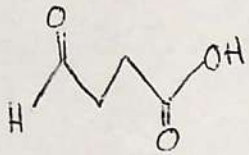
Name: _____ Date: _____ Pd: _____

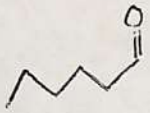
Nomenclature Practice WS #1:

Stereoisomerism	Substituents	Parent Chain	**Unsaturation**	**Functional Group**

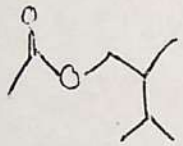
1. For the following molecules, first circle, then label the functional group(s) present. Place the name that would be used for the suffix of the molecule's name on the line below the molecule *(even if there is no functional group, there is still a suffix you would use).*

a) 

_____

b) 

_____

c) 

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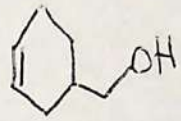
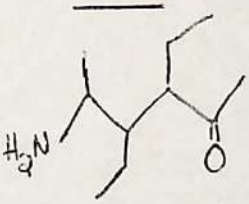
d) 

_____

e) 

_____

f) 

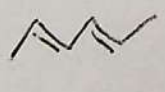
_____

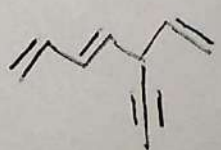
2. For **single** bonds use : _____ For **double** bonds use: _____ For **triple** bonds use: _____

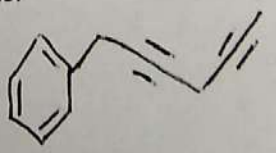
3. The prefixes for multiple double and triple bonds are as follows:

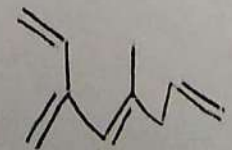
   a. 2 = _____
   b. 3 = _____
   c. 4 = _____
   d. 5 = _____
   e. 6 = _____

4. For the following molecules, write the name for the level of unsaturation. *Make sure to include prefixes for multiple numbers of double and triple bonds.*

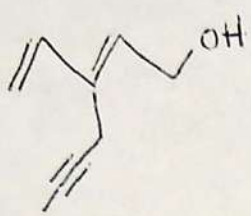
a) 
_____

b) 
_____

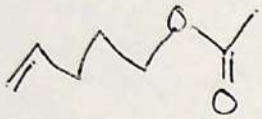
c) 
_____

d) 
_____

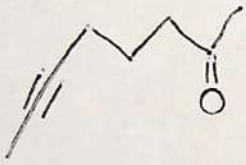
5. **Label** the functional group(s) in each molecule. Place the correct suffix for the functional group on the <u>right</u> line. Place the correct level of unsaturation for single, double, and/or triple bonds on the <u>left</u> line.

a) 

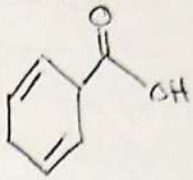
_____ _____

b) 

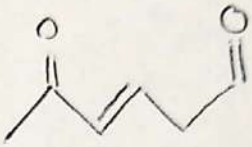
_____ _____

c) 

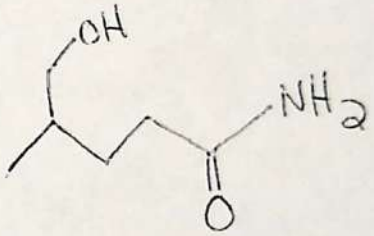
_____ _____

d) 

_____ _____

e) 

_____ _____

f) 

_____ _____

6. Draw a bond-line drawing for a molecule that contains the following functional group(s) and bond types. ✱ be creative!

a) <u>dien al</u>

b) <u>an oic acid</u>

c) <u>tetraen diyn ol</u>

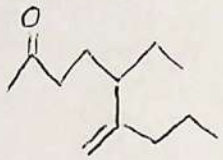
d) <u>triyn oate</u>

Name: _____ Date: _____ Pd: _____

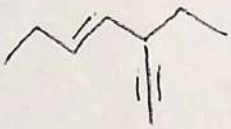
Nomenclature Practice WS #2:

Stereoisomerism	**Substituents**	**Parent Chain**	Unsaturation	Functional Group

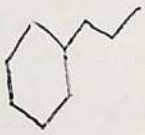
1. For the following molecules, circle the parent chain and write the appropriate root name on the line below the molecule.

a) 

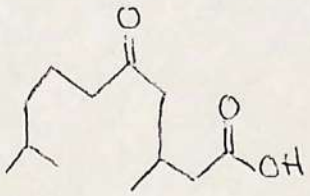
_____

b) 

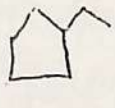
_____

c) 

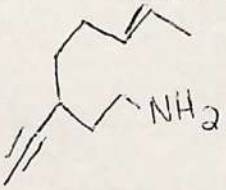
_____

d) 

_____

e) 

_____

f) 

_____

2. The prefixes for the root name of the **parent chain** are as follows:

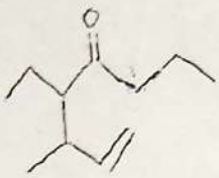
a. 1 = _____
b. 2 = _____
c. 3 = _____
d. 4 = _____
e. 5 = _____
f. 6= _____
g. 7 = _____
h. 8 = _____
i. 9 = _____
j. 10 = _____

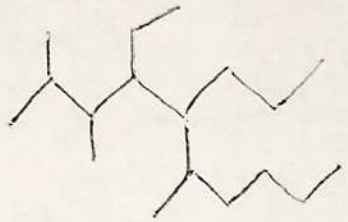
3. For **substituents we add** _____ at the end of the number of carbons that are attached.

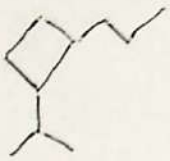
4. When the following functional groups **are substituents** we use these names:

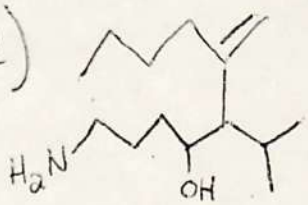
a. alcohol = _____
b. ketone = _____
c. amine = _____
d. aldehyde = _____

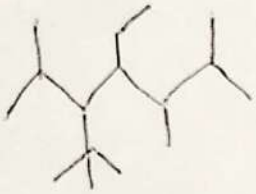
5. For the following molecules, circle, then write the name for each substituent. *Make sure to include prefixes for multiple numbers the same substituent.*

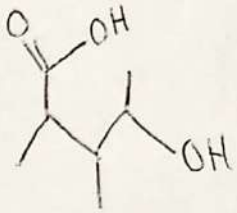
a) 

d) 

b) 

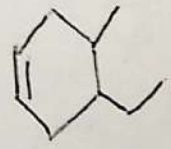
e) 

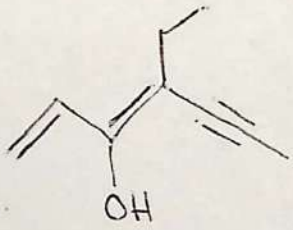
c) 

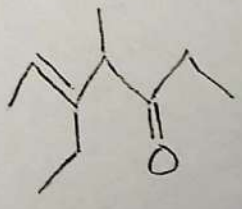
f) 

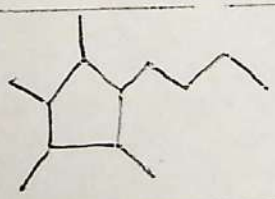
Putting everything together....

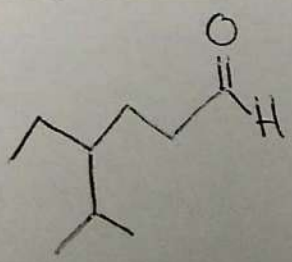
6. **Label** the functional group(s) in each molecule. Place the correct suffix for the functional group on the 4th line. Place the correct level of unsaturation for single, double, and/or triple bonds on the 3rd line. Place the root name for the parent chain on the 2nd line. Place the names of the substituent(s) on the 1st line.

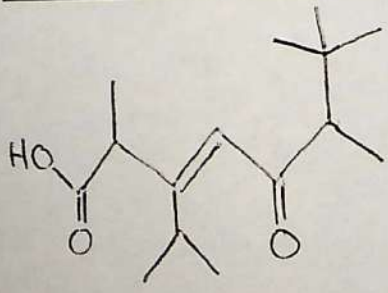
a) 

d) 

b) 

e) 

c) 

f) 

Name: _____ Date: _____ Pd: _____

Nomenclature Practice WS #3:

Stereoisomerism	Substituents	Parent Chain	Unsaturation	Functional Group

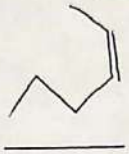
1. For the following molecules, label the double bond as **cis** or **trans**.

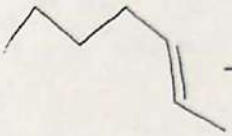
a)  _____

c)  _____

e)  _____

b)  _____

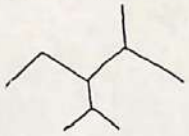
d)  _____

f)  _____

2. Name the following **alkanes** (molecules with all single bonds).

a) 

_____

c) 

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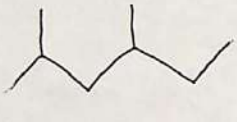
b) 

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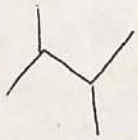
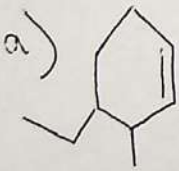
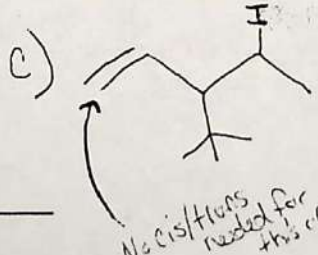
d) 

_____

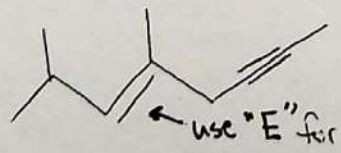
3. Name the following **alkenes** and **alkynes** (molecules with double and triple bonds).

a) 

_____

c) 

_____

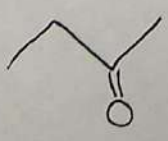
b) 

_____

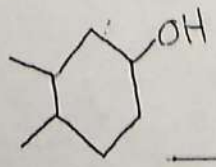
d) 

_____

4. Name the following molecules that contain **functional groups**.

a) 

_____

c) 

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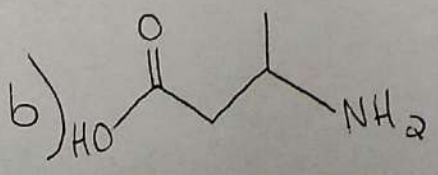
b) 

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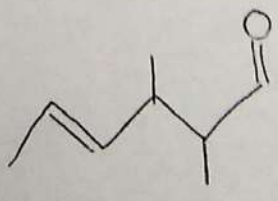
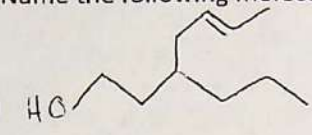
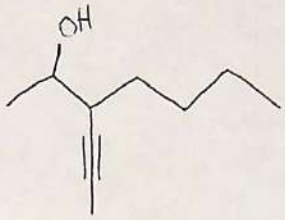
d) 

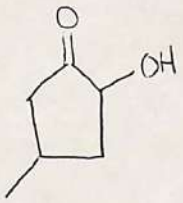
_____

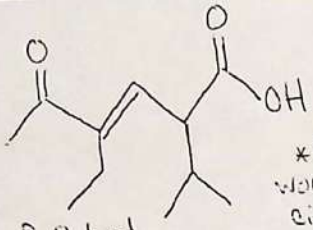
5. Name the following molecules using the IUPAC system.

a) 

d) 

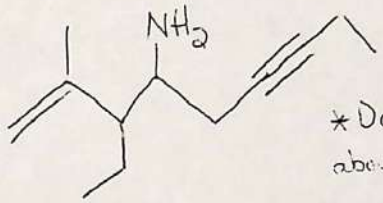
b) 

e) 

c) 

*use "E" for stereoisomerism of 2x bond

*Do NOT worry about cis/trans here

f) 

*Do NOT worry about cis/trans here

6. Use the following names to draw the bond-line structures of the corresponding molecule.

b/c no "1" is shown, we assume it

a) 2-propylpentan-1-oic acid

d) 2-hydroxy-3-keto-4-methylheptanal

b) trans-4,5-dichloro-6,6-dimethyl hept-4-en-2-one

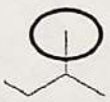
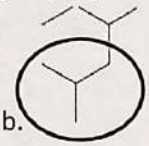
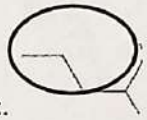
c) 4,4-diethyl-2-methylcyclohex-2,5-dien-1-one

Chp 5: Nomenclature (O-Chem) #4

Name: _____ Date: _____ Pd: _____

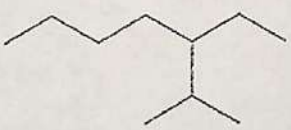
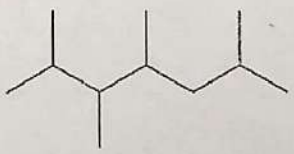
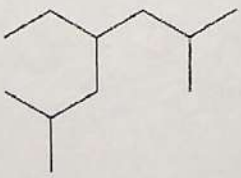
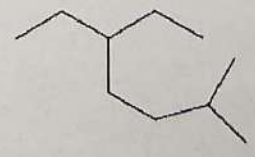
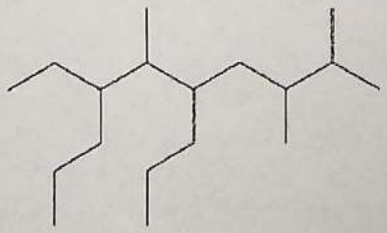
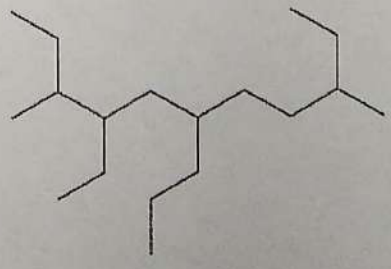
1. Draw the following molecules from their IUPAC names:
   a. 2-methylpentane
   b. 4-ethyl-2-methylhexane
   c. 3-ethyl-3-methylheptane
   d. 2,2,3-trimethylbutane

2. Label the following subsituent groups: (Remember to change the ending of the name to "-___")

a. 
b. 
c. 

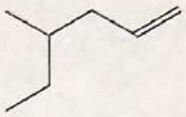
3. Name each of the following alkanes using the IUPAC system.

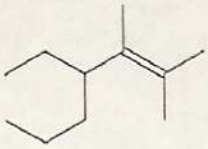
Hint: *you want the longest chain w/ the most substituents

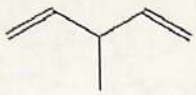
a) 
b) 
c) 
d) 
e) 
f) 

*Hint: 11 carbons is called "undec"

4. Name each of the following molecules:

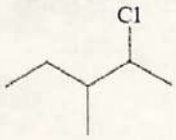
a. 

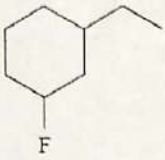
b. 

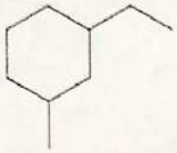
c. 

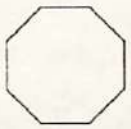
d. $CH_3C{\equiv}C{-}C{\equiv}C{-}C{\equiv}CCH_2CH_3$

e. 

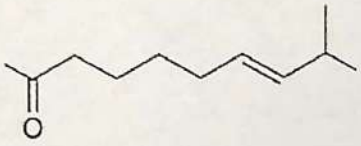
f. 

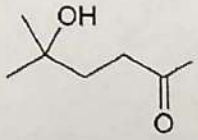
g. 

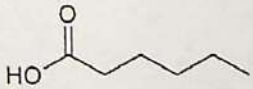
h. 

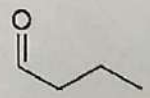
i. 

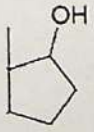
5. Name the following molecules that contain functional groups:

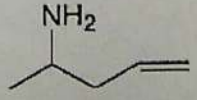
a. 

b. 

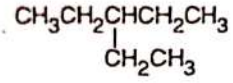
c. 

d. 

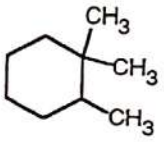
e. 

f. 

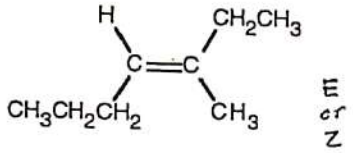
Name these Beasties! #5



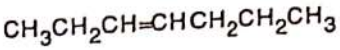
1. _____



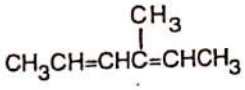
2. _____



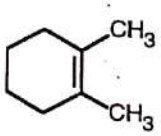
3. _____



4. _____

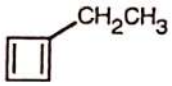


5. _____



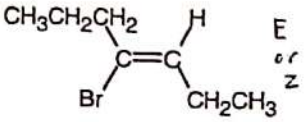
6. _____

7. _____



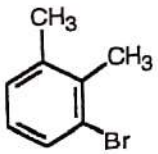
8. _____

9. _____

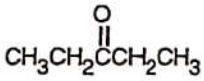


10. _____

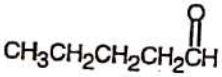
11. _____



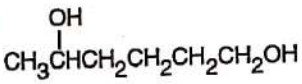
12. _____



13. _____



14. _____



15. _____

Draw these Beasties!

16. 2,2–Dimethylbutane

17. 3,3,4,4–Tetramethylcyclobutene

18. 1,2–Dimethyl–1,4–cyclohexadiene

19. Methylcyclopropane

20. 4–Propyl–5–hepten–1–yne

21. 4,4–Dimethylcyclohexanol

22. 2,3–Dimethylcyclopentene

23. 2–Ethyl–1–butene

24. 1,5–Heptadiyne

25. *o*–Bromophenol

26. *m*–Chlorotoluene

27 3,4–Dimethylcyclodecyne