

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

**Chem 30A Spring 2005**

**QUIZ #3** **PURPLE / BLUE**  
(15 Min)

**Weds Jun 8th**

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

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

**ONLY ONE QUESTION ON THIS EXAM WILL BE GRADED**

**BY PLACING AN 'X' IN THE APPROPRIATE BOX BELOW, INDICATE  
WHICH QUESTION YOU WOULD LIKE US TO GRADE**

<b>Q1</b>		<b>Q2</b>	
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(IF NO BOX IS MARKED, WE WILL GRADE Q1)  
(IF BOTH BOXES ARE MARKED, WE WILL GRADE Q1)  
(IF IT IS AMBIGUOUS WHICH BOX IS MARKED, WE WILL GRADE Q1)

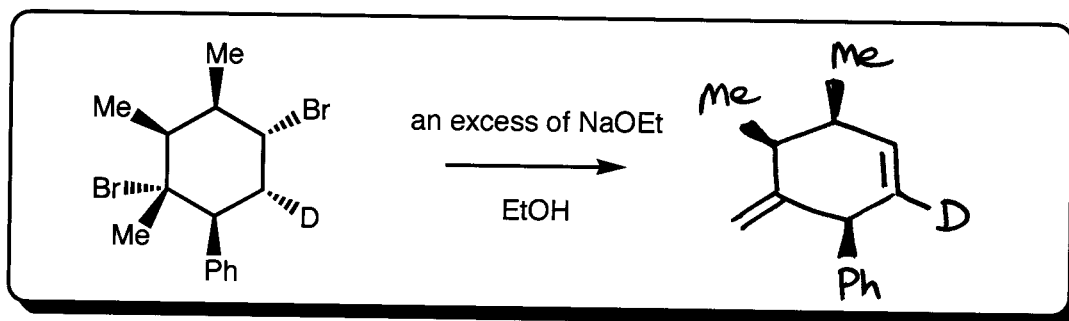
*I can't believe it! Reading and writing actually paid off!*  
- Homer Simpson

Q1: Answer the questions below by circling either True or False (2 points each) –

- |   |             |              |
|---|-------------|--------------|
| a. Tertiary alkyl halides sometimes undergo $S_N2$ reactions.   | True        | <b>False</b> |
| b. A carbon-iodine bond is weaker than a carbon-fluorine bond   | <b>True</b> | False        |
| c. $E1$ and $S_N1$ reactions share a common carbocation intermediate  | <b>True</b> | False        |
| d. Doubling both the concentration of the nucleophile and the electrophile in an $S_N1$ reaction doubles the rate of the reaction.            | <b>True</b> | False        |
| e. The methyl thiolate anion ( $MeS^-$ ) is less nucleophilic than dimethyl sulfide ( $Me_2S$ ).  | True        | <b>False</b> |
| f. The $E1$ elimination reaction does not require an antiperiplanar relationship between the leaving group and the beta-H atom.               | <b>True</b> | False        |
| g. Skeletal rearrangements are never observed in $S_N1$ and $E1$ reactions.   | True        | <b>False</b> |
| h. <i>tert</i> -Butyl chloride undergoes $S_N1$ solvolysis in aqueous ethanol less rapidly than it does in water.                             | <b>True</b> | False        |
| i. ( <i>R</i> )-2-Iodopentane reacts with potassium acetate in dimethylformamide to give ( <i>S</i> )-2-acetoxy-pentane as the major product. | <b>True</b> | False        |
| j. <i>n</i> -Propyl fluoride ( $CH_3CH_2CH_2F$ ) has a lower boiling point than propane ( $CH_3CH_2CH_3$ ).                                   | True        | <b>False</b> |
| k. 2-Bromopropane reacts with sodium ethoxide in ethanol to give 2-ethoxypropane as the minor product.  | <b>True</b> | False        |
| l. The Hofmann elimination observed with some quaternary trimethylammonium salts ( $R-N(CH_3)_3^+$ ) proceeds with anti stereospecificity.    | <b>True</b> | False        |
| m. $S_N1$ reactions are often favored over $E1$ reactions at lower reaction temperatures.   | <b>True</b> | False        |
| n. Methyl halides never undergo $E2$ reactions.   | <b>True</b> | False        |
| o. $S_N2$ reactions of secondary alkyl bromides with NaI proceed faster in water than in acetone.   | True        | <b>False</b> |

### BONUS QUESTION

Draw the major product of the  $E2$  elimination reaction shown below (5 points) –



Q2

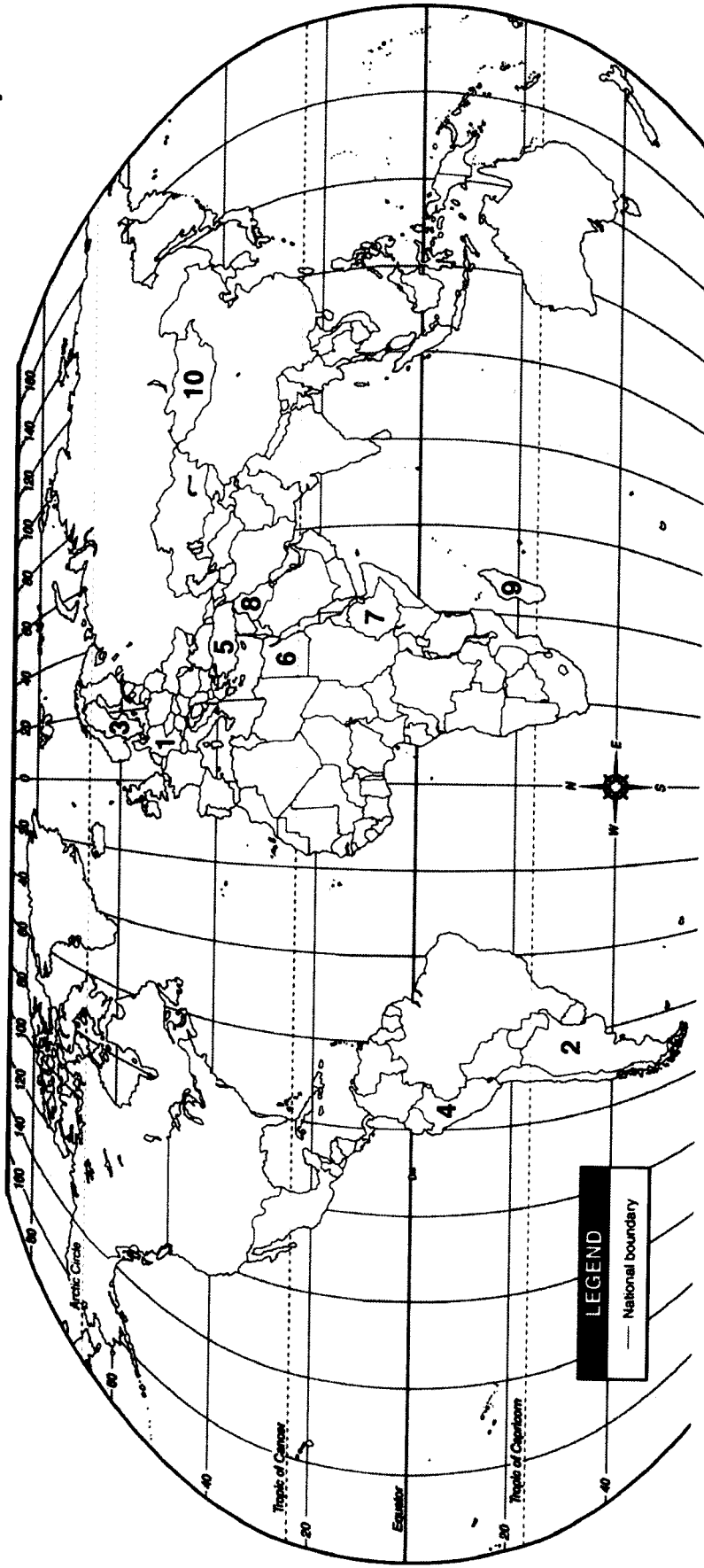
Afghanistan  
Egypt  
Brazil  
Poland  
Finland

China  
Germany  
Iran  
Peru  
Argentina

Madagascar  
Syria  
Columbia  
France  
Sweden

Ethiopia  
Turkey  
Somalia  
Bolivia  
Swaziland

Spain  
Iraq  
Mongolia  
Tanzania  
Norway



Name the countries labelled 1-10 (they are 10 of the 25 countries listed at the top of the page) 3 pts each -

- 1 GERMANY
- 2 ARGENTINA
- 3 SWEDEN
- 4 PERU
- 5 TURKEY
- 6 EGYPT
- 7 ETHIOPIA
- 8 IRAQ
- 9 MADAGASCAR
- 10 MONGOLIA

BONUS - name five countries (without using any of the 25 listed above) through which the equator passes (1 pt each):

- A ECUADOR
- B GABON
- C CONGO
- D DEM REPUBLIC OF THE CONGO
- E UGANDA
- KENYA, INDONESIA
- (ZAMBIA)

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**Chem 30A Spring 2005**

**QUIZ #3** **ORANGE (SALMON)**  
 (15 Min) **Yellow**

**Weds Jun 8th**

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<b>Q1</b>	<input type="checkbox"/>	<b>Q2</b>	<input type="checkbox"/>
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 - Homer Simpson

Q1: Answer the questions below by circling either True or False (2 points each) –

- |   |      |       |
|---|------|-------|
| a. Tertiary alkyl halides do not undergo $S_N2$ reactions.  | True | False |
| b. A carbon-iodine bond is stronger than a carbon-fluorine bond   | True | False |
| c. E2 and $S_N1$ reactions share a common carbocation intermediate  | True | False |
| d. Doubling both the concentration of the nucleophile and the electrophile in an $S_N2$ reaction doubles the rate of the reaction.            | True | False |
| e. The methyl thiolate anion ( $MeS^-$ ) is more nucleophilic than dimethyl sulfide ( $Me_2S$ ).  | True | False |
| f. The E1 elimination reaction requires an antiperiplanar relationship between the leaving group and the beta-H atom.                         | True | False |
| g. Skeletal rearrangements are sometimes observed in $S_N1$ and E1 reactions.   | True | False |
| h. <i>tert</i> -Butyl chloride undergoes $S_N1$ solvolysis in aqueous ethanol more rapidly than it does in water.                             | True | False |
| i. ( <i>R</i> )-2-Iodopentane reacts with potassium acetate in dimethylformamide to give ( <i>R</i> )-2-acetoxy-pentane as the major product. | True | False |
| j. <i>n</i> -Propyl fluoride ( $CH_3CH_2CH_2F$ ) has a higher boiling point than propane ( $CH_3CH_2CH_3$ ).                                  | True | False |
| k. 2-Bromopropane reacts with sodium ethoxide in ethanol to give 2-ethoxypropane as the major product.  | True | False |
| l. The Hofmann elimination observed with some quaternary trimethylammonium salts ( $R-N(CH_3)_3^+$ ) proceeds with syn stereospecificity.     | True | False |
| m. $S_N1$ reactions are often favored over E1 reactions at higher reaction temperatures.  | True | False |
| n. Methyl halides undergo E2 reactions when treated with very strong bases.   | True | False |
| o. $S_N2$ reactions of secondary alkyl bromides with NaI proceed slower in water than in acetone.   | True | False |

### BONUS QUESTION

Draw the major product of the E2 elimination reaction shown below (5 points) –

