Last Name	ANSWER	First Name	KEY	MI

Student ID Number:	Total Score
Circle the name of your TA: Mike Rob	35 / 30
Discussion Section – Day: Time:	

Chem 30A Winter 2005

QUIZ #2

(15 Min)

Weds Feb 16th

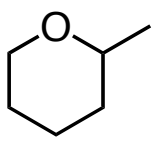
INTERPRETATION OF THE QUESTIONS IS PART OF THE EXAM – DO NOT ASK FOR THE QUESTIONS TO BE EXPLAINED TO YOU

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	B	C	E	D	B	B	A	A	D	B	30

ANSWER TO BONUS QUESTION



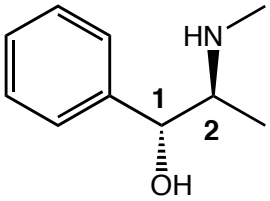
+5

Have more than though 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.

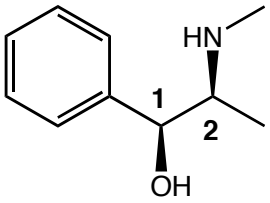
1. The correct assignment of the stereocenters in the naturally occurring enantiomer of ephedrine (shown below) is?



Ephedrine

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:



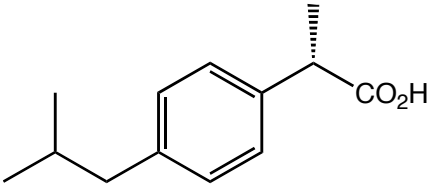
Pseudoephedrine

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 occuring enantiomer of pseudoephedrine?

A It is +6.3°
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

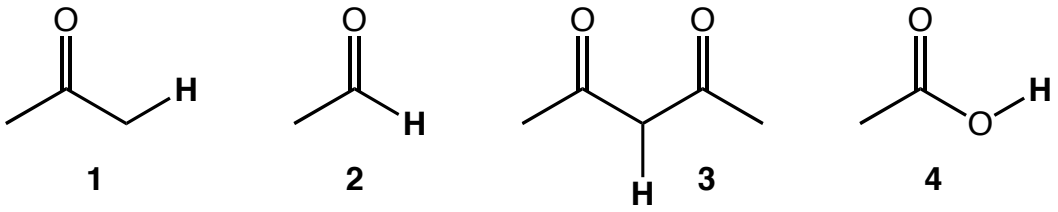
4. Ibuprofen is a non-steroidal anti-inflammatory drug that has analgesic properties (it's a painkiller – and the active ingredient in Advil). Only the (S)-enantiomer (shown below) is biologically active, the (R)-enantiomer is not. Assuming that the specific optical rotation of pure (R)-Ibuprofen is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



(S)-Ibuprofen

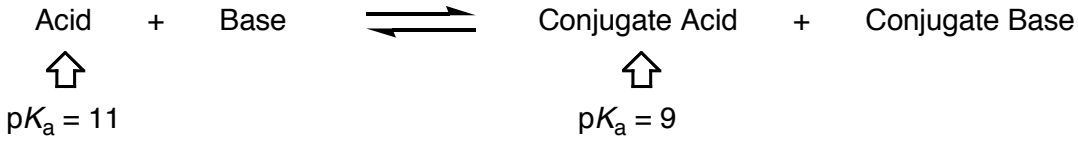
A 70%
B 60%
C 50%
D 40%
E 30%

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?



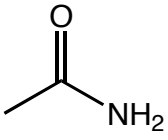
A 2, 4, 3, 1 **B** 4, 3, 1, 2 **C** 3, 1, 4, 2 **D** 3, 4, 2, 1 **E** 4, 2, 1, 3

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



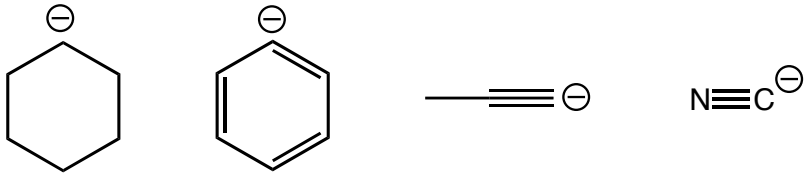
A –2 **B** 0.01 **C** 2 **D** 20 **E** 100

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

A $NaNH_2$ **B** CH_3NH_2 **C** 

D NH_3 **E** NH_4Cl

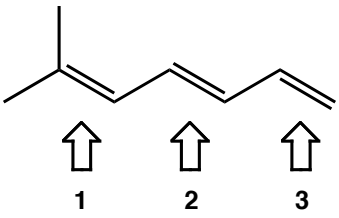
8. What is the order of basicity (from most basic to least basic) of the carbon-based anions (carbanions) drawn below?



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

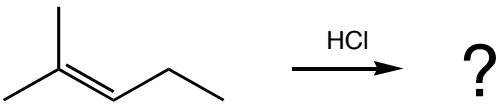
A 1, 2, 3, 4 **B** 4, 2, 3, 1 **C** 4, 3, 2, 1 **D** 4, 1, 2, 3 **E** 1, 2, 4, 3

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.