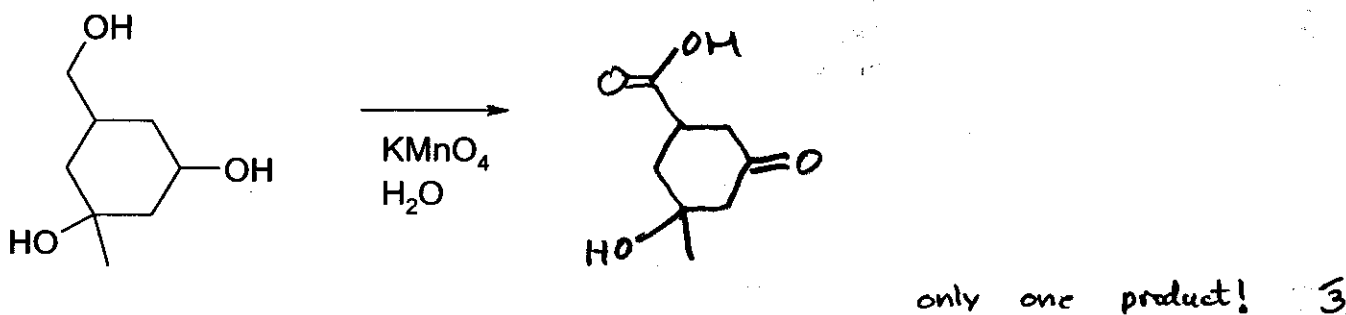
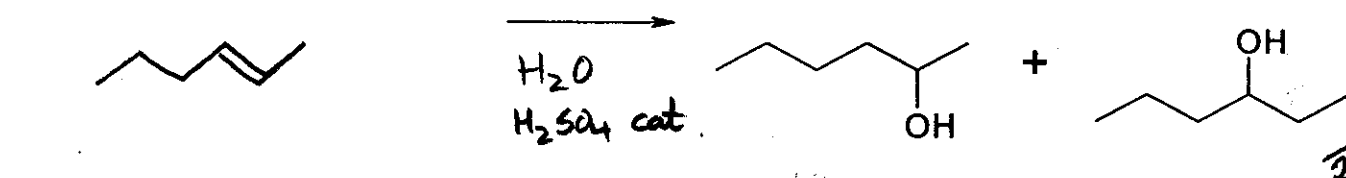
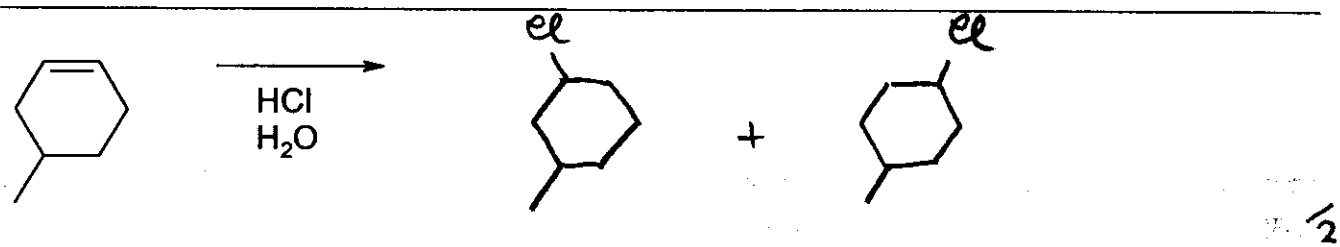
free radical
initiator

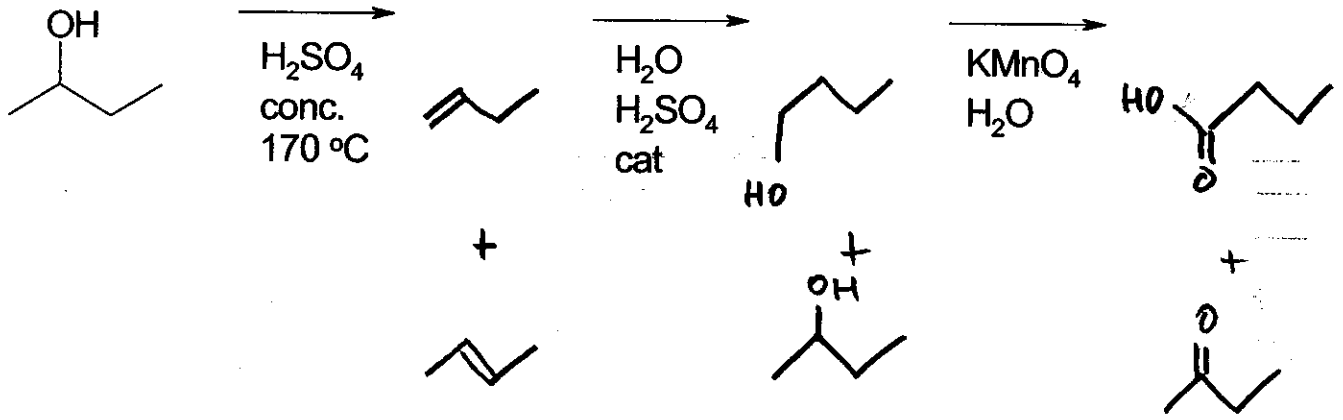


Type: condensation



6. Complete each reaction sequence to the best of your ability. This includes reaction condition under the arrow if necessary. If more than one reactant or product is expected, include the alternatives. The marking scheme may help with this.





6

6