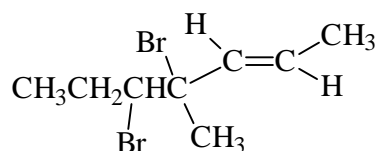


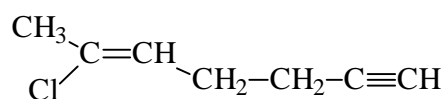
CHEMISTRY 59-135/137**FIRST TEST****Time 50 Min****February 16, 1996**

1. Give an acceptable name for each of the following structures. If stereochemistry is important, make sure your name includes this. [20 points]

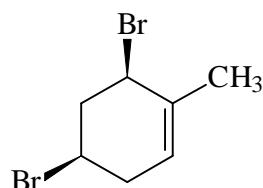
a)



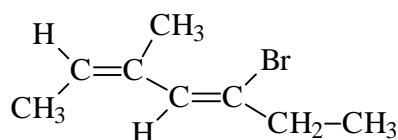
b)



c)



d)



2. Draw the structure which corresponds to each of the following IUPAC names. Make sure your drawing shows all necessary stereochemical details. Structures which show only the carbon and other non-hydrogen atoms are sufficient. [15points]

a) *trans* 1-chloro-3-methylcyclohexane

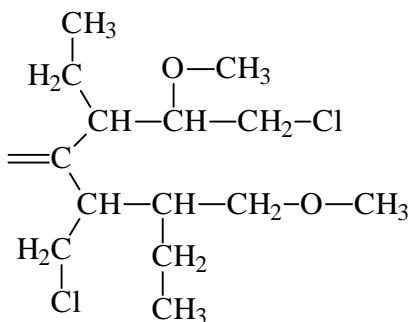
b) 7-bromo-1,2-dimethylcyclohepta-1,4-diene

c) Z 6-bromo-3,6-dichloro-2-octene

3. a) Draw the NEWMAN projection of 2-bromo-3-methylbutane, viewed down the C2-C3 bond, in the conformation which has the most synclinal interactions. [5 points]

b) Draw the 3-D drawing (NOT the Newman projection) of 1-bromo-3-ethylcyclohexane in its least stable chair conformation of its least stable configuration. [10 points]

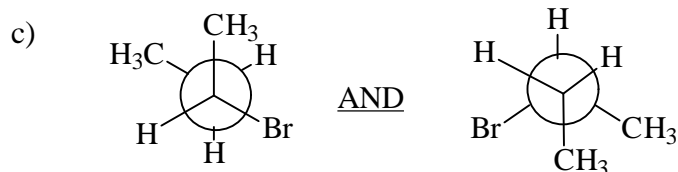
c) Which of the chains in the part structure shown below has a higher priority? Show your reasoning. [5 points]



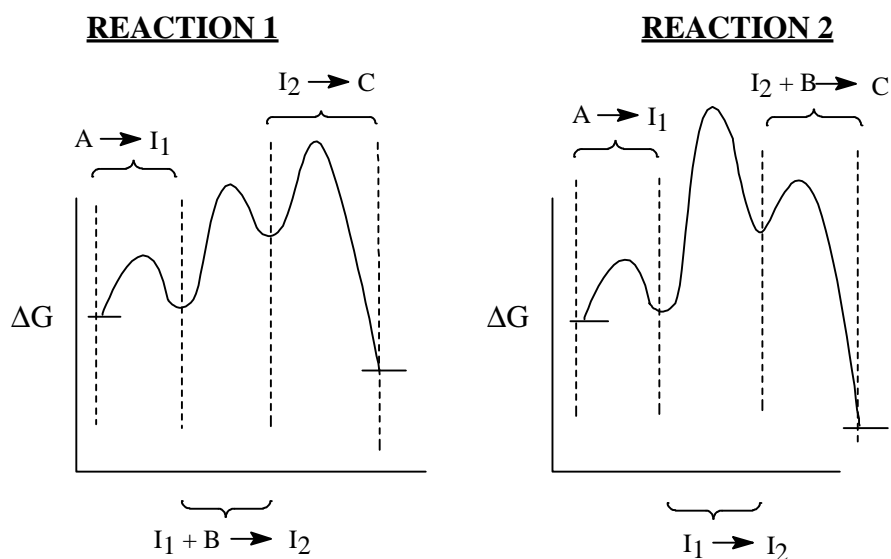
4. Pick the term from the following list (positional isomer, configurational isomer, conformational isomer, none of the above) which correctly describes the relationship between the following pairs of compounds. [5points each]

a) Z 3-chloro-3-heptene AND *trans* 3-chloro-3-heptene

b) a cyclohexane ring which has an axial chlorine atom on carbon number 1 and an equatorial chlorine atom on carbon 4, and an equatorial methyl substituent on carbon 2 AND the same molecule in which both the chlorines are equatorial and the methyl group is equatorial.



5. The two axes below describe the energy changes which occur in two different pathways leading to the reaction $A+B \rightarrow C$. The changes which are occurring in each part of the reactions are labelled. [18 points]

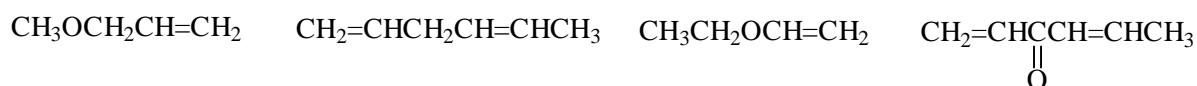


- which reaction proceeds faster?
- which reaction has the most mechanistic steps?
- which reaction follows second order kinetics?

(continued next page)

- d) which reaction has a larger equilibrium constant?
 e) which reaction is more exothermic?
 f) which reaction has more intermediates?

6. a) Circle those structures in the list below which are capable of being stabilized by resonance. In each one you identify, draw one other valid resonance form. [6 points]



- b) In the equations shown below, use "curly arrows" to show the movement of electrons which leads to the indicated product and. show the charges (if any) on the atoms of the product. [6 points]

