First Midterm Exam
[chapters 1-4 (Carey textbook)]

CHE201A-C
Professor Diver and Dr. Clizbe

Sept. 26, 2014
Fall 2014

Version A
(exam duration: 1 h 30 min)

NAME: posted solutions

circle one: Dr. Clizbe or Dr. Diver *and*: Section (A, B, C)

TA Name:_____ *or* CHE203

Page	Total Possible Points (Possible Points per page)	Points
2	30	
3	22	
4	24	
5	24	
6	26	
7	28	
	Periodic Table	

TOTAL POSSIBLE: 150 YOUR TOTAL:_____

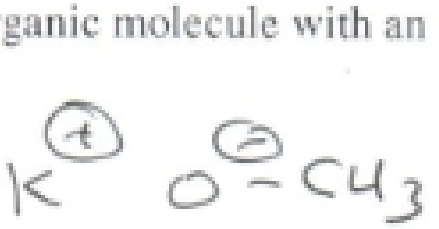
Molecular models are ALLOWED; calculators are NOT ALLOWED. No cell phones or extra paper will be provided. Fill out the exam in pen, use the back of the page if more room is needed.

(30 pts) Provide an example for each of the following terms. Use structures where appropriate. (5 pts each):

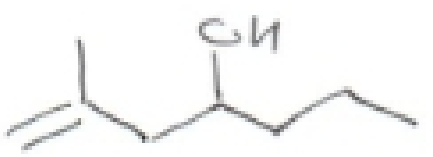
(a) a Lewis acid

BF_3, etc

(b) an organic molecule with an ionic bond

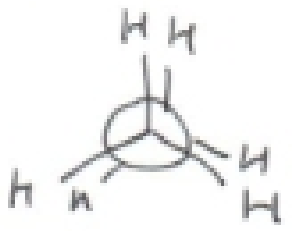


(c) give the line-angle drawing of $CH_2=C(CH_3)CH_2CH(OH)CH_2CH_2CH_3$



(d) a secondary alkyl chloride

(e) a Newman projection showing an eclipsed conformation of ethane



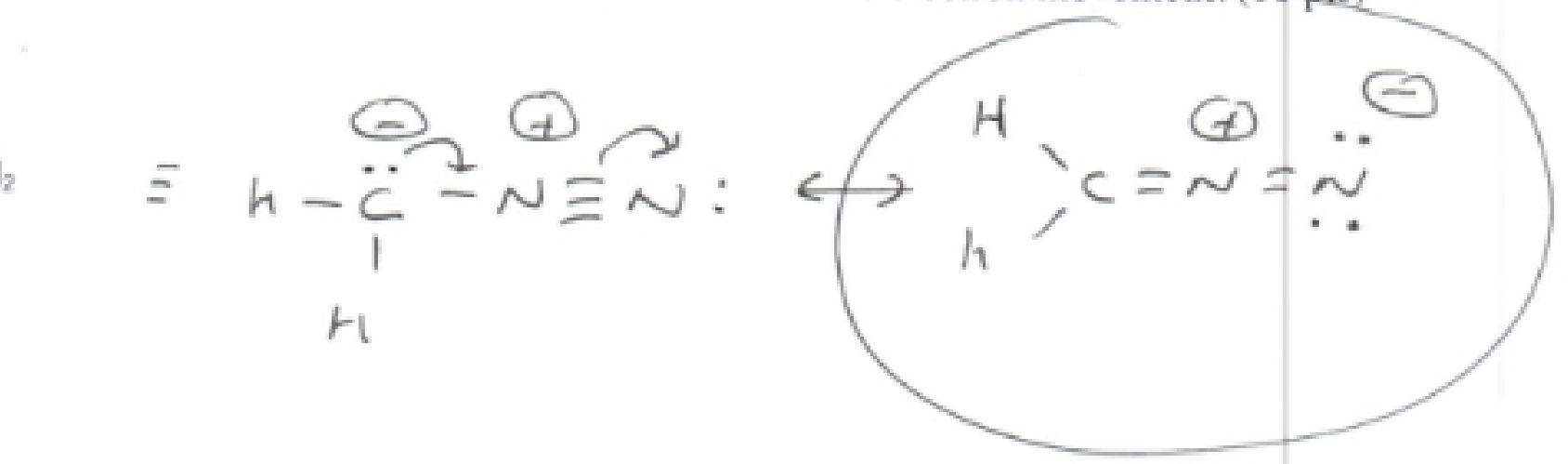
(f) an inorganic reagent that converts a primary alcohol into an alkyl chloride

$SOCl_2$ (thionyl chloride)

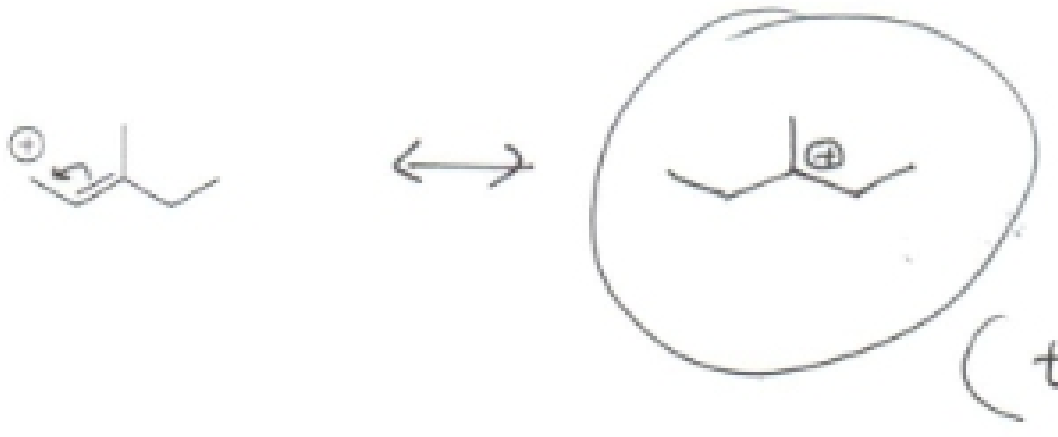
2. Lewis structures and resonance (22 points)

(a) For the molecule shown, draw two valid resonance structures and CIRCLE the most important contributor. Use the arrow formalism to indicate electron movement. (10 pts)

CH_2N_2 =



(b) For the ion shown, draw a resonance structure and CIRCLE the most important contributor. Use the arrow formalism to indicate electron movement. (6 pts)



(tertiary carbocations are more stable than 1°)

(c) For each of the indicated atoms, indicate hybridization and geometry in each of the corresponding boxes. (6 pts)