

Last Name ANSWER	First Name KEY	MI
Student ID Number:		Total Score 36 / 30
Circle the name of your TA: HEATHER SUSAN LINH		
Discussion Section – Day:	Time:	

Chem 30A Spring 2005

QUIZ #2A (15 Min)

Weds May 11th

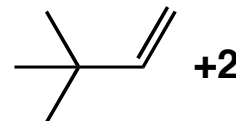
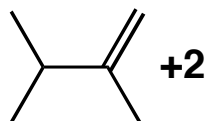
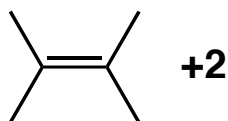
INTERPRETATION OF THE QUESTIONS IS PART OF THE EXAM – DO NOT ASK FOR THE QUESTIONS TO BE EXPLAINED TO YOU

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Q	1	2	3	4	5	6	7	8	9	10	Total
X	C	C	C	E	A	D	D	A	B	D	30

ANSWER TO BONUS QUESTION

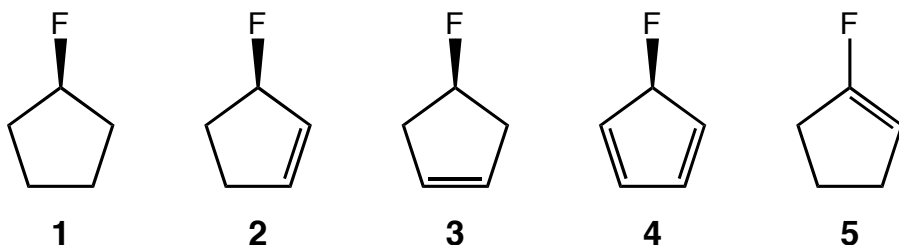


Here's a warm welcome to all the intelligent life forms out there. And to the rest of you... the trick is to bang the rocks together, guys.

– Douglas Adams

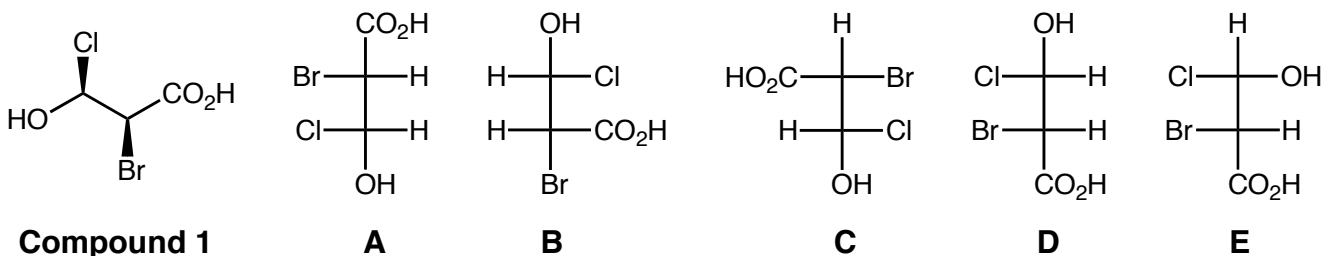
Questions 1–10 are worth 3 points each. The bonus is worth 5 points.

1. Which of the compounds shown below are chiral?



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

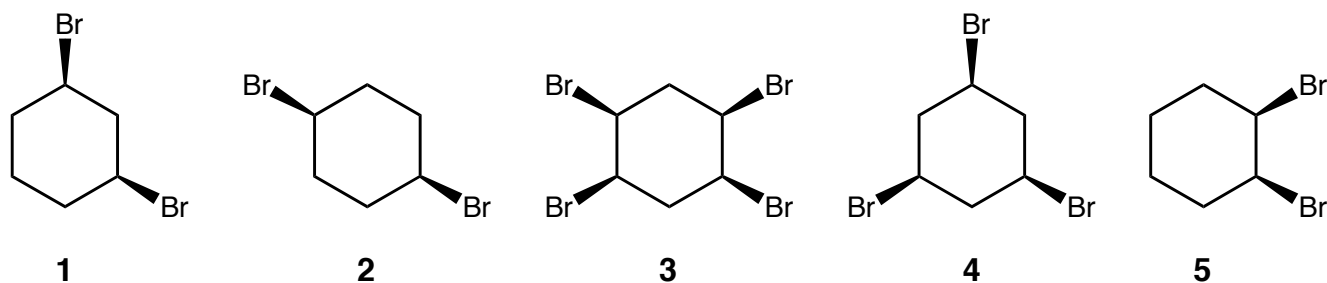
2. Only ONE of the Fischer projections corresponds to **Compound 1** – which one is it?



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?

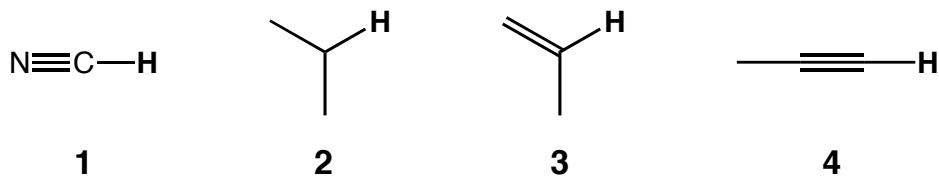
- A** -35°
B -15°
C $+15^\circ$
D $+35^\circ$
E It is not possible to calculate the answer based on the data above

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



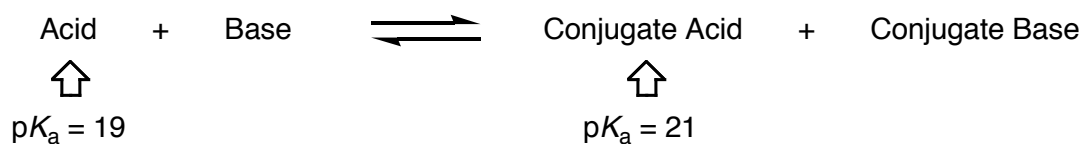
- A** All of them
B 1, 4, and 5
C 3, 4, and 5
D 1, 2, and 3
E 1, 3, and 5

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?



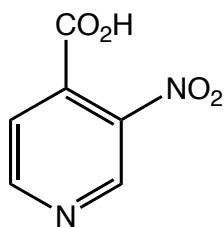
- A** 1, 4, 3, 2 **B** 4, 3, 1, 2 **C** 1, 2, 3, 4 **D** 2, 3, 4, 1 **E** 4, 3, 2, 1

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



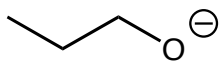
- A** -2 **B** 2 **C** 40 **D** 100 **E** 0.01

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

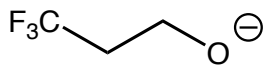


- A** 3 **B** 4 **C** 5 **D** 6 **E** 7

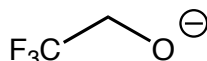
8. What is the order of basicity (from most basic to least basic) of the oxygen-based anions (oxy-anions) drawn below?



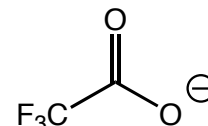
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2



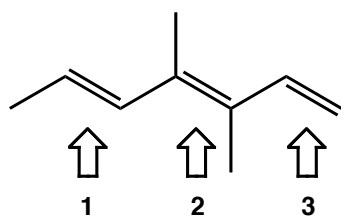
3



4

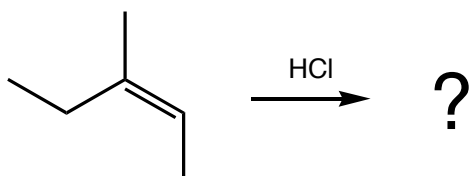
- A 1, 2, 3, 4 B 3, 2, 1, 4 C 4, 3, 2, 1 D 4, 1, 2, 3 E 3, 4, 2, 1

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



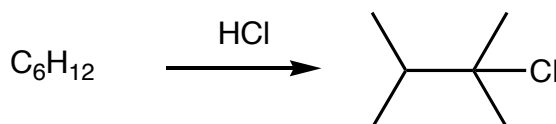
- A 1, 2, and 3
 B Only 1 and 2
 C Only 2 and 3
 D Only 2
 E Only 1

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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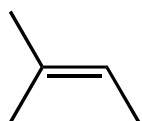
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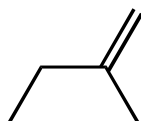
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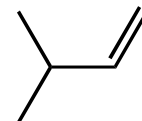
ANSWER TO BONUS QUESTION



+2



+2



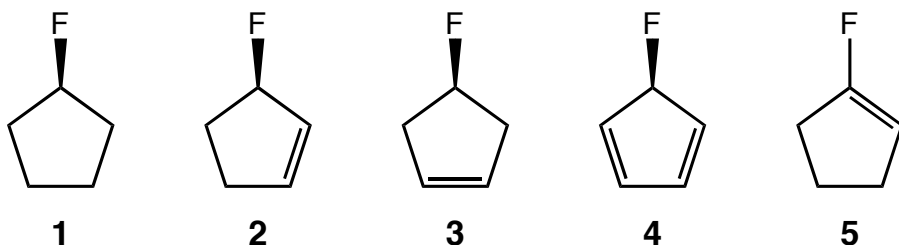
+2

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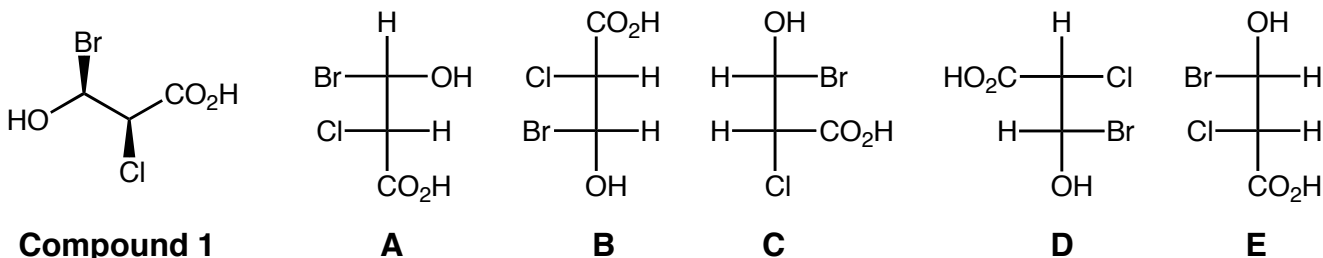
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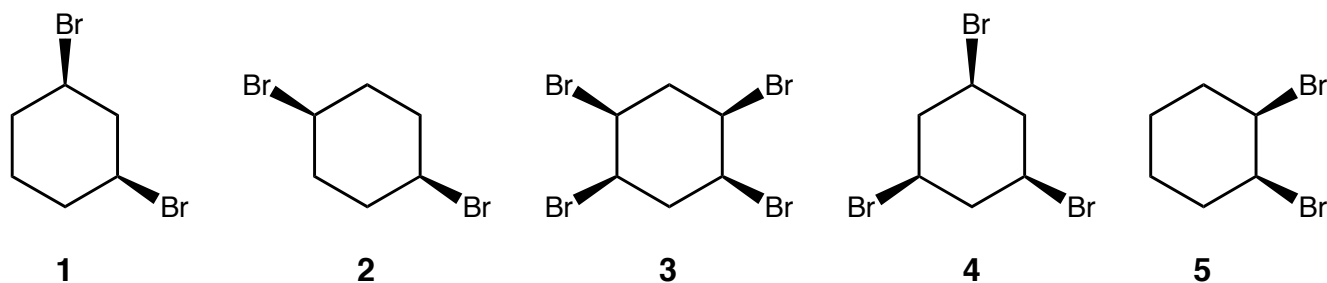
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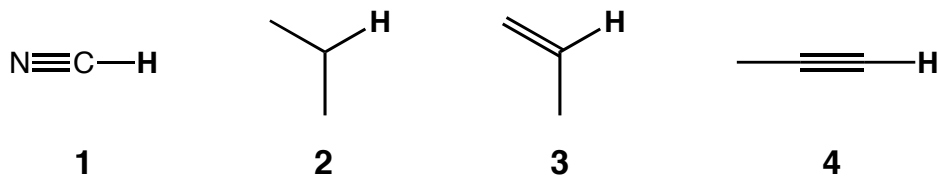
- A It is not possible to calculate the answer based on the data above
- B -35°
- C -15°
- D $+15^\circ$
- E $+35^\circ$

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



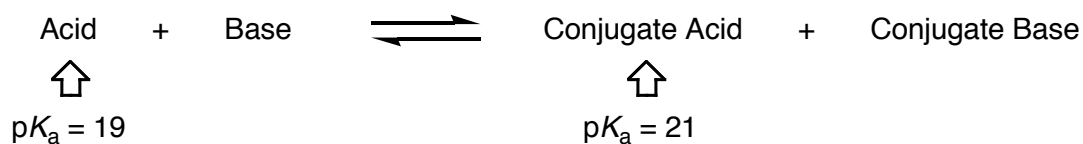
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C 1, 4, and 5
D 1, 3, and 5
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5. What is the order of acidity (from lowest pK_a value to highest pK_a value) of the bold hydrogen (**H**) atoms shown highlighted in the compounds drawn below?



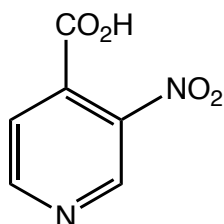
- A** 4, 3, 2, 1 **B** 2, 3, 4, 1 **C** 4, 3, 1, 2 **D** 1, 2, 3, 4 **E** 1, 4, 3, 2

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



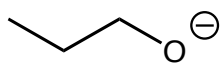
- A** 2 **B** -2 **C** 0.01 **D** 40 **E** 100

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

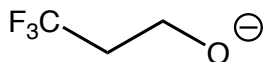


- A** 7 **B** 6 **C** 5 **D** 4 **E** 3

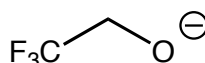
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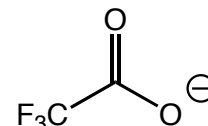
1



2



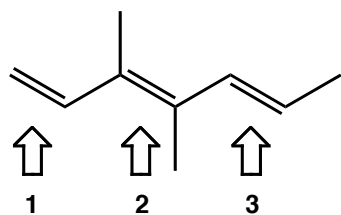
3



4

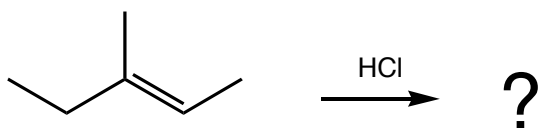
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9. For the triene shown below, for which double bond(s) is it possible to assign *E* or *Z* descriptors?



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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.

