

Last Name	First Name	MI
Student ID Number:		<i>Total Score</i>
Circle the name of your TA: Mike Rob		
Discussion Section – Day: Time:		/ 30

Chem 30A Winter 2005

QUIZ #2 (15 Min)

Weds Feb 16th

*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*

****DO NOT OPEN THIS EXAM UNTIL INSTRUCTED TO DO SO****

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

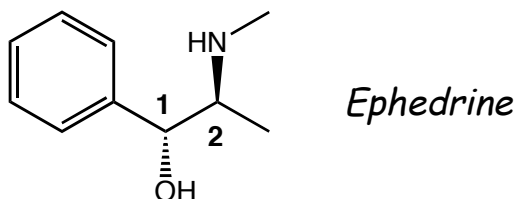
ANSWER TO BONUS QUESTION

Have more than thou showest; speak less than thou knowest; lend less than thou owest

– William Shakespeare

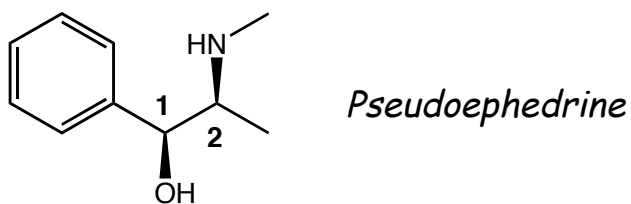
Questions 1–10 are worth 3 points each. The bonus is worth 5 points.

1. The correct assignment of the stereocenters in the naturally occurring enantiomer of ephedrine (shown below) is?



- A 1S,2S
- B 1R,2S
- C 1R,2R
- D 1S,2R
- E Are you crazy, what are you talking about, there is only one stereocenter in ephedrine!

2. Ephedrine and pseudoephedrine (shown below — it's the active component of Sudafed) are best described as:

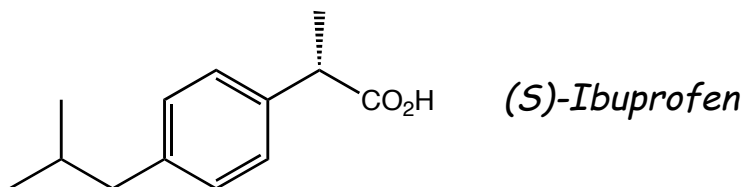


- A Enantiomers
- B Pseudoisomers
- C Diastereoisomers
- D Constitutional Isomers
- E Meso Isomers

3. The specific rotation of the naturally occurring enantiomer of ephedrine is -6.3° — based upon this fact, what can you deduce about the specific rotation of the naturally occurring enantiomer of pseudoephedrine?

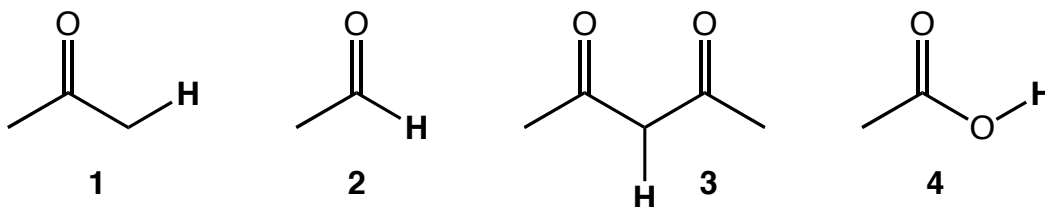
- A It is $+6.3^\circ$
- B It is -6.3°
- C You can't know what the value is, but it will be a negative rotation (–)
- D You can't know what the value is, but it will be a positive rotation (+)
- E Absolutely nothing

4. Ibuprofen is a non-steroidal anti-inflammatory drug that has analgesic properties (it's a painkiller – and the active ingredient in Advil). Only the (S)-enantiomer (shown below) is biologically active, the (R)-enantiomer is not. Assuming that the specific optical rotation of pure (R)-Ibuprofen is -25° , what is the enantiomeric excess of the (S)-enantiomer in a sample of ibuprofen that has a specific rotation of 10° ?



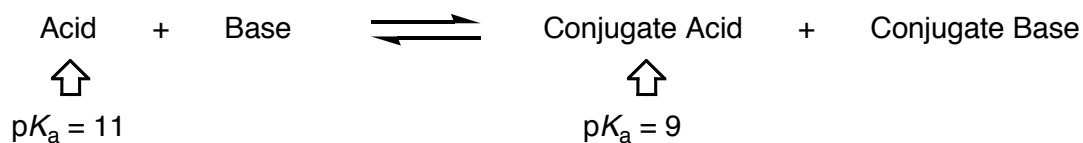
- A 70%
- B 60%
- C 50%
- D 40%
- E 30%

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?



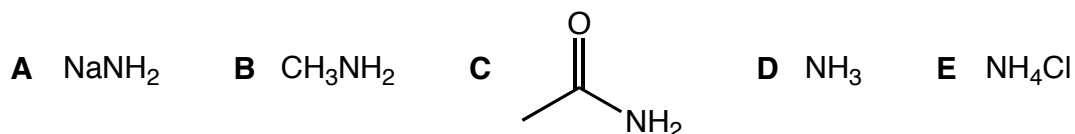
- A 2, 4, 3, 1
- B 4, 3, 1, 2
- C 3, 1, 4, 2
- D 3, 4, 2, 1
- E 4, 2, 1, 3

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

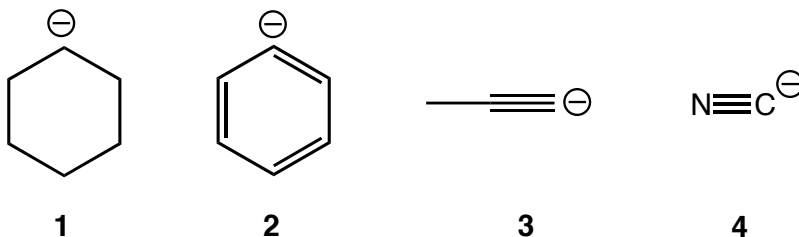


- A -2
- B 0.01
- C 2
- D 20
- E 100

7. Which of the compounds drawn below is the strongest base?

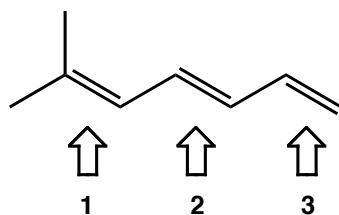


8. What is the order of basicity (from most basic to least basic) of the carbon-based anions (carbanions) drawn below?



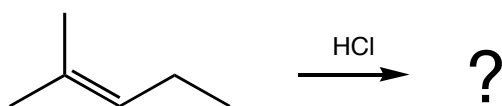
- A** 1, 2, 3, 4 **B** 4, 2, 3, 1 **C** 4, 3, 2, 1 **D** 4, 1, 2, 3 **E** 1, 2, 4, 3

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-methylpentane
C 3-chloro-2-methylpentane
D 3-chloro-3-methylpentane
E 1-chloro-1,1-dimethylbutane

BONUS: The reaction of 5-hexen-1-ol with a catalytic amount of acid in an inert solvent gives a compound with the molecular formula $C_6H_{12}O$. Draw what you think the product of this reaction is ON THE FRONT COVER of this quiz in the box provided.

