**REVIEW SHEET: CHEMISTRY 3514 EXAM I**

**exam date: Friday 23 Sept 2011**

**exam time: 1:00-1:55 PM**

**points total: 100**

**What to bring: pencils and your grey matter.(periodic tables will be provided)**

**Coverage: -Quizzes 1-4**

**- homework 1-4(pink)**

**-supplements 1,2 (yellow colored)**

**-in-class exercises #1-5(white)**

 **-Labs #1-4** (recrystallization, fractional & steam distillation, solvent extraction)

 **total pts**

 **your name 1**

**Contents: I Names & Structures 22**

structure<--->IUPAC (8 names or structures)

 common naming

**II Electronic/Structural Models 24**

Lewis Structures

 Radicals

 Hybridization

 MO theory

**III Trends and Representations 15**

 **of Organic Compounds**

 **IV Rotational isomers 8**

 **IV Lab Lore 10**

 **V Functional group ID 9**

 **VI Chemistry of Alkanes 6**

 *-6 facts of methane halogenation(tloc#2)*

**VI I Tidbits T/F, fill-in 5**

 **TOTALS 100**

**Sample questions**

**I Names and structures : draw or name**…



1)

 CH(CH­3)2CH(CH(CH3)2 )CH3

 2,3-dimethyl,2-(1-methylethyl)hexane \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) 2-chlorobutane --------🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ common name

 (1-methylethyl group)----🡪 draw

**II Electronic & Structural Models**

3)Draw the correct Lewis structure for: CO32-

4)which if any are free radicals ?

NO2+ NO2- NO2

5)What is the hybridization of the O in CH2=O ? 6) which is more reactive: CH3CH3 or CH2=CH-CH3

7) which is has the higher bp: 8) which is most reactive :

 CH4 CH3Cl HC≡C:-



## III Trends and Representations of Organic Compounds



9)which molecule boils highest ?

10) which are conformational isomers ?



# 11) which is most reactive ?

 CO NO O2

**VI Rotational isomers**

1. **draw the anti form of butane in Neumann projection**

 **b) order the rotational conformers below from highest to lowest energy:**





1. **2) gauche butane 3) 4) anti butane**

**V. Lab Lore**

1. which method is best for separating two solvents with similar solubilities

a)steam distillation b)recrystallization c)fractional distillation d)solvent extraction



# VI. Functional Groups =

# RCHO = \_\_\_\_\_\_\_\_\_\_\_\_\_ draw an alcohol

# VII Chemistry of Alkanes

\*Know the 6 facts connected with free radical reaction of alkanes)

# VI) Tidbits

* Which compound(s) have a dipole CH2=CH2 CF4 CO2 CH2=CBr2
* True/False: pi bonds are less reactive than sigma bonds T F
* isopentane is the same as: 2-methylbutane 2-methylpropane neopentane none of these
* Your great,great grandfather academically (in chemistry) is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_