Last Name	ANSWER	First Name	KEY	MI
Student ID Number:				Total Score 35 / 30
Circle the name of your TA: HEATHER / RYAN / KAUSHIK / CARI				
Discussion Section – Day:		Time:		

Chem 30A Fall 2005

QUIZ #3

(15 Min)

Weds Dec 7th

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

Q1 [X] Q2 [X]

(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)

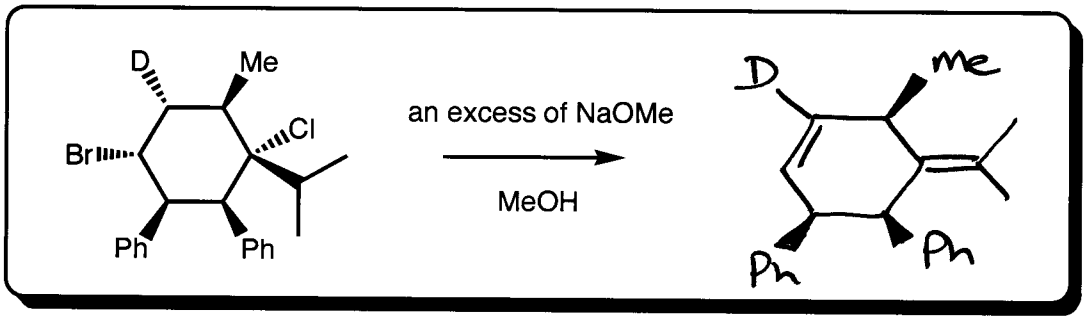
I can't believe it! Reading and writing actually paid off!
- Homer Simpson

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

a.	The rate of an S_N1 reaction is independent of the strength of the nucleophile.	**True**	**False**
b.	Formic acid (HCO_2H) is a polar protic solvent	**True**	**False**
c.	E2 and S_N2 reactions share a common carbocation intermediate	**True**	**False**
d.	Doubling both the concentration of the nucleophile and the electrophile in an S_N1 reaction doubles the rate of the reaction.	**True**	**False**
e.	The methyl thiolate anion (MeS^-) is less nucleophilic than methane-thiol (MeSH).	**True**	**False**
f.	The Cope elimination requires an antiperiplanar relationship between the leaving group and the beta-H atom.	**True**	**False**
g.	Skeletal rearrangements are never observed in elimination reactions.	**True**	**False**
h.	*tert*-Butyl bromide undergoes S_N1 solvolysis in water more rapidly than it does in aqueous methanol.	**True**	**False**
i.	(*S*)-2-Bromopentane reacts with potassium cyanide (KCN) in acetone to give (*R*)-2-cyano-pentane as the major product.	**True**	**False**
j.	*tert*-Butyl chloride undergoes S_N1 solvolysis in water more rapidly than *tert*-butyl iodide.	**True**	**False**
k.	2-Bromobutane reacts with sodium ethoxide in ethanol to give 1-butene as the major product.	**True**	**False**
l.	The Hofmann elimination observed with some quaternary trimethyl-ammonium 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 iodide undergoes E2 reactions when treated with very strong bases.	**True**	**False**
o.	S_N1 reactions of secondary benzylic bromides with methanol (MeOH) proceed slower in water than in acetone.	**True**	**False**

BONUS QUESTION

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



Q2: A little history quiz... in which century did the following famous people die? For each name, circle one answer (Note: the 20th century ran from Jan 1st 1901 until Dec 31st 2000, and the 19th from Jan 1st 1801 until Dec 31st 1900, etc...). 3 points each.

a.	Albert Einstein	19th	**20th**
b.	Leonardo da Vinci	**16th**	17th
c.	Galileo Galilei	16th	**17th**
d.	Louis Pasteur	**19th**	20th
e.	Benjamin Franklin	**18th**	19th
f.	Isaac Newton	17th	**18th**
g.	Linus Pauling	**20th**	21st
h.	Francis Crick (as in Watson and Crick of DNA fame)	20th	**21st**
i.	Michael Faraday	18th	**19th**
j.	Marie Curie	19th	**20th**

BONUS QUESTION

In class I talked about the Gunpowder Plot and the plan to blow up the Houses of Parliament in England during the reign of King James I, in what year did the failed plot happen (5 points)?

1605

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b. Formic acid (HCO_2H) is a polar aprotic solvent **True** **False**

c. E1 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 methane-thiol (MeSH). **True** **False**

f. The Cope elimination requires a syn-periplanar relationship between the leaving group and the beta-H atom. **True** **False**

g. Skeletal rearrangements are sometimes observed in elimination reactions. **True** **False**

h. *tert*-Butyl bromide undergoes S_N1 solvolysis in aqueous methanol more rapidly than it does in water. **True** **False**

i. (*S*)-2-Bromopentane reacts with potassium cyanide (KCN) in acetone to give (*S*)-2-cyano-pentane as the major product. **True** **False**

j. *tert*-Butyl iodide undergoes S_N1 solvolysis in water more rapidly than *tert*-butyl chloride. **True** **False**

k. 2-Bromobutane reacts with sodium ethoxide in ethanol to give 2-butene as the major product. **True** **False**

l. The Hofmann elimination observed with some quaternary trimethyl-ammonium salts $(R–N(CH_3)_3)^+$ proceeds with anti stereospecificity. **True** **False**

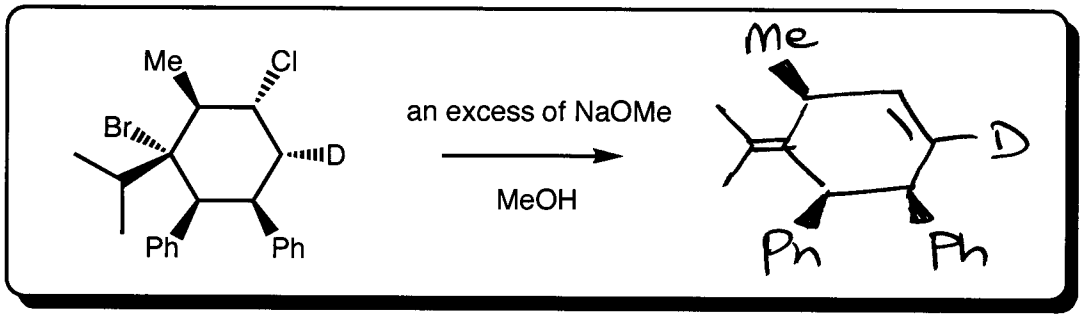
m. E1 reactions are often favored over S_N1 reactions at higher reaction temperatures. **True** **False**

n. Methyl iodide doesn't undergo E2 reactions when treated with strong bases. **True** **False**

o. S_N1 reactions of secondary benzylic bromides with methanol (MeOH) proceed slower in acetone than in water. **True** **False**

BONUS QUESTION

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



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