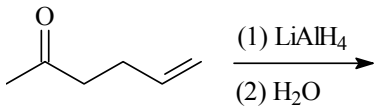
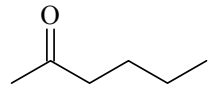
Chemistry 211 Name: _____
Chapter 15 Quiz #2

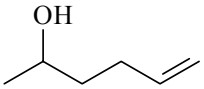
1. An alcohol has the same oxidation state as a(n):

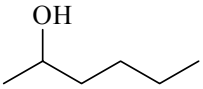
   1) ketone 2) alkene
   3) organolithium compound 4) alkyl halide

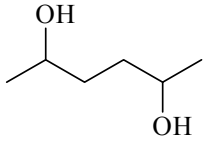
2. What is the product of the following reaction?



1) 

3) 

2) 

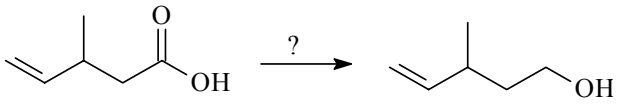
4) 

   1) 1 2) 2 3) 3 4) 4

3. In general, which one of the functional groups below does <u>not</u> react with $LiAlH_4$?

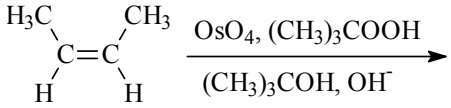
   1) esters 2) ketones
   3) ethers 4) carboxylic acids

4. Which of the following reagents would be used to carry out the transformation shown below?



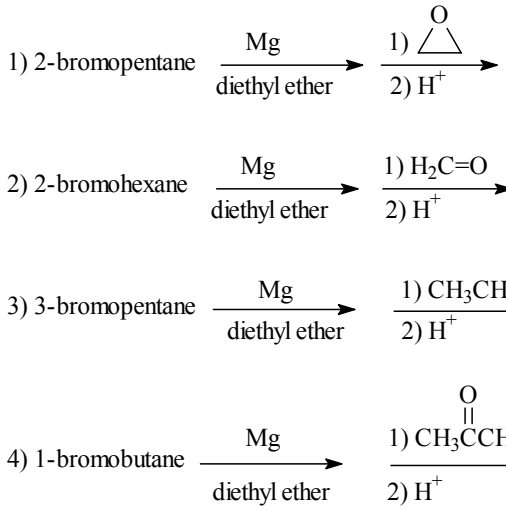
   1) $NaBH_4$ 2) $LiAlH_4$ 3) H_2/Pt 4) PCC/CH_2Cl_2

5. What is the product of the following reaction?



   1) $CH_3CH{=}O$
   2) *meso*-2,3-butanediol
   3) racemic (2R,3R) and (2S,3S)-2,3-butanediol
   4) *cis*-2,3-epoxybutane

6. Which of the following syntheses gives 3-methyl-1-hexanol?



1) 1 2) 2 3) 3 4) 4

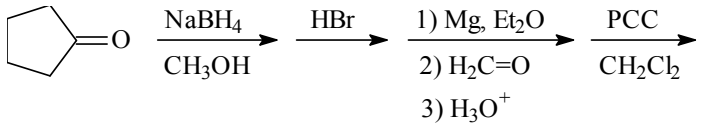
7. Which one of the following diols would cleave into two fragments with HIO_4?

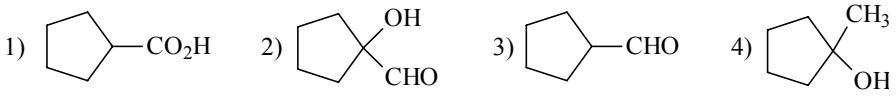
1) 1,3-hexanediol 2) 2,4-hexanediol
3) 3,4-hexanediol 4) 1,6-hexanediol

8. As a reducing agent, $NaBH_4$ donates a(n) _____ to a ketone or aldehyde.

1) proton 2) hydrogen atom
3) hydride ion 4) hydrogen molecule

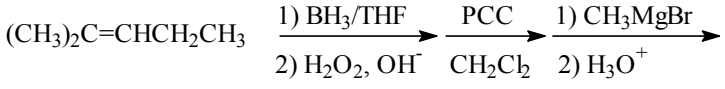
9. What is the product of the synthetic sequence below?





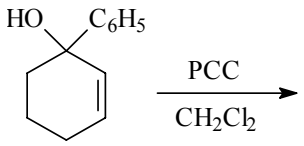
1) 1 2) 2 3) 3 4) 4

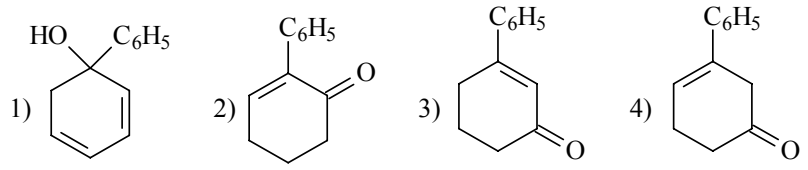
10. What is the final product of the following reactions?



1) 2,3-dimethyl-3-pentanol 2) 2,3-diemthyl-2-pentanol
3) 2,4-dimethyl-3-pentanol 4) 2,2-dimethyl-3-pentanol

11. The tertiary alcohol below was reacted with PCC in CH_2Cl_2 and gave a product, $C_{12}H_{12}O$. The product had a strong absorption in the IR spectrum at 1700 cm^{-1}. Predict which of the following is the product. (note: PCC is pyridinium chlorochromate, $[C_5H_5NH^+][ClCrO_3^-]$)



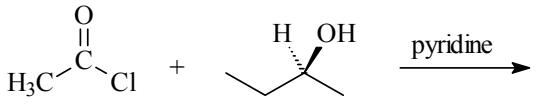


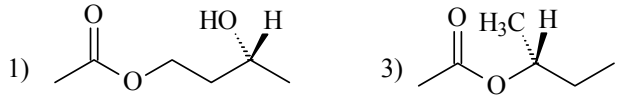
1) 1 2) 2 3) 3 4) 4

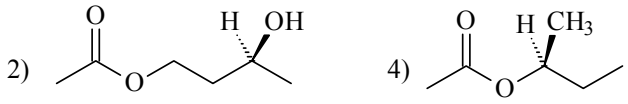
12. Which of the following reagents will convert cyclohexene into *cis*-1,2-cyclohexanediol?

1) OsO_4, $(CH_3)_3COOH$, $(CH_3)_3COH$, OH^-
2) HIO_4
3) O_3 followed by Zn/H_2O
4) CH_3CO_3H (peroxyacetic acid)

13. Which of the following is the product of the reaction shown below?

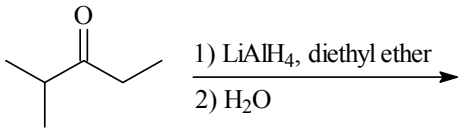






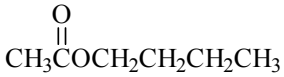
1) 1 2) 2 3) 3 4) 4

14. The alcohol product(s) of the reduction of 2-methyl-3-pentanone with $LiAlH_4$ is (are):

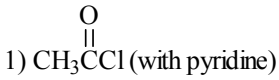


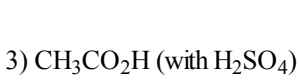
1) a single enantiomer.
2) a racemic mixture.
3) two diastereomers.
4) two constitutional isomers.

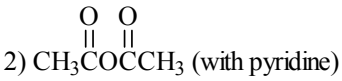
15. Which one of the following would <u>not</u> give butyl acetate when reacted with 1-butanol?

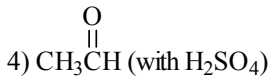


butyl acetate









1) 1 2) 2 3) 3 4) 4

Answer Key for Test "211c15q2.tst", 2/23/2004

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15	4	2	3
15	6	3	3
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15	10	5	2
15	12	6	1
15	14	7	3
15	16	8	3
15	18	9	3
15	20	10	1
15	22	11	3
15	24	12	1
15	26	13	4
15	28	14	2
15	30	15	4