

Name: _____

Date of Lab Section: _____

PRELAB for CHEM 321 Workshop #1:
Organic Chemistry Nomenclature and Chair Modeling

DUE on Tuesday during discussion in the fourth week of the semester
If you have questions, please ask them early.

Answers to the following questions come from the “Organic Chemistry Nomenclature and Chair Modeling,” “Organic Chemistry Functional Groups, Examples, and IUPAC Endings,” and your text book. This prelab is worth SIX points.

(0.30 EACH, 3.6 points TOTAL) TRUE or FALSE: Put T or F in the blank. If the statement is false, make it true by crossing out word(s) and replacing it (them).

1. ___ The longest continuous carbon chain may not be in a straight line.
2. ___ The prefix used for a continuous eight carbon chain is “hex.”
3. ___ All substituents must end with “yl.”
4. ___ When alphabetizing substituents with an “iso” prefix always alphabetize using the “iso” prefix.
5. ___ Always give the highest possible locant number for all substituents, nitriles, alcohols, and double and triple bonds.
6. ___ If there are two or more of the same substituents, then use prefixes, like “di” and “tri,” to indicate the number of identical substituents.
7. ___ If a compound contains an alkene and an alkyne, then use “ene-yne” as the ending.
8. ___ The IUPAC functional group ending for an alcohol is –al, and the functional group ending for an ester is –er.
9. ___ If the two non hydrogen groups on the double bond are pointing in opposite directions, then the double bond is called trans.
10. ___ If the two highest priorities are pointing in the same direction on the double bond, then the double bond is called E.
11. ___ When the group “d” is pointing away from the viewer, the counter-clockwise progression of groups “a” through “c” is R.
12. ___ When drawing a chair model, substituents which point directly up or down are called axial.

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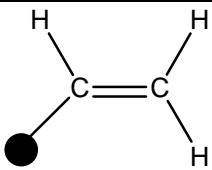
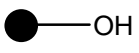
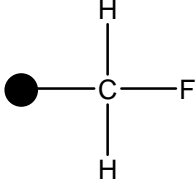
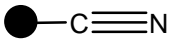
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(0.1 each, 1.2 point TOTAL) Given the following four possible substituents, use the rules for the Cahn-Ingold-Prelog System and the banking analogy given in "Organic Chemistry Nomenclature and Chair Modeling handout" to figure out what is the ranking order for these substituents.

● is the point of attachment (i.e. the chiral carbon)

To do this task, answer the following questions:

- How much spending cash can be given to the banker on the first atom away from the point of attachment?
- Does any substituent already out rank the others? If so, which one?
- How much spending cash would be given to the banker for the atoms that are two places away from the point of attachment?
- What is the overall rank of the substituents?

Substituent	Banker owed on first move	Check (✓) which, if any, already has the highest rank?	Banker owed on second move	Overall rank of substituents
				
				
				
				

(0.6 point EACH, 1.2 point TOTAL) Draw the two chair forms of cyclohexane including all hydrogens and label a couple of the hydrogens as either axial or equatorial hydrogens. Use your textbook for assistance.