Chemistry 277
Exam #2

Name: _____

ID#: _____

Clearly print your name in the space provided.

Clearly print your student ID number in the space provided.

Maintain appropriate security over your exam.

PERIODIC TABLE OF THE ELEMENTS

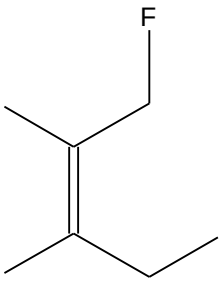
1A																	8A
1 **H** 1.01	2A											3A	4A	5A	6A	7A	2 **He** 4.00
3 **Li** 6.94	4 **Be** 9.01											5 **B** 10.81	6 **C** 12.01	7 **N** 14.01	8 **O** 16.00	9 **F** 19.00	10 **Ne** 20.18
11 **Na** 22.99	12 **Mg** 24.31	3B	4B	5B	6B	7B	8B	8B	8B	1B	2B	13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.07	17 **Cl** 35.45	18 **Ar** 39.95
19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.88	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.93	28 **Ni** 58.69	29 **Cu** 63.55	30 **Zn** 65.39	31 **Ga** 69.72	32 **Ge** 72.61	33 **As** 74.92	34 **Se** 78.96	35 **Br** 79.90	36 **Kr** 83.80
37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.91	40 **Zr** 91.22	41 **Nb** 92.91	42 **Mo** 95.94	43 **Tc** (98)	44 **Ru** 101.07	45 **Rh** 102.91	46 **Pd** 106.42	47 **Ag** 107.87	48 **Cd** 112.41	49 **In** 114.82	50 **Sn** 118.71	51 **Sb** 121.76	52 **Te** 127.60	53 **I** 126.90	54 **Xe** 131.3
55 **Cs** 132.91	56 **Ba** 137.33	57 **La** 138.91	72 **Hf** 178.49	73 **Ta** 180.95	74 **W** 183.85	75 **Re** 186.21	76 **Os** 190.2	77 **Ir** 192.22	78 **Pt** 195.08	79 **Au** 196.97	80 **Hg** 200.59	81 **Tl** 204.38	82 **Pb** 207.19	83 **Bi** 208.98	84 **Po** (209)	85 **At** (210)	86 **Rn** (222)
87 **Fr** (223)	88 **Ra** 226.03	89 **Ac** (227)	104	105	106	107	108	109									

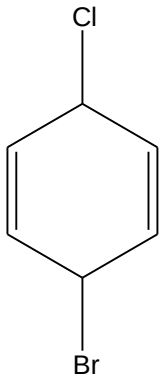
1. Draw all the following compounds. Show three dimensionality when appropriate.

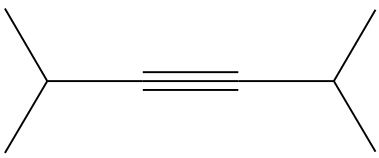
   a) Z-2-bromo-3-methyl-2-pentene

   b) 1,1-Dichloro-2-iodo-ethene

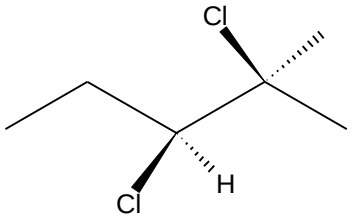
2. Name the following organic molecules.

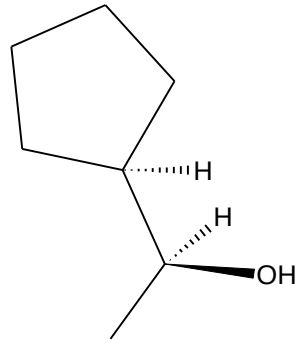


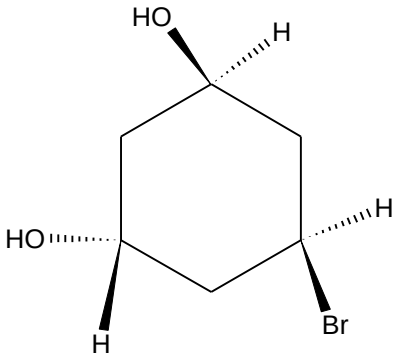


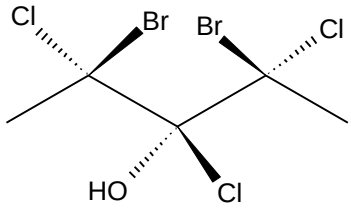


3. Locate all the asymmetric carbon atoms in the following compounds. Determine if each asymmetric carbon is R or S.

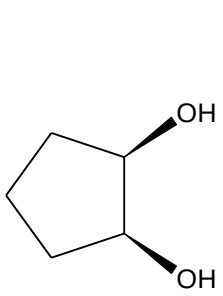


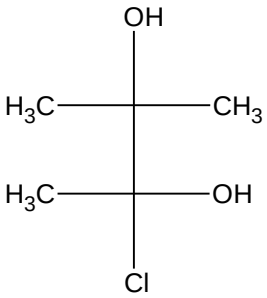


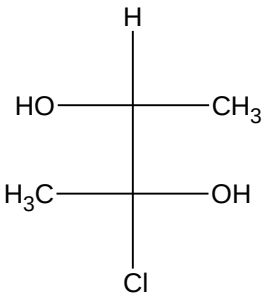


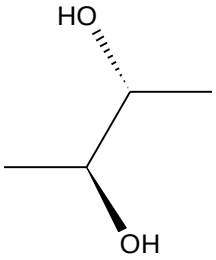


4. For the following compounds, determine if the compound is chiral or achiral. Also identify any meso compounds.

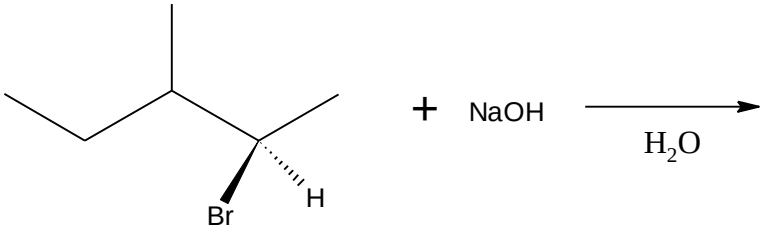


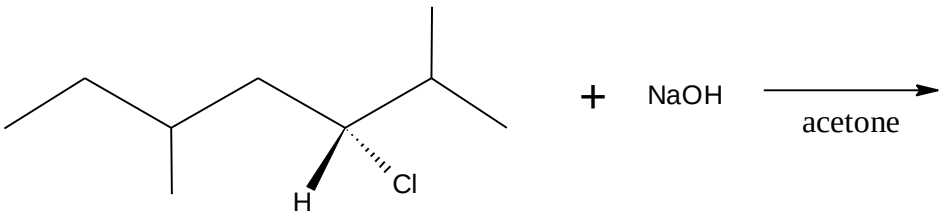




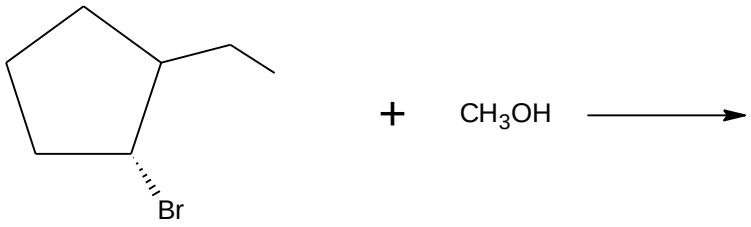


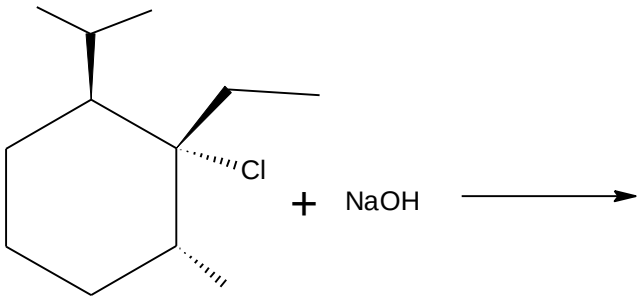
5. For the following nucleophilic substitutions, predict whether the reaction will go by a S_N1 or a S_N2 reaction mechanism as discussed in class. Draw all possible hydrocarbon products, showing three dimensionality when appropriate.



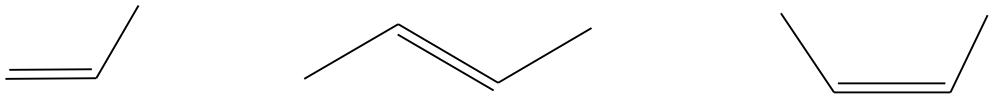


6. For the following β-elimination reactions, predict whether the reaction will go by an E1 or an E2 reaction mechanism as discussed in class. Draw all possible products, showing three dimensionality when appropriate. When there are two or more products, circle the major product.

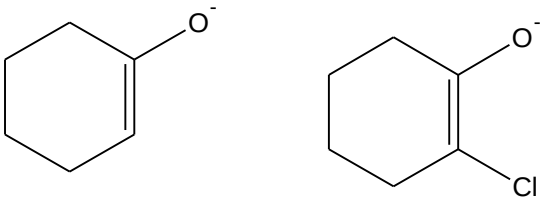




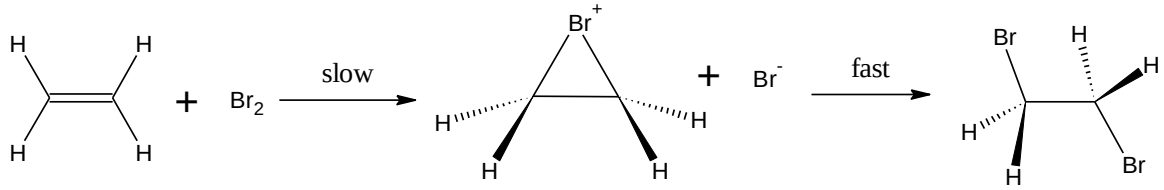
7. Circle the following compounds which would have the highest heat of hydrogenation?



8. Which of the following compounds is more stable and why.



9. For the following exothermic reaction draw the corresponding energy diagram and label the following?



a) Reactants
b) Products
c) Activation energy(s)
d) Heat of Reaction
e) Transition state(s)
f) Intermediate(s)
g) Rate determining step
h) Label values of both axis