Last Name	First Name	MI
Student ID Number:		*Total Score*
Circle the name of your TA: HEATHER SUSAN LINH		
Discussion Section – Day: Time:		/ 30

Chem 30A Spring 2005

QUIZ #2A

(15 Min)

Weds May 11th

INTERPRETATION OF THE QUESTIONS IS PART OF THE EXAM – DO NOT ASK FOR THE QUESTIONS TO BE EXPLAINED TO YOU

USE CAPITAL LETTERS WHEN FILLING IN THE BOXES AND BE CLEAR – IF WE CAN'T FIGURE OUT WHAT A LETTER IS, IT WILL AUTOMATICALLY BE GRADED AS INCORRECT

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Q	1	2	3	4	5	6	7	8	9	10	Total
X											

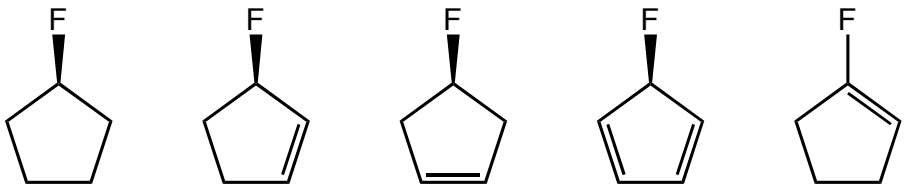
ANSWER TO BONUS QUESTION

Here's a warm welcome to all the intelligent life forms out there. And to the rest of you... the trick is to bang the rocks together, guys.

– Douglas Adams

Questions 1–10 are worth **3** points each. The bonus is worth **5** points.

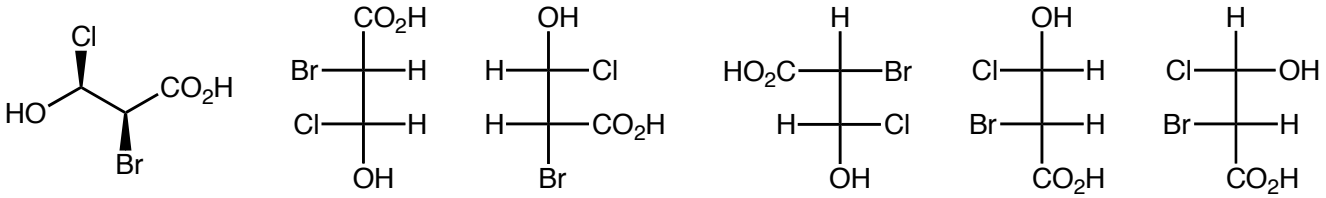
1. Which of the compounds shown below are chiral?



1 **2** **3** **4** **5**

A 1, 2, 3, and 4
B Only 2 and 4
C Only 2
D All of them
E 2, 3, and 4

2. Only ONE of the Fischer projections corresponds to **Compound 1** – which one is it?

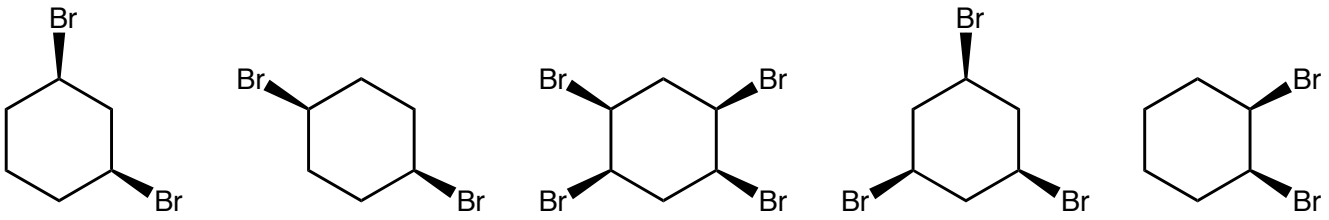


Compound 1 **A** **B** **C** **D** **E**

3. Assuming that the specific rotation of the *(R)*-enantiomer of a compound containing one chiral center is –50°, what would the specific rotation of a sample containing a mixture of 65% *(S)*-enantiomer and 35% *(R)*-enantiomer be?

A –35°
B –15°
C +15°
D +35°
E It is not possible to calculate the answer based on the data above

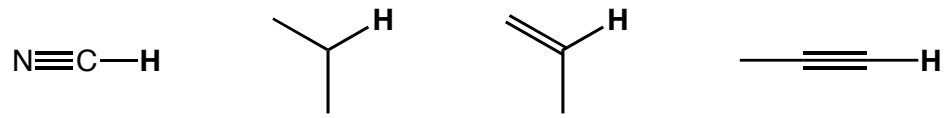
4. Which of the compounds shown below are meso compounds?



1 **2** **3** **4** **5**

A All of them
B 1, 4, and 5
C 3, 4, and 5
D 1, 2, and 3
E 1, 3, and 5

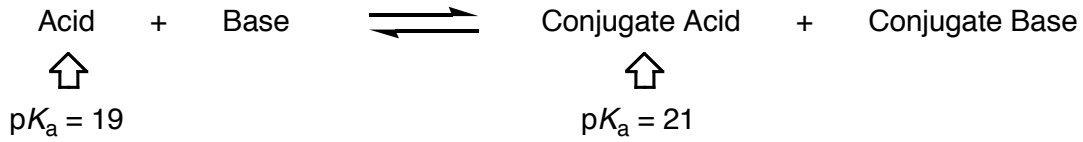
5. What is the order of acidity (from lowest pK_a value to highest pK_a value) of the bold hydrogen (**H**) atoms shown highlighted in the compounds drawn below?



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

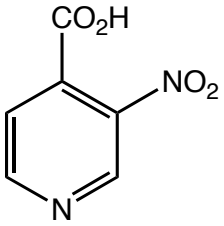
A 1, 4, 3, 2 **B** 4, 3, 1, 2 **C** 1, 2, 3, 4 **D** 2, 3, 4, 1 **E** 4, 3, 2, 1

6. The equilibrium constant (K_{eq}) for the reaction shown below is...?



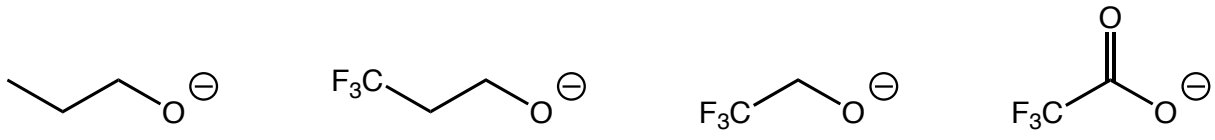
A –2 **B** 2 **C** 40 **D** 100 **E** 0.01

7. What is the Index of Hydrogen Deficiency (number of double bond equivalents) for the compound drawn below?



A 3 **B** 4 **C** 5 **D** 6 **E** 7

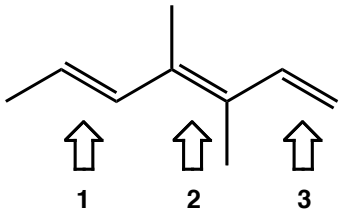
8. What is the order of basicity (from most basic to least basic) of the oxygen-based anions (oxy-anions) drawn below?



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

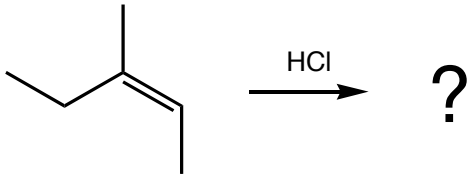
A 1, 2, 3, 4 **B** 3, 2, 1, 4 **C** 4, 3, 2, 1 **D** 4, 1, 2, 3 **E** 3, 4, 2, 1

9. For the triene shown below, for which double bond(s) is it possible to assign *E* or *Z* descriptors?



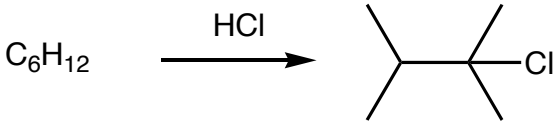
A **1**, **2**, and **3**
B Only **1** and **2**
C Only **2** and **3**
D Only **2**
E Only **1**

10. What is the major product of the reaction shown below?



A 2-chloro-3-methylpentane
B 2-chloro-2-ethylbutane
C 3-chloro-2-methylpentane
D 3-chloro-3-methylpentane
E 2,3-dichloro-3-methylpentane

BONUS: Three different alkenes with the molecular formula C_6H_{12} yield 2-chloro-2,3-dimethylbutane as the major product when reacted with HCl – draw the structures of these alkenes on the front cover of this quiz in the box provided.



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Chem 30A Spring 2005

QUIZ #2B

(15 Min)

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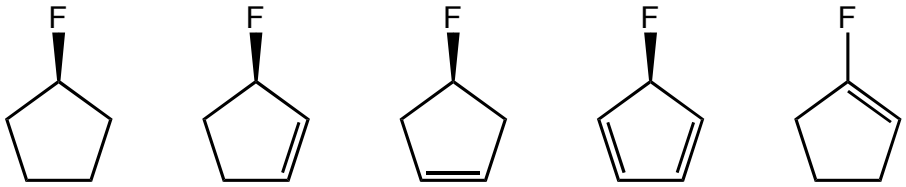

1 **2** **3** **4** **5**

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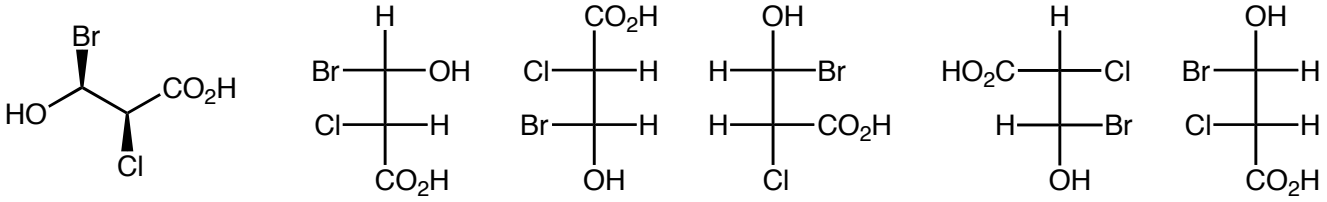
C 1, 2, 3, and 4
D Only 2 and 4
E Only 2

2. Only ONE of the Fischer projections corresponds to **Compound 1** – which one is it?



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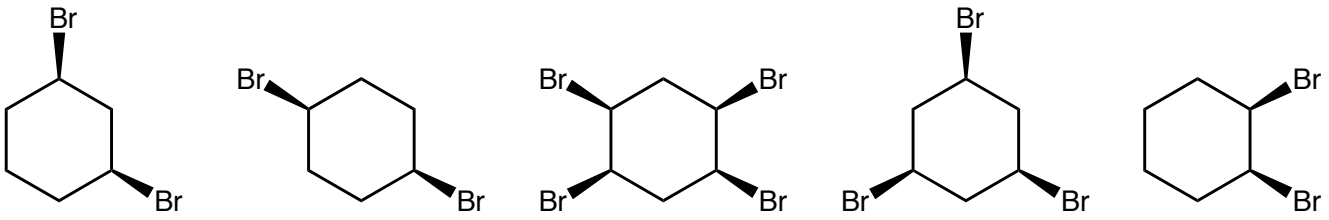

1 **2** **3** **4** **5**

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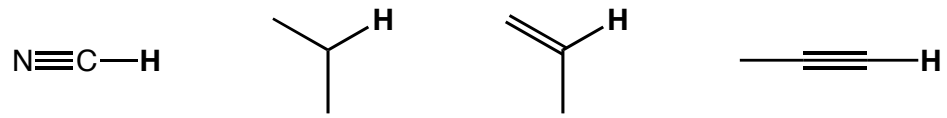
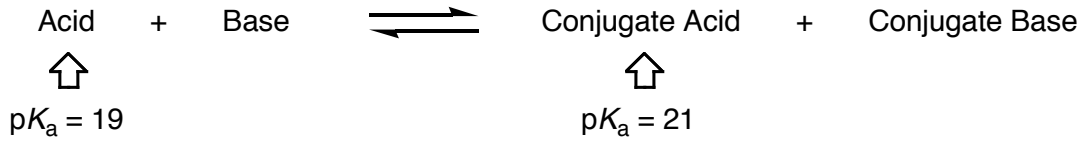


1 **2** **3** **4**

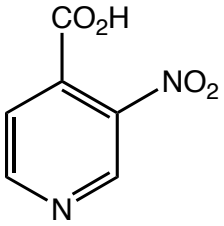
A 4, 3, 2, 1 **B** 2, 3, 4, 1 **C** 4, 3, 1, 2 **D** 1, 2, 3, 4 **E** 1, 4, 3, 2

6. The equilibrium constant (K_{eq}) for the reaction shown below is...?



A 2 **B** –2 **C** 0.01 **D** 40 **E** 100

7. What is the Index of Hydrogen Deficiency (number of double bond equivalents) for the compound drawn below?



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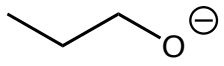
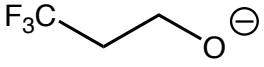
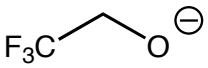


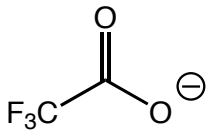
1



2



3



4

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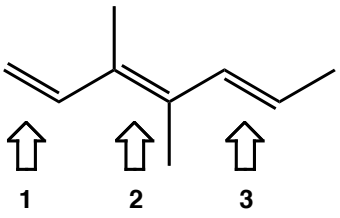

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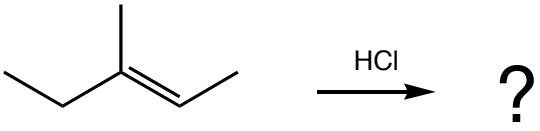

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C 2-chloro-2-ethylbutane
D 2-chloro-3-methylpentane
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BONUS: Three different alkenes with the molecular formula C_5H_{10} yield 2-bromo-2-methylbutane as the major product when reacted with HBr – draw the structures of these alkenes on the front cover of this quiz in the box provided.