Chemistry 211 Name: _____
Chapter 16 Quiz #1

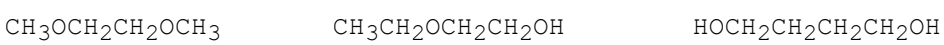
1. The name of the following ether is:

1) butyl isopropyl ether. 2) isobutyl propyl ether.
3) *sec*-butyl isopropyl ether. 4) butyl propyl ether.

2. The C-O-C bond angle in dimethyl ether is closest to:

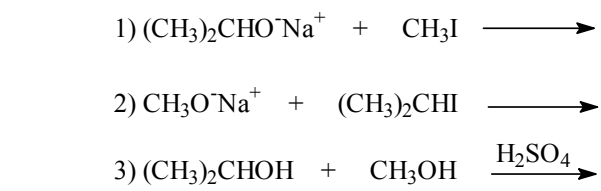
1) 90^0 2) 109^0 3) 120^0 4) 180^0

3. Match the boiling points with the following three isomers of $C_4H_{10}O_2$.



1)	85^0C	230^0C	135^0C
2)	230^0C	85^0C	135^0C
3)	85^0C	135^0C	230^0C
4)	135^0C	230^0C	85^0C

4. Of the following, which yields isopropyl methyl ether as the major product with little or no byproducts?



1) $(CH_3)_2CHO^-Na^+ + CH_3I \longrightarrow$

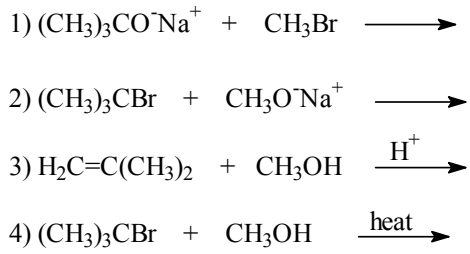
2) $CH_3O^-Na^+ + (CH_3)_2CHI \longrightarrow$

3) $(CH_3)_2CHOH + CH_3OH \xrightarrow{H_2SO_4}$

4) all three give isopropy methyl ether as the major product

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

5. Which of the following is <u>not</u> a good method to make *tert*-butyl methyl ether?



1) $(CH_3)_3CO^-Na^+ + CH_3Br \longrightarrow$

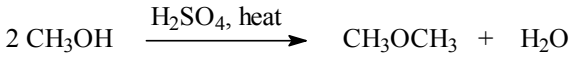
2) $(CH_3)_3CBr + CH_3O^-Na^+ \longrightarrow$

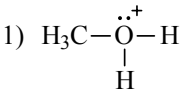
3) $H_2C{=}C(CH_3)_2 + CH_3OH \xrightarrow{H^+}$

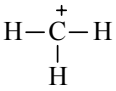
4) $(CH_3)_3CBr + CH_3OH \xrightarrow{heat}$

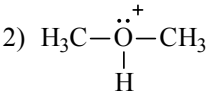
1) 1 2) 2 3) 3 4) 4

6. Which of the following is not an intermediate in the reaction below?



1) 

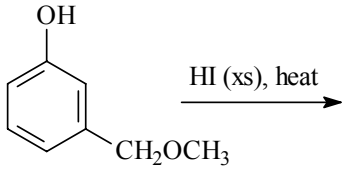
3) 

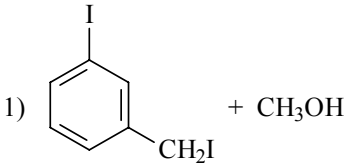
2) 

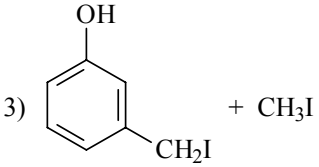
4) they are all intermediates

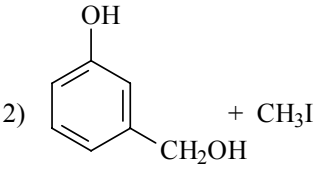
1) 1 2) 2 3) 3 4) 4

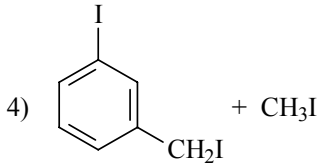
7. What are the products of the reaction below?



1) 

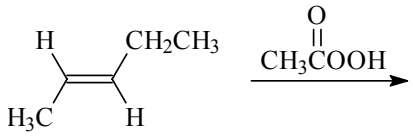
3) 

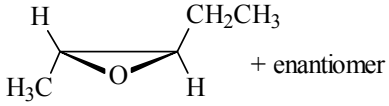
2) 

4) 

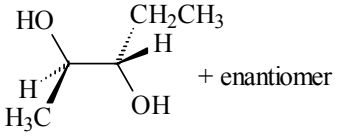
1) 1 2) 2 3) 3 4) 4

8. What is the product of the following reaction?

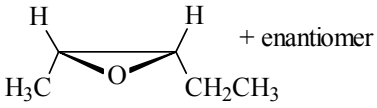


1) 

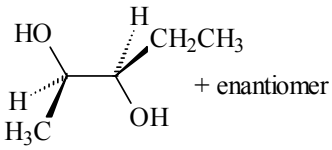
+ enantiomer

3) 

+ enantiomer

2) 

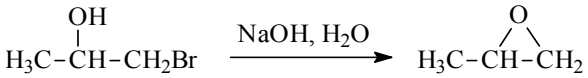
+ enantiomer

4) 

+ enantiomer

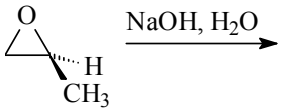
1) 1 2) 2 3) 3 4) 4

9. The reaction shown below can be described as an:



1) acid-base reaction followed by an intramolecular Williamson ether synthesis.
2) acid-base reaction followed by an intramolecular S_N1 reaction.
3) E2 reaction followed by an addition reaction to a double bond.
4) S_N2 reaction followed by an intramolecular Williamson ether synthesis.

10. What is the product of the following reaction?



1) (S)-1,2-propanediol
2) (R)-1,2-propanediol
3) racemic mixture of 1,2-propanediol
4) 1,3-propanediol

11. Which of the following reacts the fastest with NaOH, H_2O?

1) ethylene oxide (oxirane)
2) *cis*-2,3-dimethyloxirane
3) *trans*-2,3-dimethyloxirane
4) 2,2,3,3-tetramethyloxirane

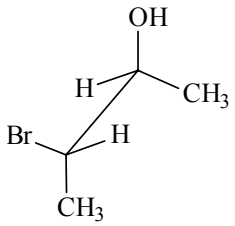
12. What reagents and/or reaction sequence below would convert *trans*-3-hexene to *meso*-3,4-hexanediol?

1) OsO_4, $(CH_3)_3COOH$, $(CH_3)_3COH$, NaOH
2) B_2H_6/diglyme followed by H_2O_2/NaOH
3) O_3 followed by Zn/H_2O
4) CH_3CO_3H followed by NaOH/H_2O

13. Which of the following yields an epoxide on treatment with NaOH?

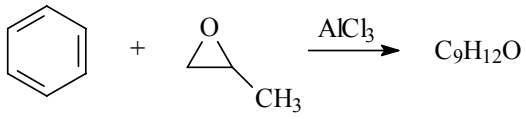
1) *cis*-2-bromocyclohexanol
2) *trans*-2-bromocyclohexanol
3) *cis*-1,2-cyclohexanediol
4) 3-bromocyclohexene

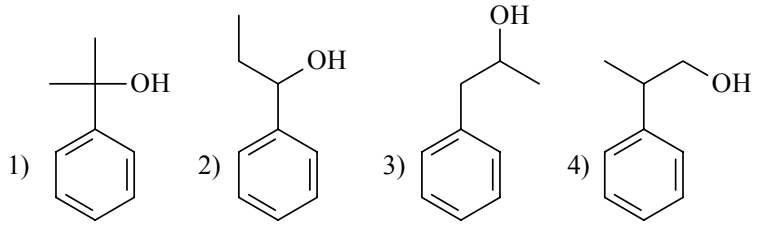
14. Which of the following epoxides is formed when KOH is added to the optically active halohydrin shown below?



1) *trans*-(2S,3S)-2,3-dimethyloxirane
2) *trans*-(2R,3R)-2,3-dimethyloxirane
3) 2,2-dimethyloxirane
4) *meso*-2,3-dimethyloxirane

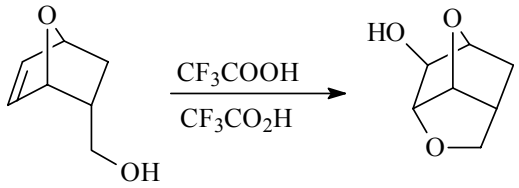
15. Benzene reacts with 2-methyloxirane in the presence of $AlCl_3$ to give a product with a formula of $C_9H_{12}O$. Identify the product.





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

16. Propose a mechanism for the reaction shown below. (Hint: CF_3CO_2H is a strong acid.)



Propose a synthesis of the bicycloalkene starting material above. (Hint: Furan can be used as a diene in Diels-Alder reactions. What dieneophile would work best?)

Answer Key for Test "211c16q1.tst", 2/23/2004

No. in Q-Bank		No. on Test	Correct Answer
16	1	1	1
16	3	2	2
16	5	3	3
16	7	4	1
16	9	5	2
16	11	6	3
16	13	7	3
16	15	8	1
16	17	9	1
16	19	10	1
16	21	11	1
16	23	12	4
16	25	13	2
16	27	14	4
16	29	15	4
16	31	16	