

Chemistry 212

Test 2 (Chapters 17, 18, 19 & 16.7-16.8)

Name Answer Key

9 am October 14, 2009

60 points

1. (2) Circle the species within each group that would have the higher value of the indicated property

boiling point: $\text{CH}_3\text{CH}_2\text{OH}$ or $\text{CH}_3\text{CH}_2\text{Cl}$

pK_a : CH_3OH or CF_3OH

2. (2) Write the correct IUPAC name for each of the following (including the correct punctuation!):

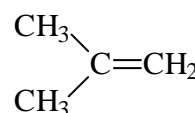
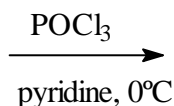
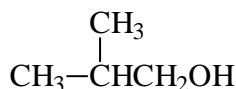
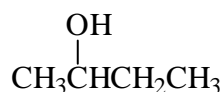
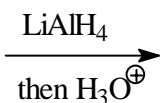
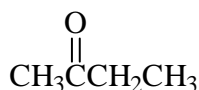
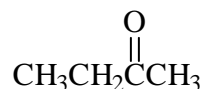
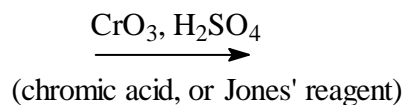
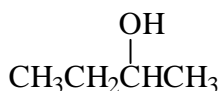
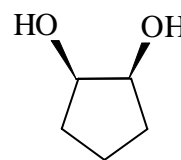
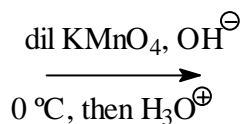
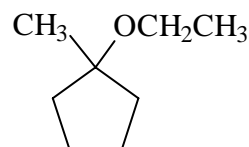
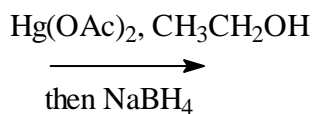
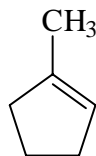
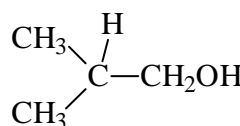
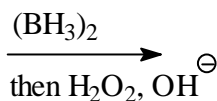
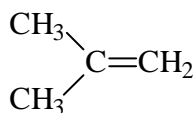
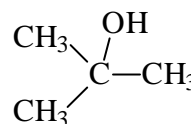
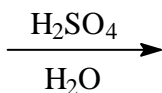
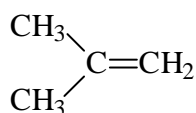


3-bromo-4-methyl-1-pentanol

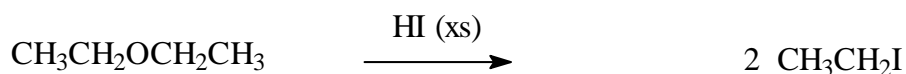
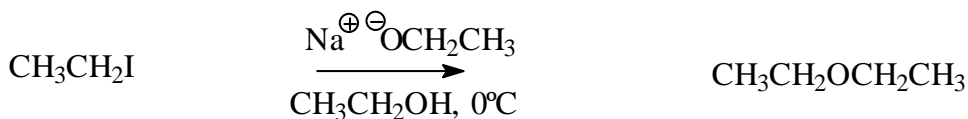
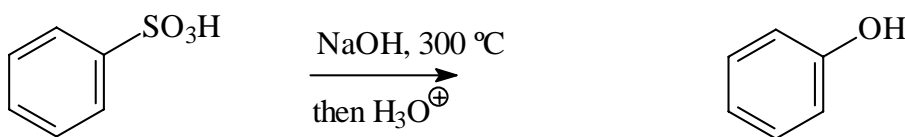
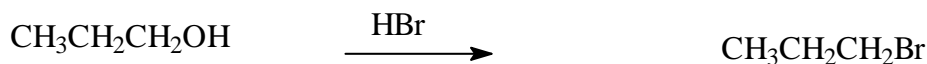
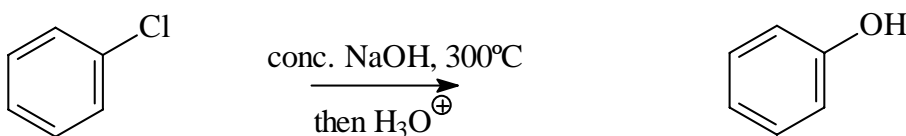
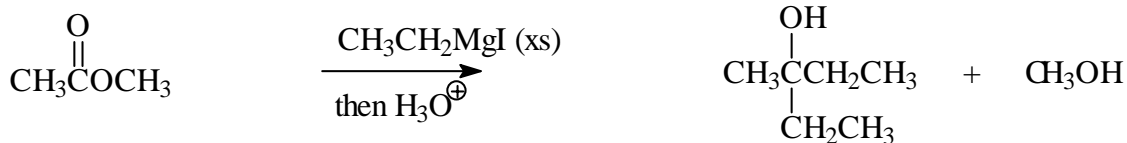
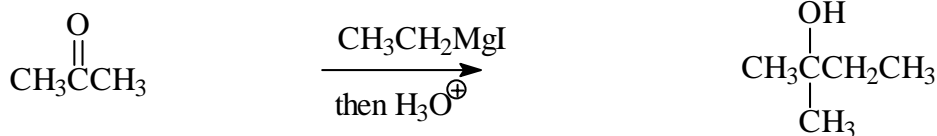


ethyl isopropyl ether (or 2-ethoxypropane)

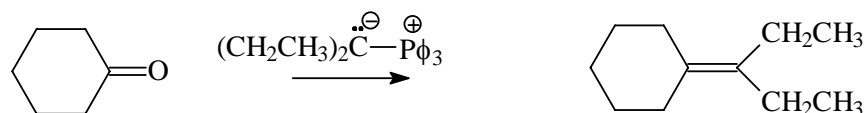
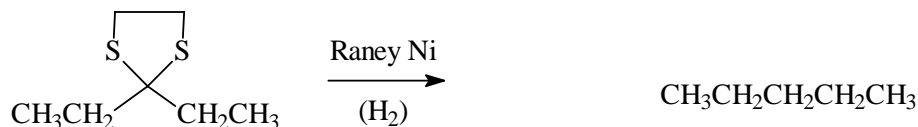
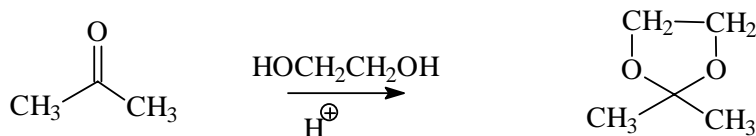
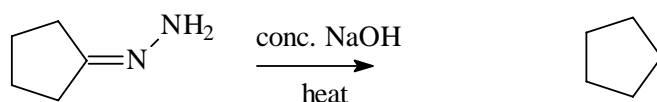
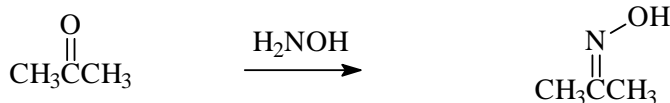
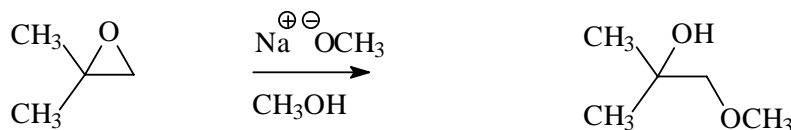
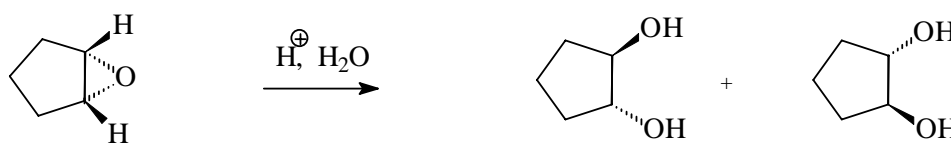
3. (14) Draw the structure of the major organic product of each of the following; if two organic products are formed in equal amounts, draw both products.



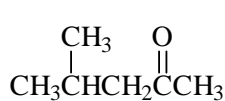
4. (18) Draw the structure of the major organic product of each of the following; if two organic products are formed in equal amounts, draw both products.



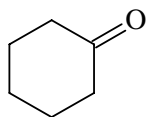
5. (14) Draw the structure of the major organic product of each of the following; if two organic products are formed in equal amounts, draw both products.



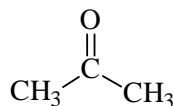
6. (4 points) Write the correct name under each of the following:



4-methyl-2-pentanone



cyclohexanone

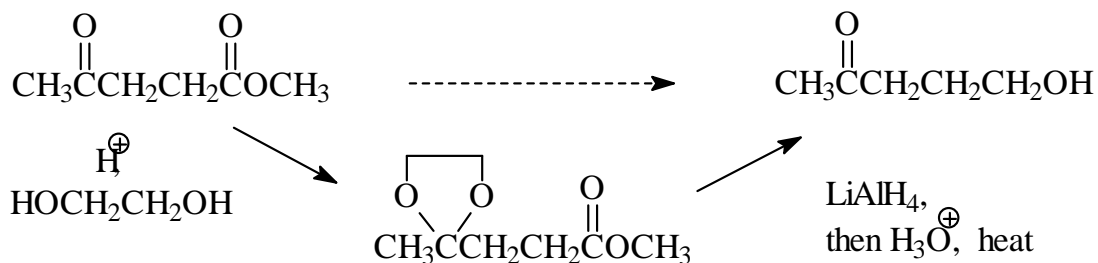


acetone



propanal

7. (3 points) Show how you could perform the following transformation. Be sure to indicate the reactants and conditions needed for each step, and draw the structure of the intermediate.



8. (3 points) Compound **P** (C_8H_8O) is reduced using sodium borohydride ($NaBH_4$) to compound **Q** ($C_8H_{10}O$). Compound **Q** reacts with concentrated sulfuric acid and heat to form compound **R** (C_8H_8). The IR spectrum of **P** is shown below. The carbon and proton NMR spectra of **Q** are also shown below. Draw the correct structures of **P**, **Q** and **R** next to the letters at the bottom of the page.

