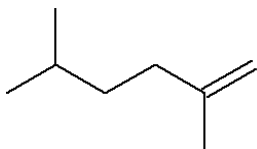


Chemistry 210 - Chapter 5 - Quiz 2

Student: _____

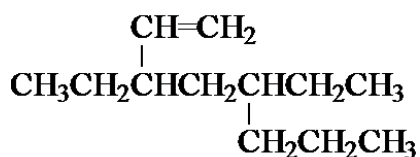
1. What is the IUPAC name of the following compound?



- A. 2,5-dimethyl-1-hexene
 B. 1,4-dimethyl-1-hexene
 C. 2,5-dimethyl-2-hexene
 D. 2,5-dimethyl-5-hexene
2. What is the IUPAC name of the following compound?



- A. 3-ethyl-8-methyl-3-nonene
 B. 7-ethyl-2-methyl-6-nonene
 C. 1,1-diethyl-6-methyl-3-heptene
 D. 3-ethyl-7-isopropyl-3-octene
3. How many isomeric alkenes of formula C_5H_{10} , including stereoisomers, are possible?
- A. three
 B. four
 C. five
 D. six
4. What is the IUPAC name of the following compound?



- A. 3-ethyl-propyl-1-heptene
 B. ethyl-3-vinyloctane
 C. 4,6-diethyl-1-octene
 D. 3,5-diethyl-1-octene

5. Which of the following alkenes exhibit E-Z isomerism?

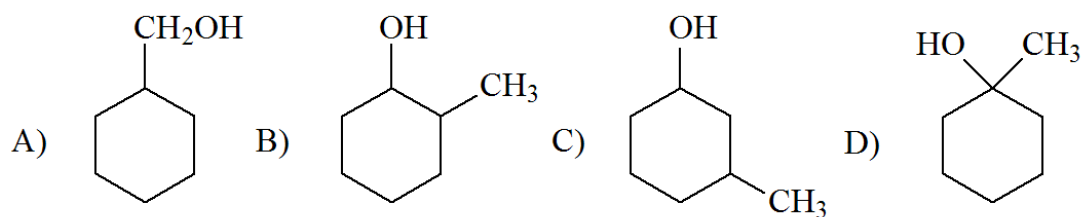
I. 1-chloropropene II. 2-chloropropene III. 3-chloropropene

- A. only I
- B. I and II
- C. II and III
- D. I and III

6. Which of the following C_6H_{12} isomers has the highest heat of combustion?

- A. 1-hexene
- B. *trans*-3-hexene
- C. *cis*-3-hexene
- D. 2-methyl-2-pentene

7. Which alcohol below would undergo acid-catalyzed dehydration most readily?

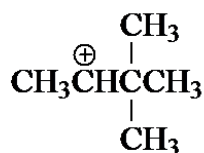


- A. A
- B. B
- C. C
- D. D

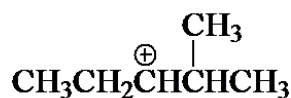
8. Which of the following carbocations is(are) likely to undergo a rearrangement?



I



II



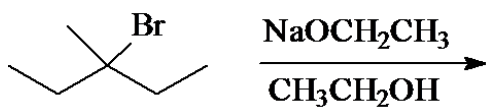
III

- A. only I
- B. I and III
- C. II and III
- D. I, II, and III

9. Which of the following expressions is the experimentally observed rate law for an E2 reaction of an alkyl halide?

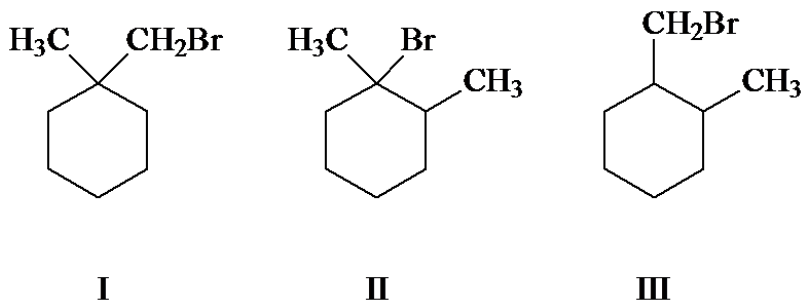
- A. rate = $k[\text{RX}]$
- B. rate = $k[\text{RX}][\text{base}]$
- C. rate = $k[\text{RX}]^2$
- D. rate = $k[\text{base}]$

10. How many isomeric alkenes are possible, including stereoisomers, in the following reaction?



- A. two
- B. three
- C. four
- D. five

11. Which of the following cannot undergo an E2 reaction?

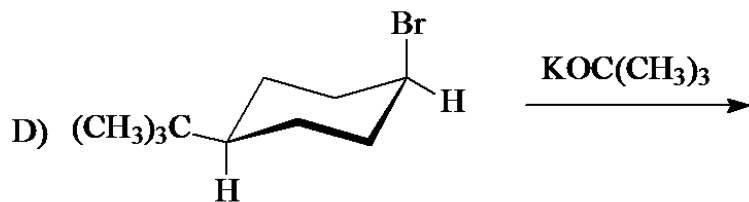
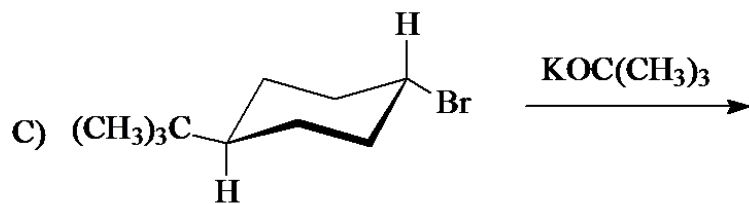
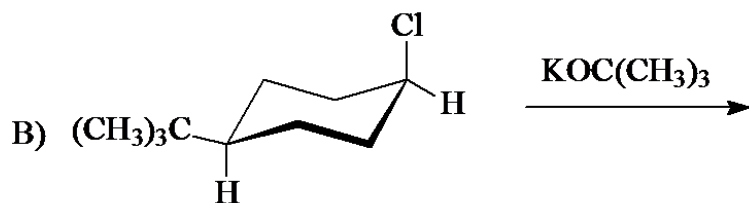
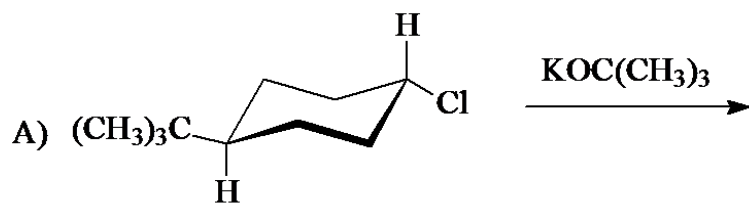


- A. only I
- B. only II
- C. only III
- D. I and III

12. When a strong base is used in the elimination reaction of an alkyl halide the mechanism, in general, is:

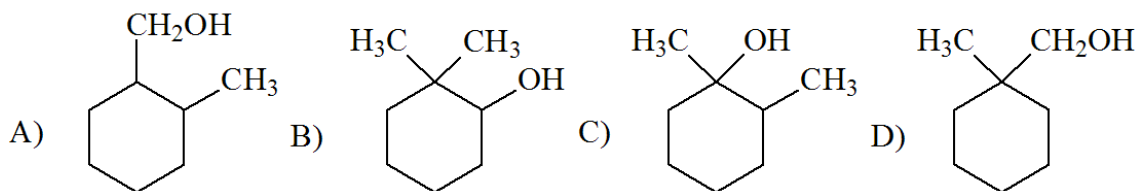
- A. E1
- B. E2
- C. E1 for tertiary halides, E2 for primary and secondary halides
- D. E2 for tertiary halides, E1 for primary and secondary halides

13. Which of the following would have the fastest rate of reaction to form 4-*tert*-butylcyclohexene?



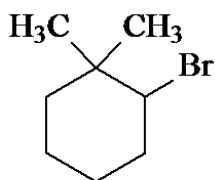
- A. A
- B. B
- C. C
- D. D

14. Which of the following does not give 1,2-dimethylcyclohexene as one of the acid-catalyzed dehydration products?

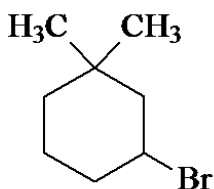


- A. A
- B. B
- C. C
- D. D

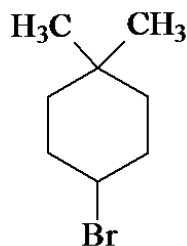
15. Which of the following compounds gives a single E2 product on reaction with sodium ethoxide, $\text{NaOCH}_2\text{CH}_3$?



I

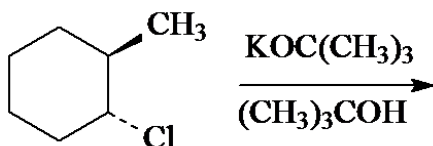


II



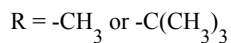
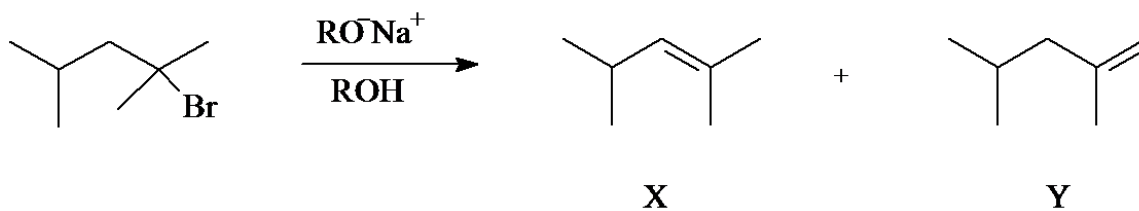
III

- A. I and II
 B. I and III
 C. II and III
 D. I, II, and III
16. If the following E2 reaction proceeds through an anti-periplanar transition state, what product or products are expected?



- A. only 1-methylcyclohexene
 B. only 3-methylcyclohexene
 C. only 4-methylcyclohexene
 D. equal amounts of 1-methylcyclohexene and 3-methylcyclohexene
17. Zaitsev's rule can be used to predict the major product for which of the following reactions?
- A. 2-methylpentane + Br_2 (with light)
 B. 2-bromo-2-methylpentane + $\text{NaOCH}_2\text{CH}_3$ (in ethanol)
 C. 2-methyl-2-pentanol + PBr_3
 D. 2-methyl-2-pentanol + HCl

18. Consider the following reaction.



Which statement(s) below is(are) correct?

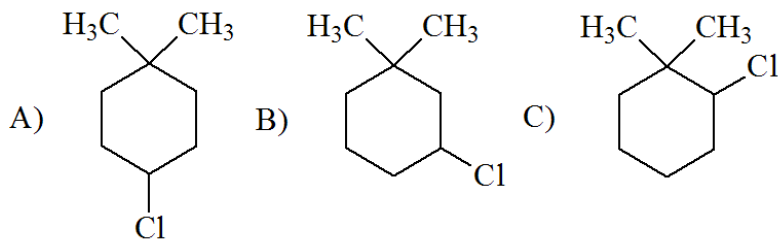
- I. X is the major product based on Zaitsev's rule.
- II. The X:Y ratio is greater when $\text{R} = -\text{CH}_3$ than when $\text{R} = -\text{C}(\text{CH}_3)_3$.
- III. The X:Y ratio is greater when $\text{R} = -\text{C}(\text{CH}_3)_3$ than when $\text{R} = -\text{CH}_3$.

- A. I and II
- B. I and III
- C. only II
- D. only III

19. Which one of the following compounds cannot undergo an E2 reaction?

- A. 1-bromo-2,2-dimethylbutane
- B. 1-bromo-2,3-dimethylbutane
- C. 1-bromo-3,3-dimethylbutane
- D. 2-bromo-2,3-dimethylbutane

20. Which of the following compounds gives 4,4-dimethylcyclohexene as the exclusive E2 product.



- A. A
- B. B
- C. C
- D. both A and B

Chemistry 210 - Chapter 5 - Quiz 2 Key

1. A
2. A
3. D
4. D
5. A
6. A
7. D
8. D
9. B
10. B
11. A
12. B
13. D
14. D
15. B
16. B
17. B
18. A
19. A
20. A

Chemistry 210 - Chapter 5 - Quiz 2 **Summary**

<i>Category</i>	<i># of Questions</i>
Carey - 005 Structure...	20