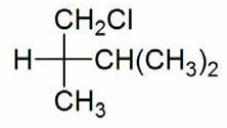
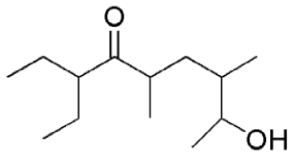
Dr Andy Frazer
CHM2210
Assignment 5

1. Designate the following compound as *R* or *S*.



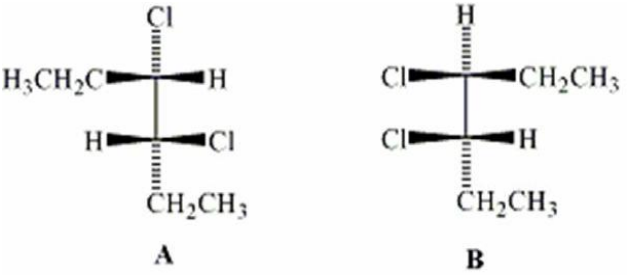
A. *R*
B. *S*

2. How many chiral centers are present in the following compound?



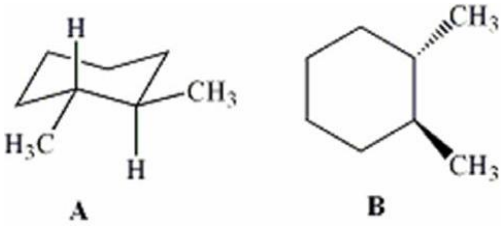
A. 0
B. 1
C. 2
D. 3
E. 4

3. Of compounds **A** and **B** drawn below:



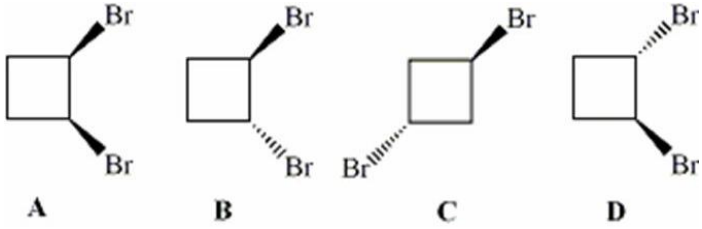
A. **A** and **B** are enantiomers.
B. **A** and **B** are diastereomers.
C. **A** and **B** are constitutional isomers.
D. **A** and **B** are two conformers of the same molecule.
E. **A** and **B** are not isomers.

4. Molecules **A** and **B** drawn below are:



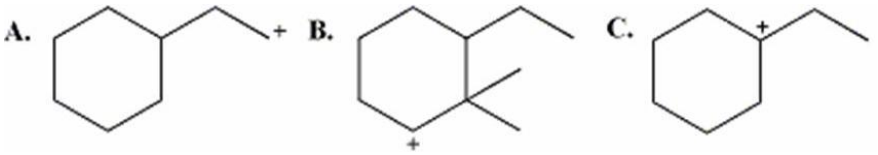
A. **A** and **B** are constitutional isomers.
B. **A** and **B** are enantiomers.
C. **A** and **B** are diastereomers.
D. **A** and **B** are two representations of the same compound.
E. **A** and **B** are both meso compounds.

5. An equal mixture of compounds **B** and **C** is:



A. optically active
B. optically inactive
C. you can't tell

6. Rank the following compounds in order of *increasing stability.* List by lowest stability first, intermediate stability, then most stable.



A. A, B, C
B. A, C, B
C. C, B, A
D. B, C, A
E. C, A, B

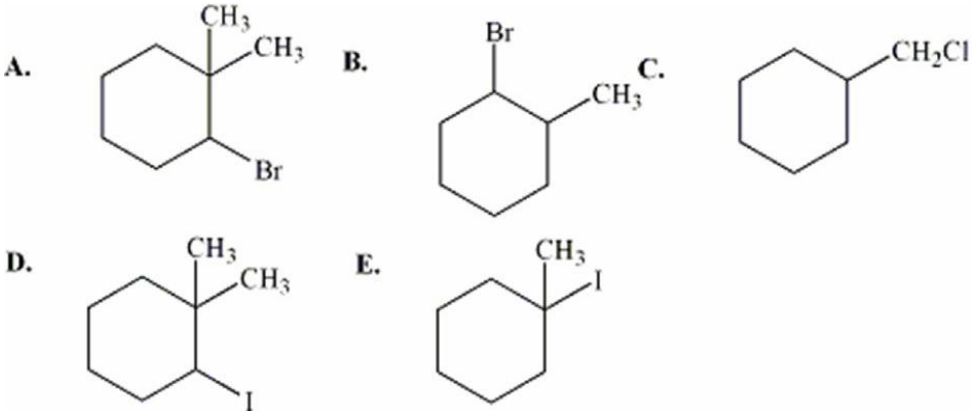
7. Dimethyl sulfide (CH_3SCH_3) is a(n) _____solvent.

A. protic
B. aprotic

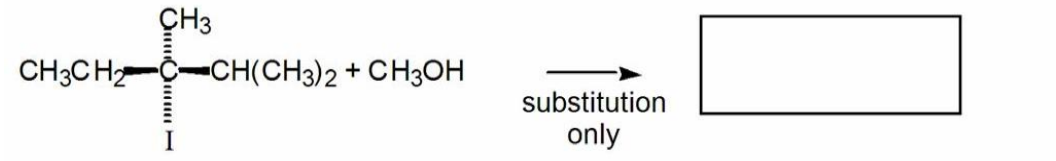
8. Which of the following is the best leaving group?

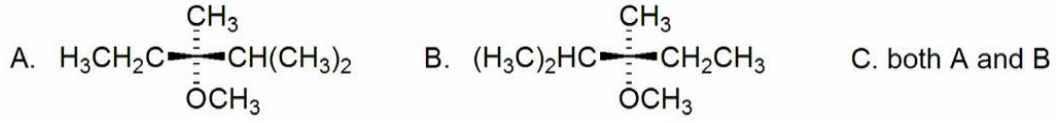
A. H_2O
B. OH^-
C. NH_2^-
D. CH_3^-
E. NH_3
F. H^-

9. Which of the following alkyl halides reacts fastest in an S_N1 reaction?

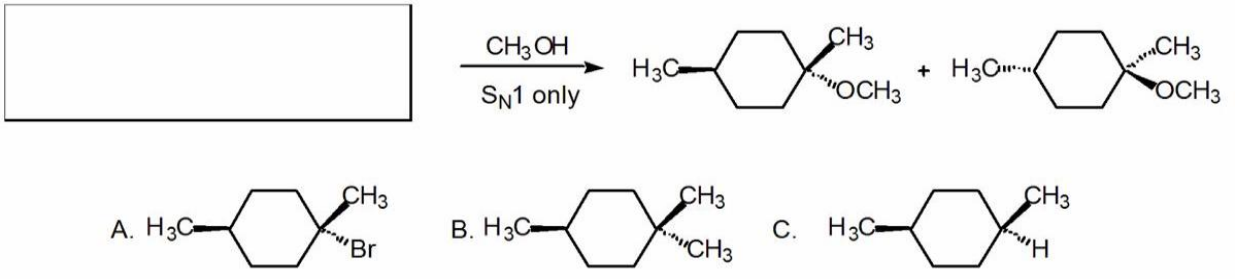


9. What is the product?





10. What is the starting material in the reaction below?

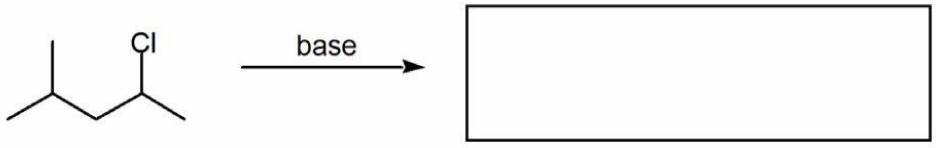


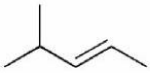
A.

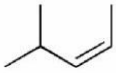
B.

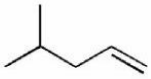
C.

11. Draw the elimination products formed by treating the starting material with a base.



A. 

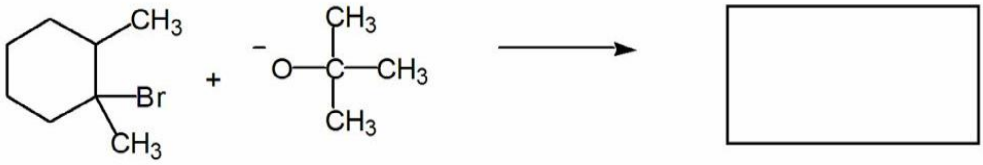
B. 

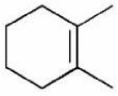
C. 

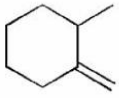
D. A and B

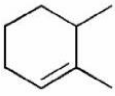
E. A, B and C

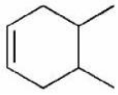
12. What is the product?



A. 

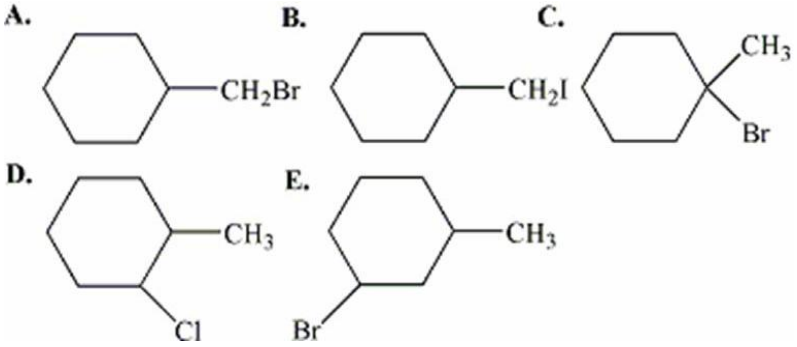
B. 

C. 

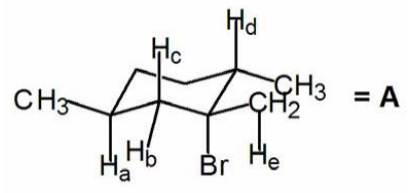
D. 

E. A, B and C

13. Which of the following halides is most reactive in an elimination reaction having first order kinetics?

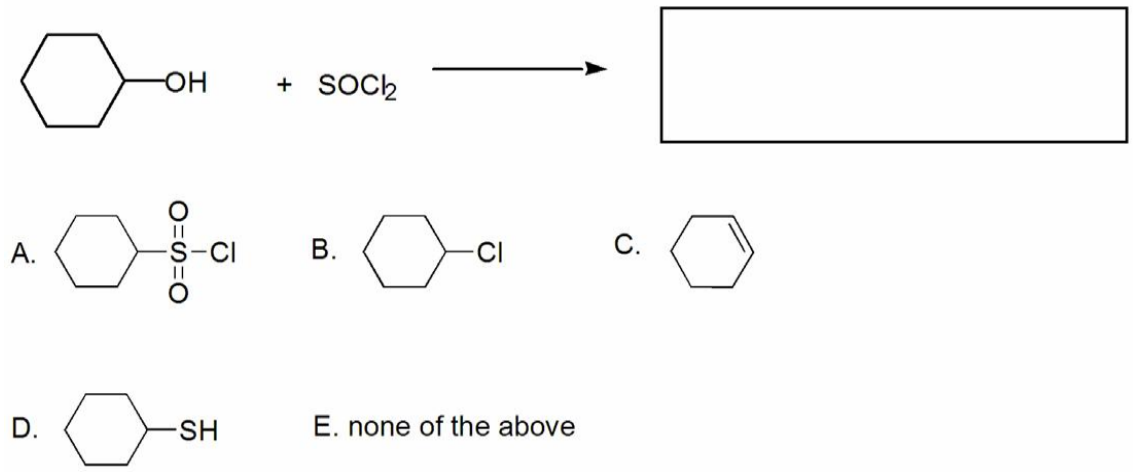


14. Which of the labeled protons in compound A is most readily abstracted under conditions of E2 elimination?

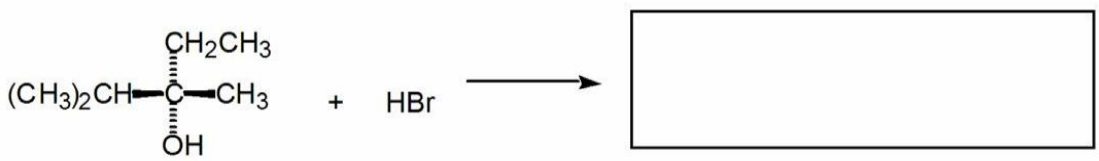


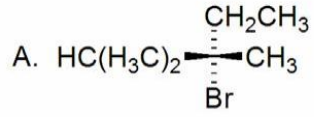
A. Ha
B. Hb
C. Hc
D. Hd
E. He

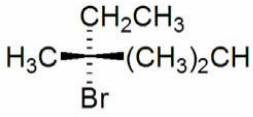
15. What is the product?

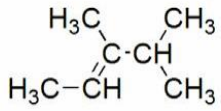


16. Determine the product.



A. 

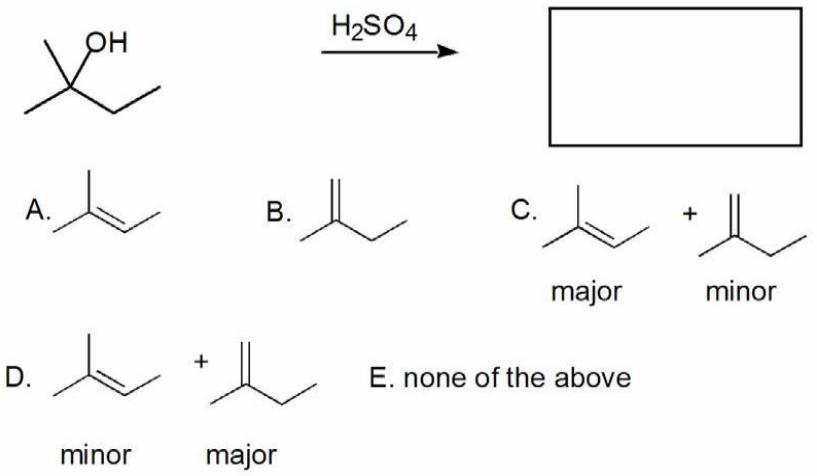
B. 

C. 

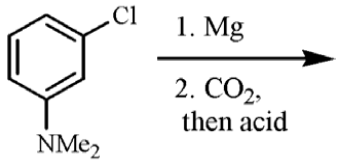
D. A and B

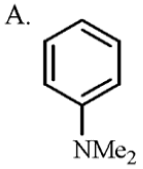
E. none of the above

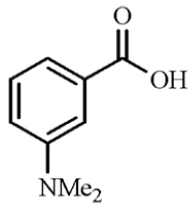
17. Predict the product.

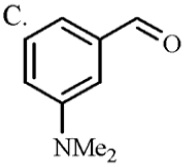


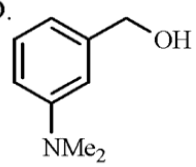
18. What is the product?



A. 

B. 

C. 

D. 

Key

1.B

2.D

3.B

4.B

5.A

6.A

7.B

8.E

9.C

10.A

11.E

12.E

13.C

14.D

15.B

16.D

17.C

18.B