CHEM 624 Fall 2012 Exam #2A (Blue)

October 4, 2012, 6:00 PM

Print Name_____ _____ _____
Last First MI

Signature_____
(I will follow the honor code)

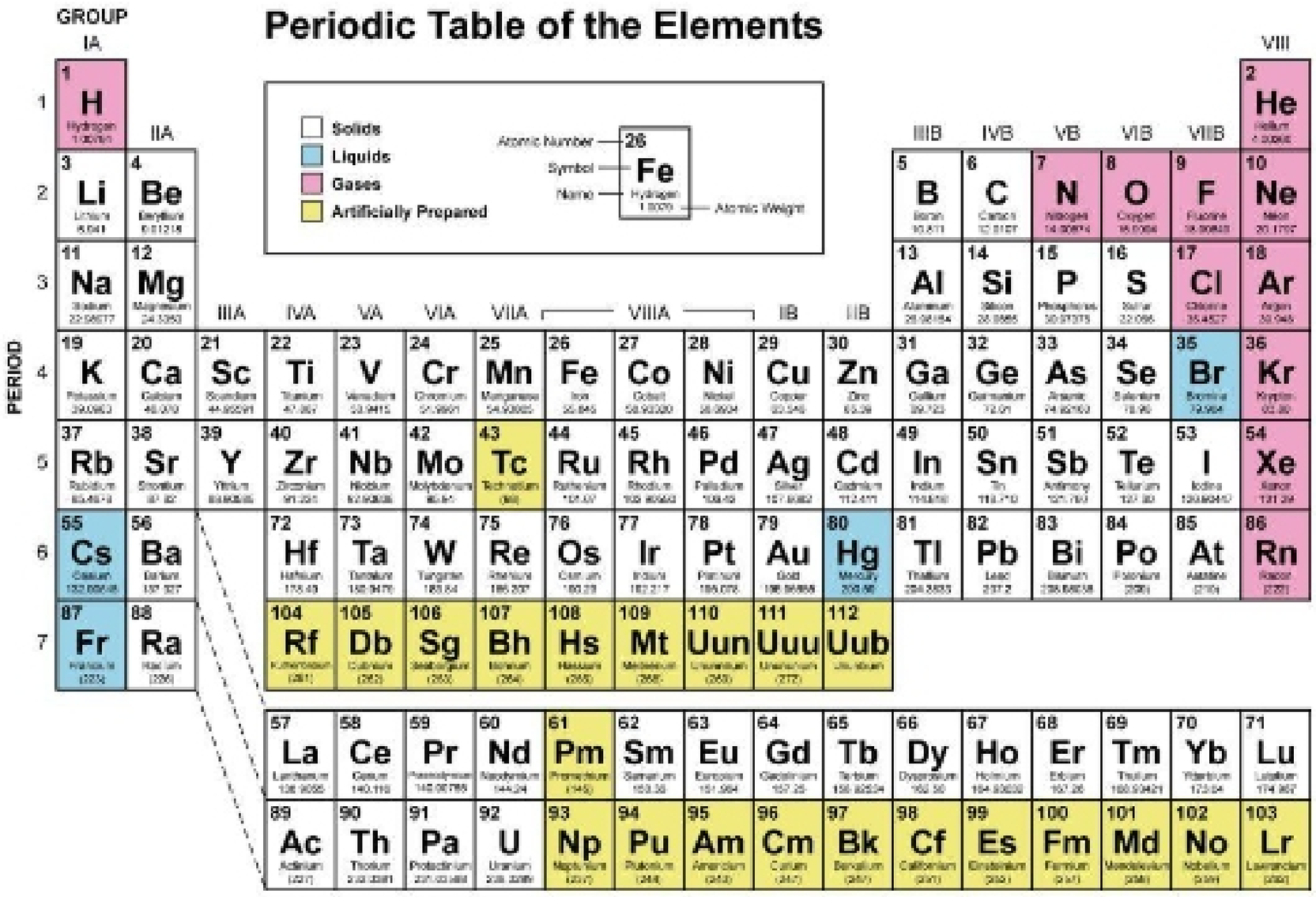
KUID_____

Page 7 (15 pts) _____

Page 8 (13 pts) _____

Page 9 (15 pts) _____

Total pages 7-9
(43 possible)



**Note: the last page of the exam is meant to be torn off and used as scratch paper

Table 6.2 Bond Dissociation Energies for Some Common Bonds [A–B → A• + •B]

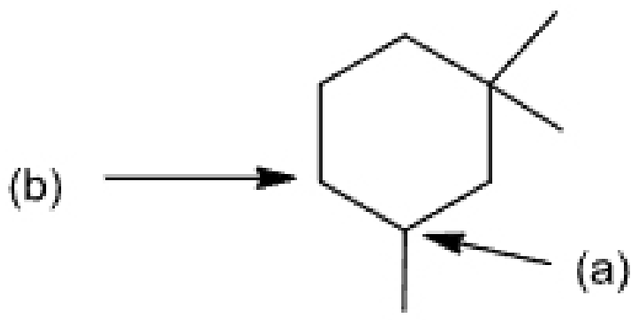
Bond	ΔH° kJ/mol
H–Z bonds	
H–F	569
H–Cl	431
H–Br	368
H–I	297
H–OH	498
Z–Z bonds	
H–H	435
F–F	159
Cl–Cl	242
Br–Br	192
I–I	151
HO–OH	213
R–H bonds	
CH_3–H	435
CH_3CH_2–H	410
$CH_3CH_2CH_2$–H	410
$(CH_3)_2CH$–H	397
$(CH_3)_3C$–H	381
CH_2=CH–H	435
HC≡C–H	523
CH_2=$CHCH_2$–H	364
C_6H_5–H	460
$C_6H_5CH_2$–H	356
R–R bonds	
CH_3–CH_3	368
CH_3–CH_2CH_3	356
CH_3–CH=CH_2	385
CH_3–C≡CH	489

Bond	ΔH° kJ/mol
R–X bonds	
CH_3–F	456
CH_3–Cl	351
CH_3–Br	293
CH_3–I	234
CH_3CH_2–F	448
CH_3CH_2–Cl	339
CH_3CH_2–Br	285
CH_3CH_2–I	222
$(CH_3)_2CH$–F	444
$(CH_3)_2CH$–Cl	335
$(CH_3)_2CH$–Br	285
$(CH_3)_2CH$–I	222
$(CH_3)_3C$–F	444
$(CH_3)_3C$–Cl	331
$(CH_3)_3C$–Br	272
$(CH_3)_3C$–I	209
R–OH bonds	
CH_3–OH	389
CH_3CH_2–OH	393
$CH_3CH_2CH_2$–OH	385
$(CH_3)_2CH$–OH	401
$(CH_3)_3C$–OH	401

Enter your answers to Problems 1-19 on the SCANTRON SHEET

Multiple Choice (57 points total; 3 points each).

Questions 1-3 refer to the cycloalkane at right:



1. The **IUPAC name** for the compound:

   A. 1-methyl-3-isopropylcyclohexane
   B. 1-isopropyl-3-methylcyclohexane
   C. 1,3,3-trimethylcyclohexane
   D. 1,1,3-trimethylcyclohexane

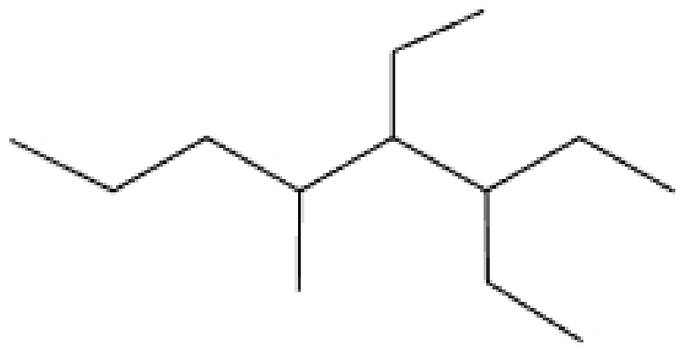
2. The **carbon atom labeled (a)** is classified as:

   A. 1° **B.** 2° **C.** 3° **D.** 4°

3. The hydrogen atoms attached to carbon (b) are classified as:

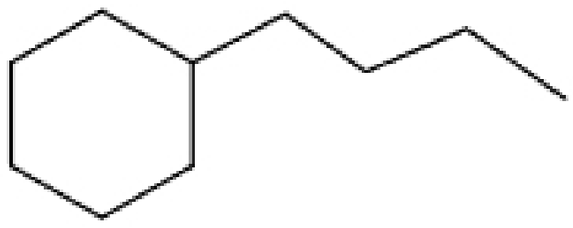
   A. 1° **B.** 2° **C.** 3° **D.** 4°

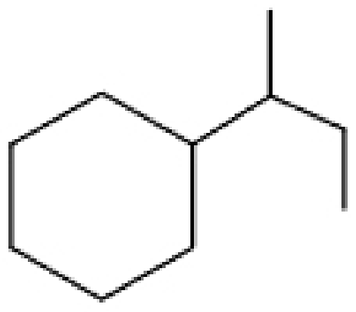
4. The **number of stereoisomers** for the molecule at right:

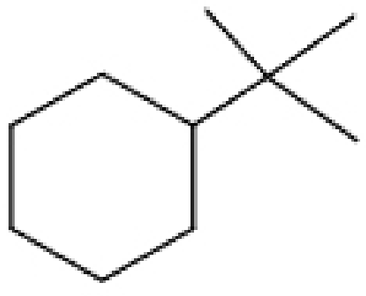


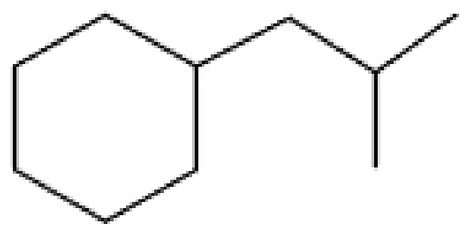
   A. 2 **B.** 3 **C.** 4 **D.** 8

5. The structure of ***sec*-butylcyclohexane**

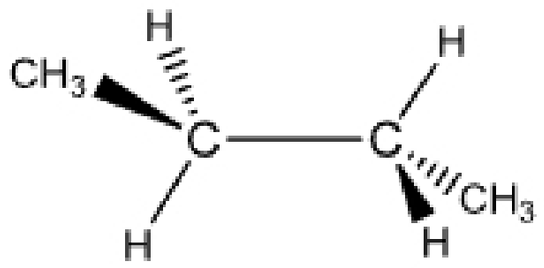
A. 

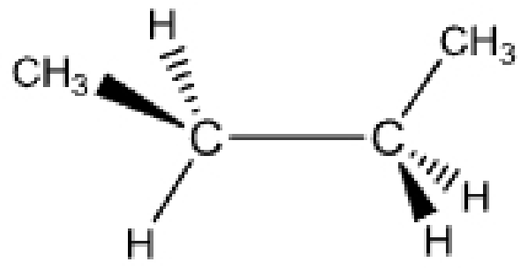
B. 

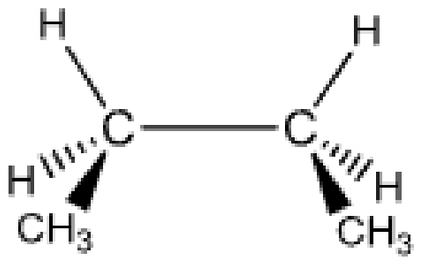
C. 

D. 

6. The **gauche conformation** of butane:

A. 

B. 

C. 

D.