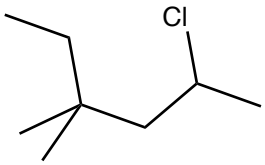
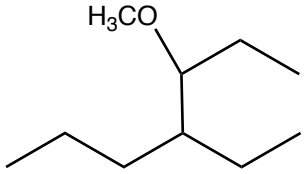
Name _____ Test 2 (11/2)
CHEM 0201 (Organic) Fall 2018

1. (12 pts.) Provide IUPAC names for the following structures (ignore stereochemistry).

a. 

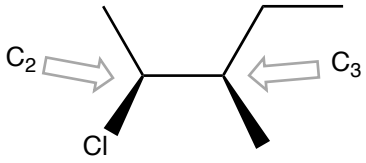
_____

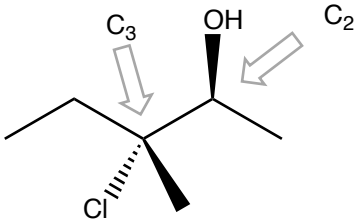
b. 

_____

2. In class, alcohols were described as organic analogs to water.
a. (4 pts.) Draw the skeletal structure of an alcohol (any alcohol).
b. (8 pts.) Describe two ways that alcohols are similar to water. (Noting that alcohol and water are made with similar atoms is not sufficient.)

3. (8 pts.) Draw Newman projections along the C_2 to C_3 bond of the following rotamers.

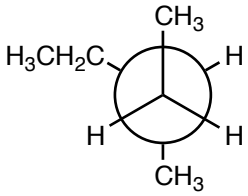
a. 

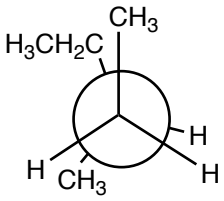
b. 

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

4. The following structures are Newman projections along the C_2 to C_3 bond of 3-methylpentane.

a. (8 pts.) Label the molecules as staggered or eclipsed and label any gauche interactions.

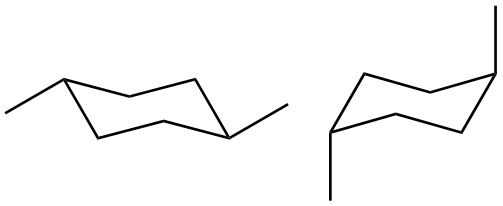




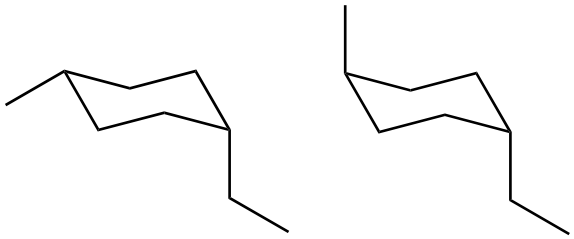
b. (8 pts.) Draw the lowest and highest energy rotamers below.

5. For each pair of structures below (a. 8 pts.) determine whether the structures represent the same or different molecules and (b. 8 pts.) circle the molecule that would be lower in energy.

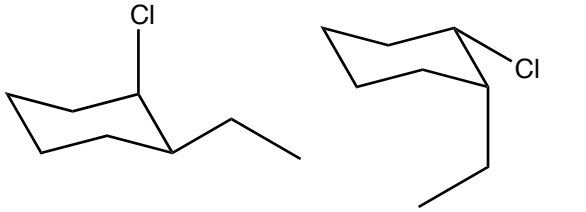
i.



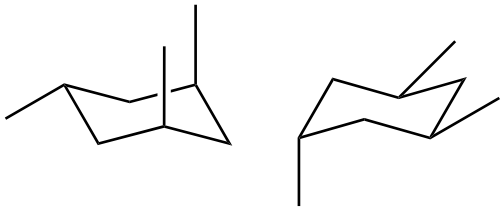
ii.



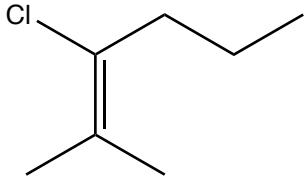
iii.

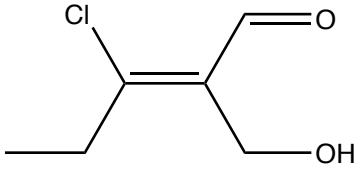


iv.

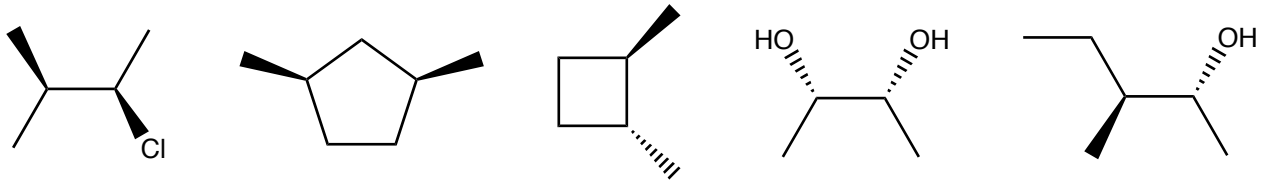


6. (12 pts/) Determine whether the following alkenes are the Z or E isomers. If the molecule doesn't have a Z or E isomer, write "NA".

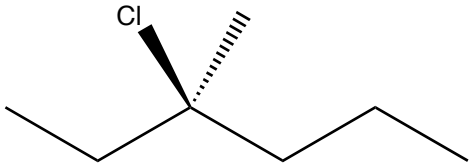


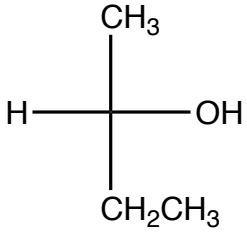


7. (a. 10 pts.) Place a * next to the chirality centers on the following structures, and (b. 10 pts.) circle the chiral molecules.



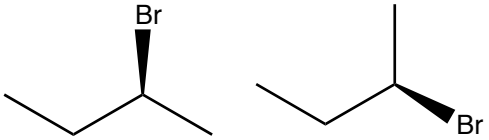
8. (12 pts.) Determine the configuration of the chirality centers in the following structures.



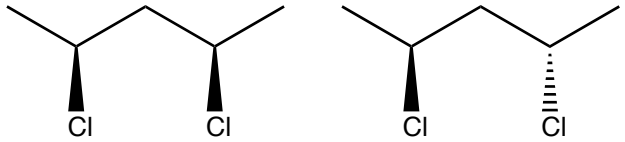


9. (12 pts.) Determine whether the pairs of structures below are enantiomers, diastereomers, or the same structure.

i.

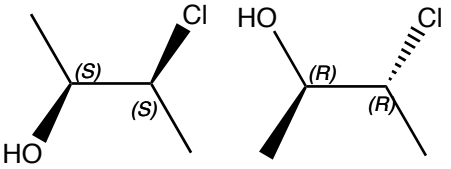


ii.



iii.

iv.

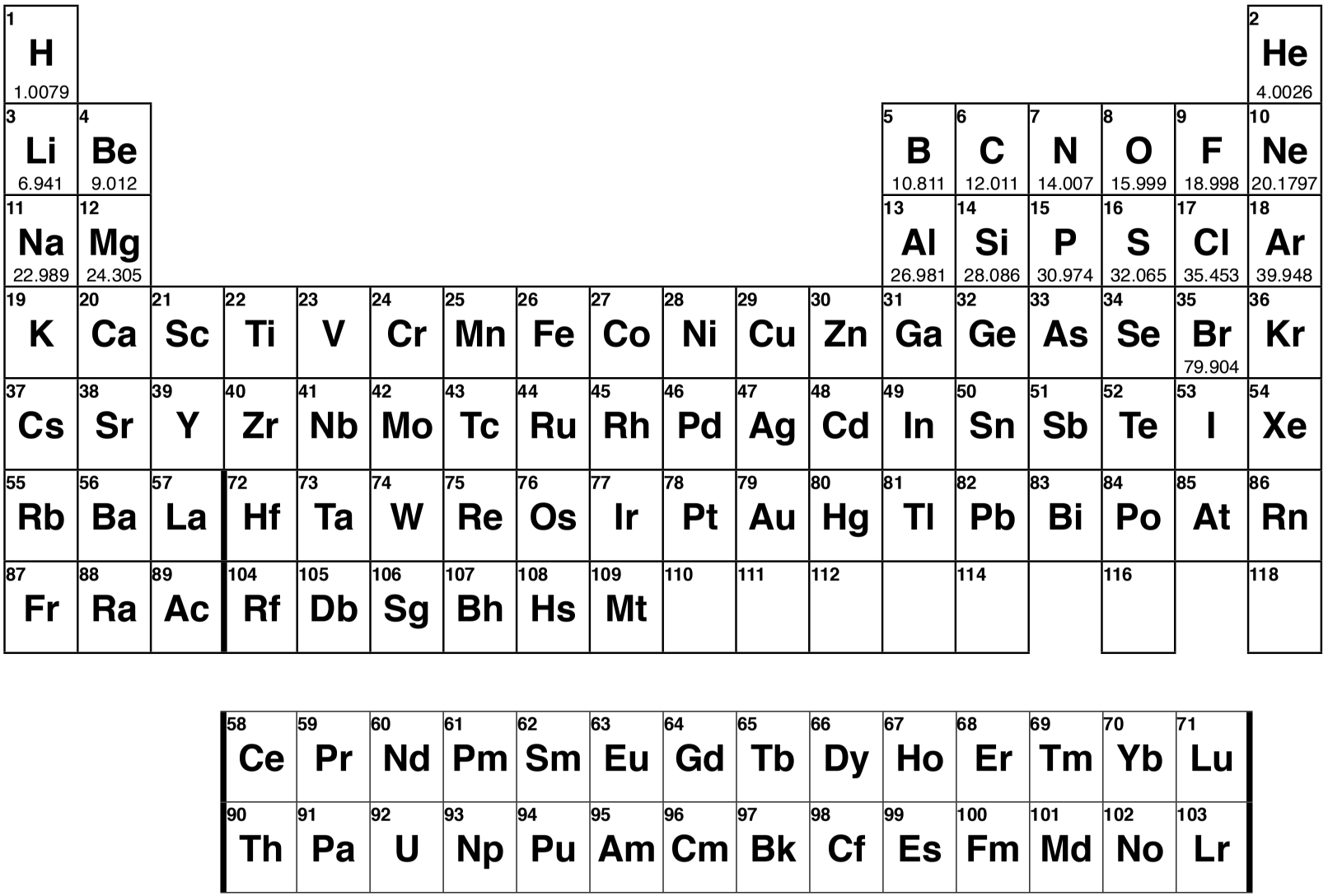


10. (12 pts.) Mark the following “true” or “false”, please use the whole word.
Enantiomers have the same boiling points.

Diastereomers have the same boiling points.

Chiral molecules rotate the plane of polarized light.

Enantiomers rotate the plane of polarized light in opposite directions.


1 H 1.0079
2 He 4.0026
3 Li 6.941
4 Be 9.012
5 B 10.811
6 C 12.011
7 N 14.007
8 O 15.999
9 F 18.998
10 Ne 20.1797
11 Na 22.989
12 Mg 24.305
13 Al 26.981
14 Si 28.086
15 P 30.974
16 S 32.065
17 Cl 35.453
18 Ar 39.948
19 K
20 Ca
21 Sc
22 Ti
23 V
24 Cr
25 Mn
26 Fe
27 Co
28 Ni
29 Cu
30 Zn
31 Ga
32 Ge
33 As
34 Se
35 Br 79.904
36 Kr
37 Cs
38 Sr
39 Y
40 Zr
41 Nb
42 Mo
43 Tc
44 Ru
45 Rh
46 Pd
47 Ag
48 Cd
49 In
50 Sn
51 Sb
52 Te
53 I
54 Xe
55 Rb
56 Ba
57 La
72 Hf
73 Ta
74 W
75 Re
76 Os
77 Ir
78 Pt
79 Au
80 Hg
81 Tl
82 Pb
83 Bi
84 Po
85 At
86 Rn
87 Fr
88 Ra
89 Ac
104 Rf
105 Db
106 Sg
107 Bh
108 Hs
109 Mt
110
111
112
114
116
118
58 Ce
59 Pr
60 Nd
61 Pm
62 Sm
63 Eu
64 Gd
65 Tb
66 Dy
67 Ho
68 Er
69 Tm
70 Yb
71 Lu
90 Th
91 Pa
92 U
93 Np
94 Pu
95 Am
96 Cm
97 Bk
98 Cf
99 Es
100 Fm
101 Md
102 No
103 Lr