CHEM 2410 Fall 2015 – Mid-Term Exam 2
10-28-15

Time: 5:45pm – 6:45pm

Student Name: _____

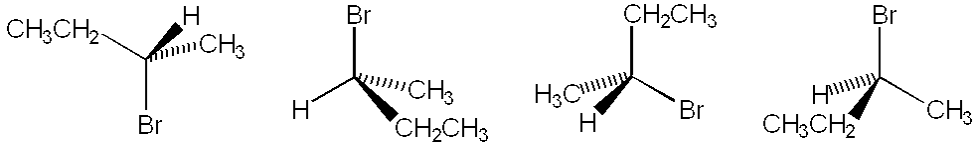
Student Number: _____

Instructor:	Prof. Andreana
Room #:	RH 1520

Exam #2a Chem 2410

Multiple Choice
Identify the choice that best completes the statement or answers the question.

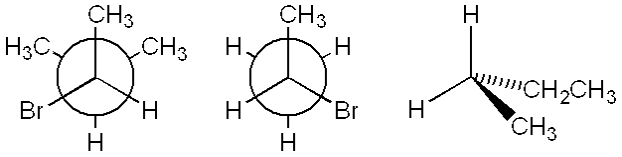
____ 1. Which of the following structures is different from the other three?



1 **2** **3** **4**

a. **1**
b. **2**
c. **3**
d. **4**

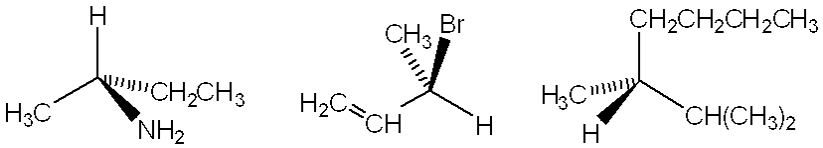
____ 2. Which of the following compounds is/are chiral?



1 **2** **3**

a. only **1**
b. only **1** and **2**
c. only **2** and **3**
d. **1**, **2** and **3**

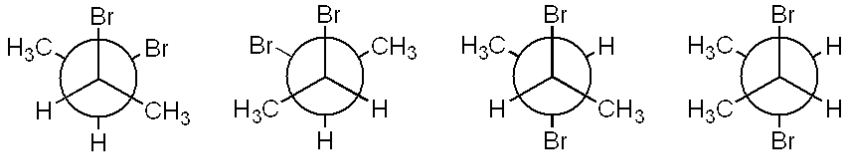
____ 3. Which of the following have the *R* configuration?



1 **2** **3**

a. only **1**
b. only **2**
c. only **1** and **2**
d. **1**, **2** and **3**

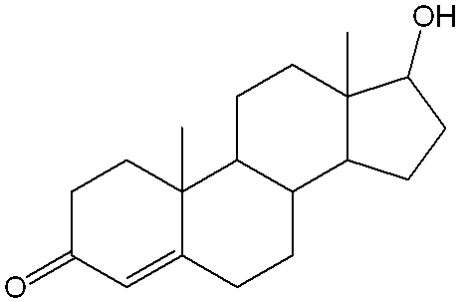
____ 4. Which of the following Newman projections represents (2*R*,3*R*)-dibromobutane?



1 2 3 4

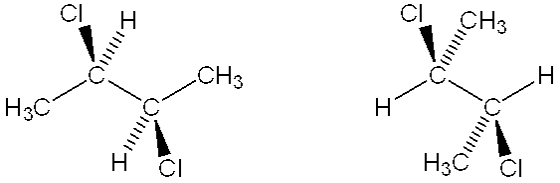
a. **1**
b. **2**
c. **3**
d. **4**

____ 5. How many stereogenic centers are there in the following molecule (the naturally occurring stereoisomer is the male hormone testosterone)?



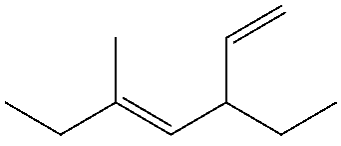
a. Three
b. Four
c. Six
d. Seven

____ 6. What is the relationship between the following pair of structures?



a. They are enantiomers
b. They are diastereomers
c. The are constitutional isomers
d. They are identical

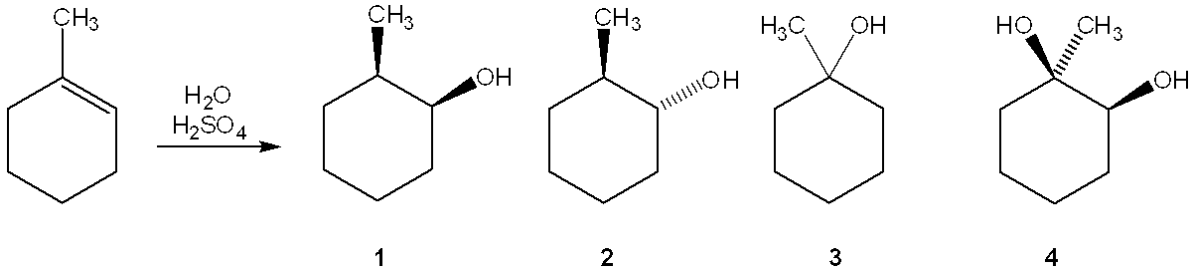
____ 7. What is the IUPAC name of the following compound?



a. (*Z*)-3-ethyl-5-methyl-1,4-heptadiene

b. (*E*)-3-ethyl-5-methyl-1,4-heptadiene
c. (*E*)-3-methyl-5-vinyl-3-heptene
d. (*Z*)-1,3-diethyl-1-methyl-1,4-pentadiene

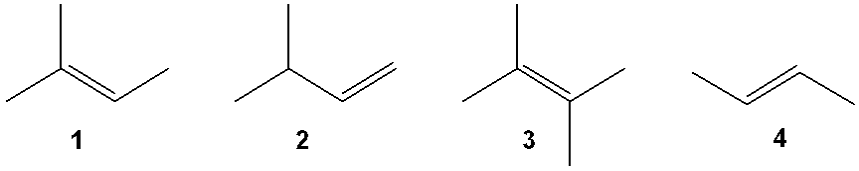
____ 8. What is the major organic product obtained from the following reaction?



1 2 3 4

a. **1**
b. **2**
c. **3**
d. **4**

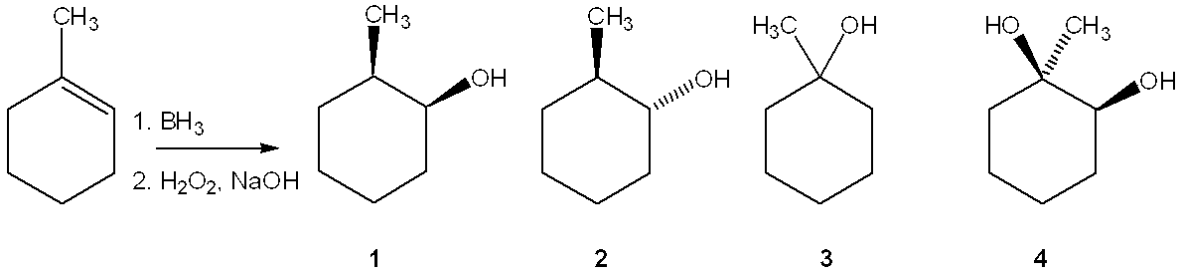
____ 9. Which of the following alkenes is most likely to undergo rearrangement upon acid-catalyzed hydration (treatment with aqueous H_2SO_4)?



1 2 3 4

a. **1**
b. **2**
c. **3**
d. **4**

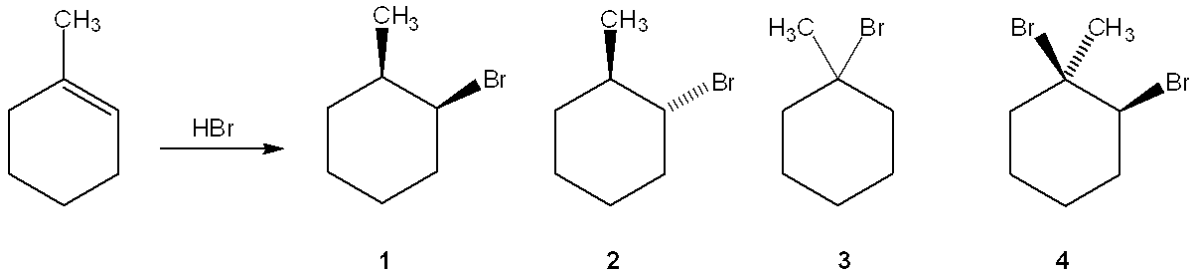
____ 10. What is the major organic product obtained from the following reaction?



1 2 3 4

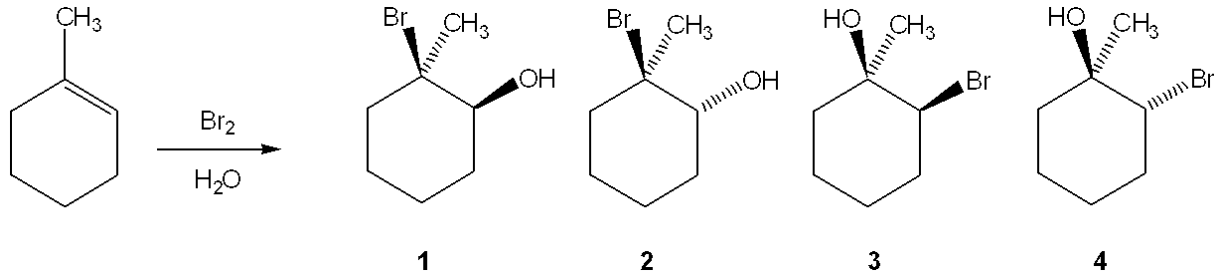
a. **1**
b. **2**
c. **3**
d. **4**

____ 11. What is the major organic product obtained from the following reaction?



a. **1**
b. **2**
c. **3**
d. **4**

____ 12. What is the major organic product obtained from the following reaction?



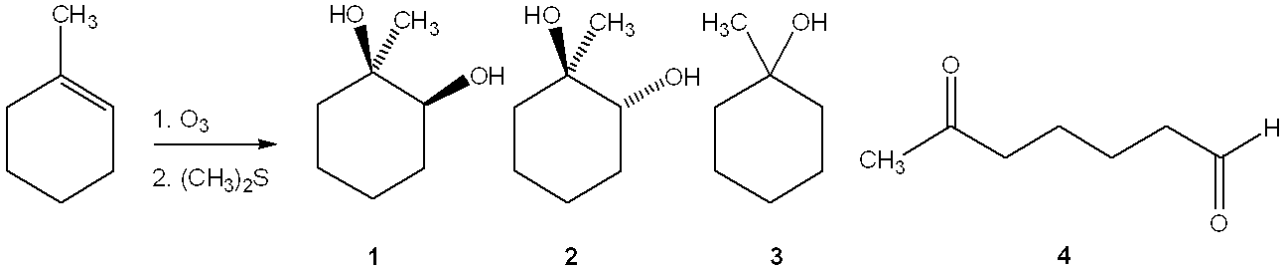
a. **1**
b. **2**
c. **3**
d. **4**

____ 13. What is (are) the major organic product(s) obtained from the following reaction?

1. (2*R*,3*R*)-dibromobutane
2. (2*S*,3*S*)-dibromobutane
3. *meso*-2,3-dibromobutane

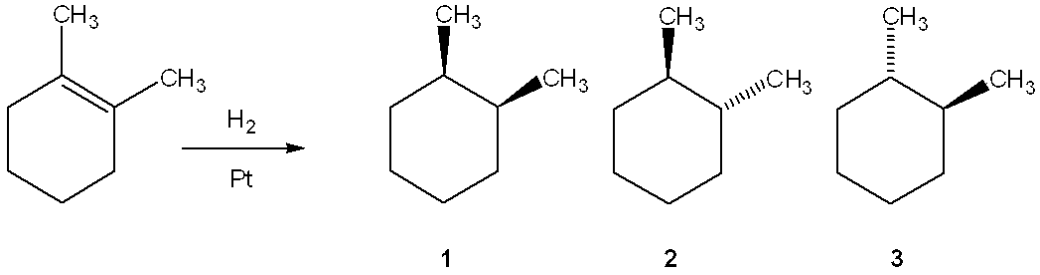
a. only **1**
b. only **2**
c. only **3**
d. only **1** and **2**

____ 14. What is the major organic product obtained from the following reaction?



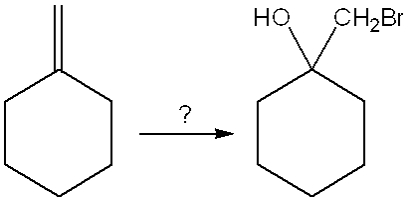
a. **1**
b. **2**
c. **3**
d. **4**

____ 15. What is (are) the major organic product(s) obtained from the following reaction?



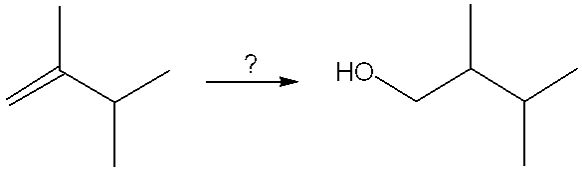
a. only **1**
b. only **2**
c. only **3**
d. only **2** and **3**

____ 16. What is the best choice of reagent to perform the following transformation?



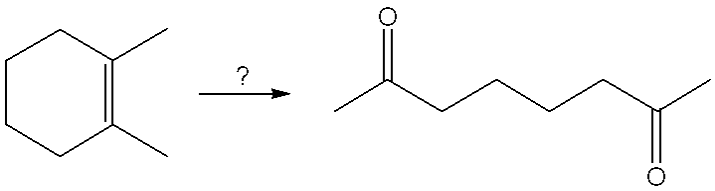
a. Br_2
b. HBr
c. Br_2, H_2O
d. *N*-bromosuccinimide

____ 17. What is the best choice of reagent(s) to perform the following transformation?



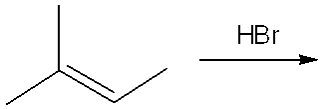
a. H_2O, H_2SO_4
b. $Hg(OAc)_2$ and H_2O ; followed by $NaBH_4$
c. B_2H_6; followed by H_2O_2, NaOH
d. OsO_4; followed by $NaHSO_3$

____ 18. What is the best choice of reagent(s) to perform the following transformation?



a. O_3; followed by $(CH_3)_2S$
b. $Hg(OAc)_2$ and H_2O; followed by $NaBH_4$
c. BH_3; followed by H_2O_2, NaOH
d. OsO_4; followed by $NaHSO_3$

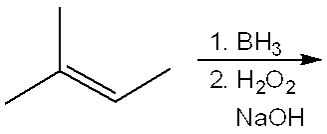
____ 19. What is (are) the major organic product(s) obtained from the following reaction?



1. (*R*)-2-bromo-3-methylbutane
2. (*S*)-2-bromo-3-methylbutane
3. 2-bromo-2-methylbutane

a. only **1**
b. only **2**
c. only **3**
d. only **1** and **2**

____ 20. What is (are) the major organic product(s) obtained from the following reaction?



1. (*R*)-3-methyl-2-butanol
2. (*S*)-3-methyl-2-butanol
3. 2-methyl-2-butanol

a. only **1**
b. only **2**
c. only **3**
d. only **1** and **2**

Exam #2a Chem 2410
Answer Section

MULTIPLE CHOICE

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